

Curriculum Maps 2016-2017

▷ Supporting Advanced Learners Toward Achievement ◀

SALTA

4th

Grade

- English Language Arts
- Math
- Content Integration



CANYONS
School District

CURRICULUM MAP CANYONS SCHOOL DISTRICT

Curriculum Mapping Purpose

Canyons School District's curriculum maps are standards-based maps driven by the Utah Core Standards and implemented using Pearson Reading Street for ELA and enVision 2.0 for mathematics. Student's achievement is increased when both teachers and students know where they are going, why they are going there, and what is required of them to get there.

Curriculum Maps are a tool for:

- **ALIGNMENT:** Provides support and coordination between concepts, skills, standards, curriculum, and assessments
- **COMMUNICATION:** Articulates expectations and learning goals for students
- **PLANNING:** Focuses instruction on standards and targeted skills
- **COLLABORATION:** Promotes professionalism and fosters dialogue between colleagues about best practices pertaining to sequencing, unit emphasis and length, integration, and review strategies
- **SCAFFOLDED INSTRUCTION AND GROUPING STRUCTURES:** The organization of a scaffolded classroom includes whole group, small group (e.g., teacher-led skill-based, cooperative learning), partner, and independent work where students are provided support towards mastery. As students assume more responsibility for the learning, gradual support is decreased in order to shift the responsibility for learning from the teacher to the students.

Table of Contents

School Year Calendar	page 1
Instructional Framework	page 2
Standards-based Instructional Cycle	page 3
Instructional Priorities	page 4-17
Master Schedule	page 18-22
Assessment Calendar	page 23
CSD Assessment System	page 24-26
CSD Screening Targets	page 27-32
Progress Monitoring	page 33
Advanced Learner Services Description	page 34
SALTA Focus	page 35
SALTA Individualized Learning Plan	page 36-44
Homework—What Works	page 45
Classroom Structured Interactions	page 46
Academic Language	page 47-48
Depth of Knowledge (DOK)	page 49-60
WIDA Standards and Proficiencies	page 61-68
International Society for Technology in Education (ISTE) Standards	page 69-70

2016 - 2017 School Year Calendar K - 12

August 2016							September 2016							October 2016						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3							1
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22
28	29	30	31				25	26	27	28	29	30		23	24	25	26	27	28	29
														30	31					
November 2016							December 2016							January 2017						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5					1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
27	28	29	30				25	26	27	28	29	30	31	29	30	31				
February 2017							March 2017							April 2017						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4				1	2	3	4							1
5	6	7	8	9	10	11	5	6	7	8	9	10	11	2	3	4	5	6	7	8
12	13	14	15	16	17	18	12	13	14	15	16	17	18	9	10	11	12	13	14	15
19	20	21	22	23	24	25	19	20	21	22	23	24	25	16	17	18	19	20	21	22
26	27	28					26	27	28	29	30	31		23	24	25	26	27	28	29
														30						
May 2017							June 2017													
S	M	T	W	T	F	S	S	M	T	W	T	F	S							
	1	2	3	4	5	6					1	2	3							
7	8	9	10	11	12	13	4	5	6	7	8	9	10							
14	15	16	17	18	19	20	11	12	13	14	15	16	17							
21	22	23	24	25	26	27	18	19	20	21	22	23	24							
28	29	30	31				25	26	27	28	29	30								

(Note: School emergency closure days will be made up first on Presidents Day and then during Spring Recess)

- | | |
|--|--|
| <ul style="list-style-type: none"> New Teacher Orientation Teachers at School (contract days) Start and End of School Year First Day of School for Kindergarten K-8 Trimester End Midterm Quarters Quarter Term End | <ul style="list-style-type: none"> No Student Day No Student Day K-8 Parent/Teacher Conferences |
|--|--|
- Red A Day
Black B day

- New Teacher Orientation Aug 18
- Teachers at School (Contract Days) Aug 19, 22, 23
- First Day of School Aug 24
- First Day of School for Kindergarten Aug 29
- Labor Day Recess Sept 5
- No Student Day Sept 23
- Midterm Quarter Sept 23
- Parent/Teacher Conferences High Schools Sept 26, 27
- Parent/Teacher Conferences Middle Schools Sept 27, 28
- Parent/Teacher Conferences Elementary Schools Sept 28, 29
- Early Out Elementary Schools Sept 29
- No Student Day (Compensatory Day) Sept 30
- Fall Recess Oct 20, 21
- End of 1st Quarter Term Oct 31
- No Student Day Nov 4
- Trimester End Date K-8 Nov 21
- Thanksgiving Recess Nov 23 - 25
- Midterm Quarter Dec 7
- Winter Recess Dec 22-Jan 2
- Martin Luther King Jr. Day Recess Jan 16
- End of 2nd Quarter Term Jan 18
- No Student Day Jan 20
- No Student Day Feb 10
- Parent/Teacher Conferences High Schools Feb 13, 14
- Parent/Teacher Conferences Middle Schools Feb 14, 15
- Parent/Teacher Conferences Elementary Schools Feb 15, 16
- Early Out Elementary Schools Feb 16
- No Student Day (Compensatory Day) Feb 17
- Presidents' Day Recess Feb 20
- Midterm Quarter Feb 22
- Trimester End Date K-8 Mar 2
- End of 3rd Quarter Term Mar 27
- Spring Recess Apr 3 - 7
- Midterm Quarter May 5
- Memorial Day Recess May 29
- No Student Day Grades K-8 Jun 2
- Last Day of School Jun 7

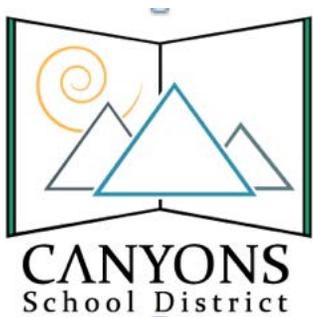
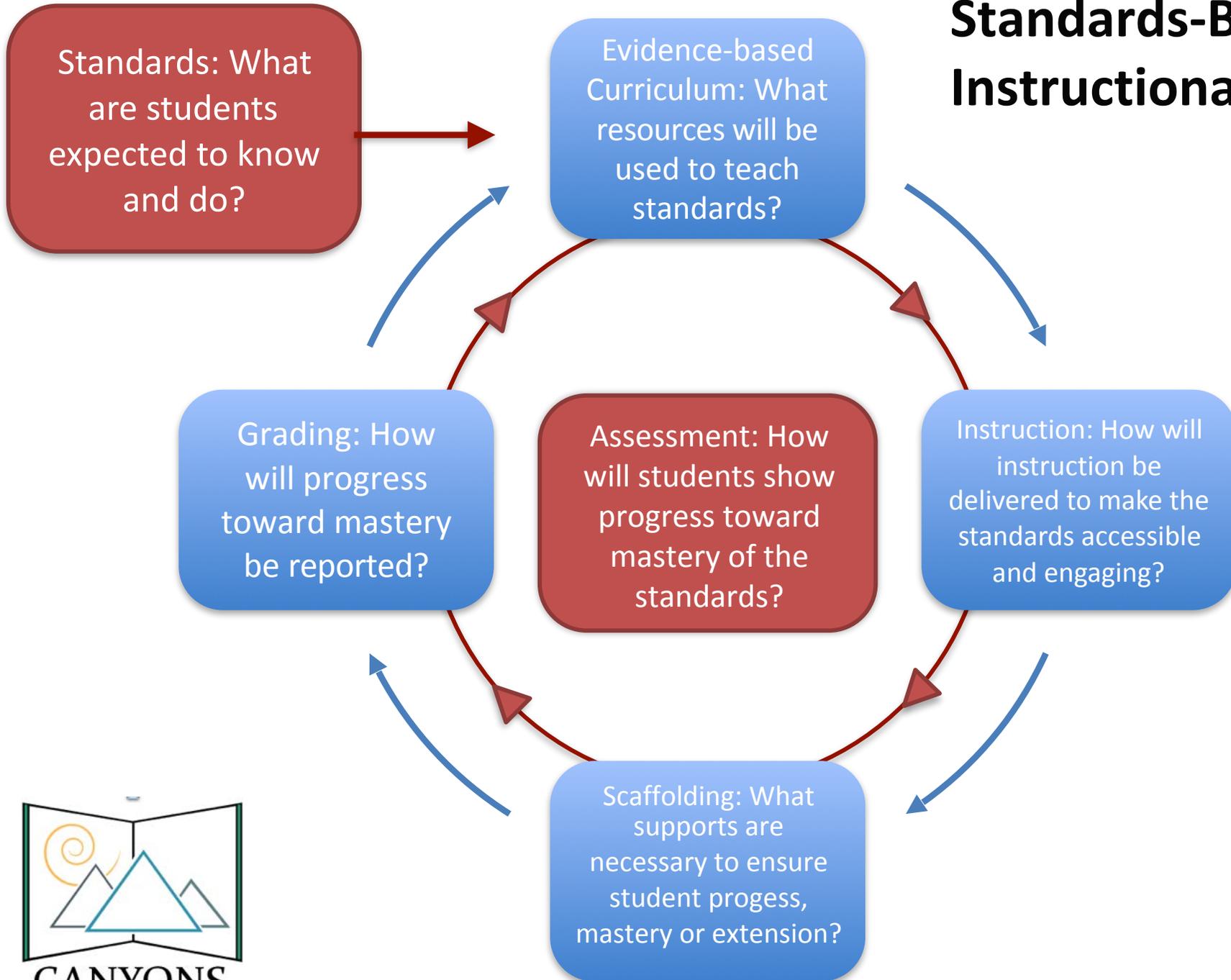
*Every Friday is an Elementary Student Early Out Day
 **June 2 Directed Data Day for elementary and middle schools only
 ***Elementary early out Sept 29 and Feb 16
****This calendar is not for Brighton students.

Canyons School District Academic Framework to Support Effective Instruction

Multi-Tiered System of Supports (MTSS) for Academics and Behavior			
Multi-Tiered System of Support	(1) Providing high quality core instruction (and intervention) matched to students' needs	(2) using data over time (i.e. rate of learning, level of performance, fidelity of implementation)	(3) to make important educational decisions.
 Student Achievement Principles	<ul style="list-style-type: none"> All CSD students and educators are part of ONE proactive educational system. Evidence-based instruction and interventions are aligned with rigorous content standards. 	<ul style="list-style-type: none"> Data are used to guide instructional decisions, and allocate resources. CSD educators use assessments that are reliable, valid, and connected to standards 	<ul style="list-style-type: none"> CSD educators problem solve collaboratively to meet student needs.
<ul style="list-style-type: none"> Culture centers around building positive relationships, setting high expectations, and committing to every student's success. Ongoing, targeted, quality professional development and coaching supports effective instruction for ALL students. Leadership at all levels is vital. 			

Core Expectations for ALL Teachers in the Classrooms and Common Areas					
Standards for Instruction	Evidence-based Instructional Priorities	Time Allocation for Instruction	Teacher Learning Data	Student Performance Data	Collaborative Problem Solving for Improvement
Standards clarify what we want students to learn and do.	Planning, instruction, and assessment techniques to increase student engagement and achievement.	School culture ensures that instructional time is maximized to increase student growth.	Teacher learning and professional growth fostered through public practice and ongoing feedback.	Student academic and behavioral performance is assessed using a variety of reliable and valid methods.	Use data to problem solve and make decisions
Curriculum maps with common pacing guides Instructional content aligned with the Utah Core Standards Scientifically research-based programs Standards-based grades and report cards Cognitive Rigor (Depth of Knowledge – DOK) International Society for Technology in Education Standards (ISTE) School-wide Positive Behavioral Interventions and Supports (PBIS) World-class Instructional Design and Assessment (WIDA) Federal and state requirements (IEP, 504, ELs)	Classroom Positive Behavioral Interventions and Supports (PBIS) Explicit Instruction (I, We, Y'all, You) Instructional Hierarchy: Acquisition, Automaticity, Application (AAA) Systematic Vocabulary Development Maximizing Opportunities to Respond (OTR) Feedback Cycle Scaffolded Instruction & Grouping (SIG) Structures	Master schedule takes into consideration the learning needs of the student population. Scheduling is ensured for: <ul style="list-style-type: none"> Intervention and skill-based instruction Special Education services English Language Development (ELD) Classroom instructional time is prioritized for instruction of standards Individual and team planning time is used to intentionally increase the application of evidence-based instructional priorities and standards for instruction	Annual setting of goals and documentation of progress (e.g. CSIP, LANDTrust, CTESS) Supporting teacher growth Formalized protocols and checklists to monitor and support implementation Public practice applications: <ul style="list-style-type: none"> Coaching cycles with peer coaches, teacher specialists, achievement coach, and/or new teacher coach Instructional Professional Learning Communities (IPLCs) Learning walkthroughs and targeted observations Lesson Study Video Analysis 	Assessment practices: <ul style="list-style-type: none"> Inform instruction Provide feedback about learning to students, parents, and teachers Build student efficacy Monitor student achievement and behavioral growth Celebrate teaching and learning successes Assessment Types: <ul style="list-style-type: none"> Classroom Assessing Teams and Schoolwide Assessment Districtwide Standards-based Benchmarks Comprehensive Assessments Screening Assessments (DIBELS, SRI, SMI) Specialized Assessments (WIDA, IDEA, eligibility assessment, Phonics surveys) 	Problem solving process: identify, analyze, plan, and evaluate Early warning system for identification of risk (academic, behavior, and attendance) Timely and consistent review of relevant data by teams (e.g. BLT, IPLC, CST): <ul style="list-style-type: none"> Evaluate effectiveness of academic and behavior instruction for all groups of students using valid and reliable data (student and teacher data) Determine needs for academic and behavior intervention

Standards-Based Instructional Cycle



INSTRUCTIONAL PRIORITIES

Techniques to Increase Student Achievement and Engagement

Classroom Positive Interventions & Supports (PBIS)

Effect Size: .52

Explicit Instruction (I do, We do, Y'all Do, You do)

Effect Size: .57

Instructional Hierarchy (Acquisition, Automaticity, Application)

Effect Size: .57

Systematic Vocabulary Development

Effect Size: .67

Maximizing Opportunities to Respond (OTR)

Effect Size: .60

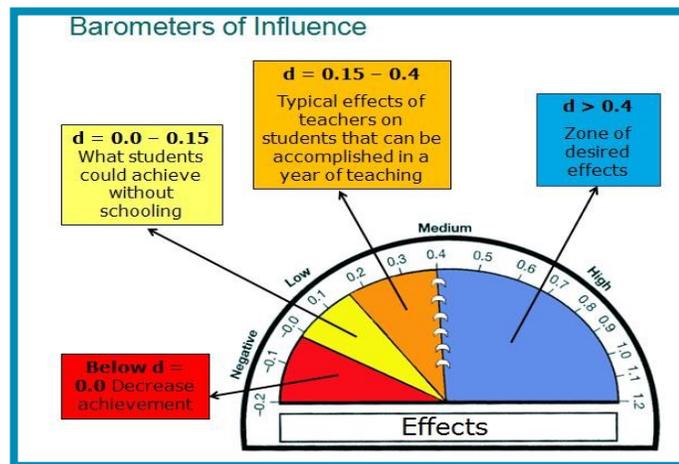
Feedback Cycle

Effect Size: .75

Scaffolded Instruction & Grouping

Effect Size: .49

Our time with students is limited and valuable. Every minute we spend with them should be spent using the practices that are most likely to be successful. This requires us to shift our perspective from looking at instructional practices that work to looking at what instructional practices work BEST.



Works Best?

Meta-analysis offer the strongest evidence base for determining what works best. "A Meta-analysis is a summary, or synthesis of relevant research findings. It looks at all of the individual studies done on a particular topic and summarizes them." (Marzano, 2000). A meta-analysis is simply, a study of studies. Meta-analysis explain the results across studies examined using effect size (ES). Average effects for instruction is 0.20 to 0.40 growth per year (Hattie, 2009). Thus the hinge point for determining what works best is 0.40. Instructional practices above the 0.40 have a high likelihood of increasing learning than those practices below the hinge-point (Hattie, 2009).



INSTRUCTIONAL PRIORITIES

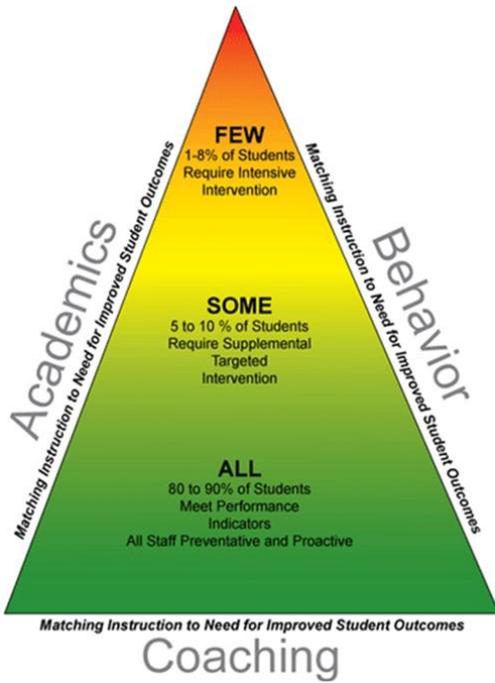
Techniques to increase Student Achievement and Engagement

Overview

Priority	Critical Actions for Educators
Classroom Positive Behavioral Interventions and Supports (PBIS)	<ul style="list-style-type: none"> *Clearly identify behavior expectations and explicitly teach them to your students. *Implement reinforcement system for appropriate behavior and routinely evaluate the system for effectiveness. *Recognize students for positive behavior. *Systematically correct problem behaviors.
Explicit Instruction (I do, We do, Y'all do, You do)	<ul style="list-style-type: none"> *Give clear, straightforward, and unequivocal directions. *Explain, demonstrate and model. Introduce skills in a specific and logical order. Support this sequence of instruction in your lesson plans. *Break skills down into manageable steps. Review frequently. *Demonstrate the skills for students and give opportunity to practice skills independently.
Instructional Hierarchy: Acquisition, Automaticity, then Application (AAA)	<ul style="list-style-type: none"> *Explicitly teach a skill to students by explaining, demonstrating, and modeling. *Build the skill through practice and use, to gain automaticity. *Provide students with multiple opportunities to apply the skill.
Systematic Vocabulary Development	<ul style="list-style-type: none"> *Explicitly teach critical vocabulary before students are expected to use it in context. *Teach students to say, define, and use critical vocabulary in discreet steps. *Explicitly teach common academic vocabulary across all content areas.
Maximizing Opportunities to Respond (OTR)	<ul style="list-style-type: none"> *Actively engage ALL students in learning; students are active when they are saying, writing, or doing. *Pace instruction to allow for frequent student responses. *Call on a wide variety of students throughout each period.
Feedback Cycle	<ul style="list-style-type: none"> *Provide timely prompts that indicate when students have done something correctly or incorrectly. *Give students the opportunity to use the feedback to continue their learning process. *End feedback with the student performing the skill correctly and receiving positive acknowledgement.
Scaffolded Instruction and Grouping Structures	<ul style="list-style-type: none"> *Present information at various levels of difficulty. *Use data to identify needs and create small groups to target specific skills. *Frequently analyze current data and move students within groups depending on their changing needs.

CLASSROOM PBIS

Effect Size: 0.52



The heart of classroom management is developing routines and organizing environments that promote student success through the active teaching of positive social behaviors.

A well-implemented positive classroom management system will:

- Increase positive behavior in students
- Help students feel more positive towards their teacher, administrator and school
- Help students feel safer in school
- Increase time for academic instruction and decrease teacher time spent correcting problem behaviors

PBIS, or Positive Behavioral Interventions and Supports, is an evidence-based system that helps define the key components of a well-managed classroom. The key components include:

- Clearly establishing classroom rules
- Explicitly teaching rules
- Reinforcing positive behaviors and correcting negative behaviors
- Creating a supportive classroom

Critical Actions for Educators

- *Clearly identify behavior expectations and explicitly teach them to students.
- *Implement reinforcement system for appropriate behavior and routinely evaluate the system for effectiveness.
- *Recognize students for positive behavior.
- *Systematically correct problem behaviors.



CLASSROOM PBIS

Effect Size: 0.52

Key Component	Definition
<p>Clearly Establishing Student Rules</p>	<ul style="list-style-type: none"> • Select 3-5 positively stated and easily remembered rules that align with the school- wide rules <ul style="list-style-type: none"> • For example: If the school-wide rules are to Be Safe, Be Kind, Be Responsible. It is appropriate to adopt these same rules for your classroom, and add one or two additional rules that fit the needs of your setting if necessary. It is important to explicitly describe what these rules look like in your classroom. • Publicly post rules in the classroom in a prominent location. • Determine which routines are needed for your classroom (a routine is a set of skills explicitly taught to students to help them be successful with following the rules). Examples may include: <ul style="list-style-type: none"> • Walking in the hallway • Classroom exit • Starting and ending class • Sharpening pencils • Going to the restroom • Transitioning from one activity to the next • Technology use in the classroom
<p>Explicitly Teaching Rules</p>	<ul style="list-style-type: none"> • Explicitly teach classroom rules and routines to students. <ul style="list-style-type: none"> • Define and model positive examples and non-examples of what the rules look like in the classroom. • Have students model and practice performing the desired behaviors. • Provide positive feedback and corrective feedback as needed during practice of the desired behaviors. • Review and practice the rules with students throughout the school year. <ul style="list-style-type: none"> • Rules should be reviewed more comprehensively at the beginning of each year, after significant breaks in the school schedule (e.g. Thanksgiving, Winter, Spring), and as needed. • Example Routine <ul style="list-style-type: none"> • Classroom exit: Describe and model the routine to students, have students practice lining up, and going back to their seats. It is important that 100% of students demonstrate the behavior correctly. This may require multiple practice opportunities while providing positive and corrective feedback.

CLASSROOM PBIS

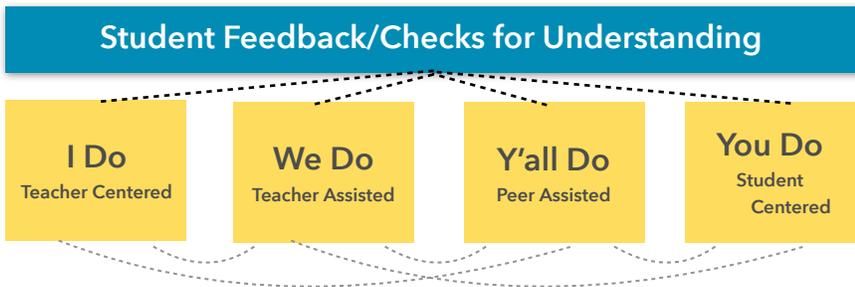
Effect Size: 0.52

Key Component	Definition
<p>Reinforcing Positive Behaviors and Correcting Negative Behaviors</p>	<ul style="list-style-type: none"> It is important to publicly recognize positive behavior, while individually providing corrective feedback when needed. Students should be monitored closely while in the classroom and feedback should be given often. Public positive statements often prompt other students to exhibit the desired behavior. <ul style="list-style-type: none"> Example: "I really like the way Sarah is waiting for instructions. She has her materials ready, and she's sitting quietly at her desk." When correcting negative behavior, provide a precision request to students (whole group) to describe desired behavior. Based on student response, provide positive feedback to the group. If undesired behaviors continue follow-up with a statement of the desired behavior directed to the target student in a private manner as needed. Give the student an opportunity to comply and perform the behavior correctly, and then reward the student with positive feedback. <ul style="list-style-type: none"> Example: "I need everyone to be in their seats, have materials ready, and wait quietly for instructions." Teacher observes Sarah talking during the transition, so he/she approaches Sarah quietly. "Sarah, the rule in our class is to wait quietly for instructions. I need you to show me how you sit quietly for instructions." While Sarah is performing the desired behavior, you might say, "Sarah, I appreciate how you are waiting quietly. Great job."
<p>Creating a Supportive Classroom</p>	<p>Creating a safe and respectful learning environment allows students to feel supported while learning. It is necessary for teachers to find opportunities to establish positive connections with all students. A teacher's daily interactions influence the students' perception of safety and sense of trust. Considerations for creating a supportive classroom include:</p> <ul style="list-style-type: none"> Make personal connections with students Help students feel like they belong Establish clear classroom norms to demonstrate respect for others Create consistent rules, routines, and arrangements (fosters predictability) Weave positive feedback into daily interactions with students and parents Be available for students (e.g. to ask questions, seek guidance) Actively listen Set a positive tone for learning and problem solving Be aware of your personal emotions, assumptions, and biases and how they may impact your interactions with students

EXPLICIT INSTRUCTION

Effect Size: 0.57

Explicit instruction is a systematic method of teaching with emphasis on proceeding in small steps, checking for student understanding, and achieving active and successful participation by all students.



The model is generally characterized with the following components: I Do, We Do, Y'all Do, and You Do. Teachers use student feedback to determine how to progress through the model. For instance, if students are in the “We Do” phase, and the teacher has determined that students aren’t understanding, they should move back to the “I Do” phase to provide more examples.

Explicit Instruction	
I Do (Modeling)	Demonstrate & Describe Use Think-Alouds Involve Students
We Do (Guided Practice)	Heavily Scaffolded with Prompts <ul style="list-style-type: none"> • Tell them what to do. • Ask them what to do. • Remind them what to do. Continual Checks for Understanding
Y'all Do (Group Practice)	Practice Skill in Small Groups/Partners Continual Checks for Understanding Use Precision Partnering
You Do (Individual Practice)	Monitored Individual Practice Show Mastery of Skill

Critical Actions for Educators

- *Give clear, straightforward, and unequivocal directions.
- *Explain, demonstrate and model. Introduce skills in a specific and logical order. Support this sequence of instruction in your lesson plans.
- *Break skills down into manageable steps. Review frequently.
- *Demonstrate the skills for students and then give the opportunity to practice skills independently.
- * I do, We Do, Y'all Do, You Do.



INSTRUCTIONAL HIERARCHY

Effect Size: 0.57

Critical Actions for Educators

- *Explicitly teach a skill to students by explaining, demonstrating, and modeling.
- *Build the skill through practice and use, to gain automaticity.
- *Provide students with multiple opportunities to apply the skill.

Learners follow predictable stages. To begin, the learner is usually halting and uncertain as she tries to use a new skill. With feedback and a lot of practice, the learner becomes increasingly accurate, then automatic (fluent), and confident in using the skill.

Acquisition, automaticity, and application are progressive stages of the instructional hierarchy. Each stage requires its own set of pedagogical approaches and assessment strategies.

The learning stages, along with the goal of each phase and the teacher and student actions present in each stage are listed in the table below.



Accurate at Skill

- If no, teach skill.
- If yes, move to automaticity.



Automatic at Skill

- If no, teach automaticity.
- If yes, move to application.



Able to Apply Skill

- If no, teach application.
- If yes, move to higher level/concept or repeat cycle with new knowledge.

INSTRUCTIONAL HIERARCHY

Effect Size: 0.57

Learning Stage	Goal	Teacher and Student Actions
<p>Acquisition</p> <ul style="list-style-type: none"> • First learning stage • Teacher feedback to increase accuracy • Typically associated with DOK 1 	<p>The student can perform the skill accurately with little adult support.</p> <p>If goal met proceed to automaticity stage; if not teach skill.</p>	<ul style="list-style-type: none"> • Teacher actively demonstrates target skill • Teacher uses 'think-aloud' strategy-- especially for thinking skills that are otherwise covert • Student has models of correct performance to consult as needed (e.g., correctly completed math problems on board) • Student gets feedback about correct performance • Student receives praise, encouragement for effort • Students take notes, outlines, points
<p>Automaticity</p> <ul style="list-style-type: none"> • Builds habits and fluent skills through repetition and deliberate practice with timely and descriptive feedback • Typically associated with DOK 2 	<p>The student has learned skill well enough to retain, to combine with other skills, and is as fluent as peers.</p> <p>If observed proceed to application; if not continue or move back to acquisition.</p>	<ul style="list-style-type: none"> • Teacher structures learning activities to give student opportunity for active (observable) responding • Student has frequent opportunities to drill (direct repetition of target skill) and practice (blending target skill with other skills to solve problems) • Student gets feedback on fluency and accuracy of performance • Student receives praise, encouragement for increased fluency
<p>Application</p> <ul style="list-style-type: none"> • Applying knowledge or skills to relevant application • Typically associated with DOK 3 & 4 	<p>The student uses the skill across situations and settings solving real life problems.</p> <p>If observed, move to new skills and knowledge or move to a higher level concept; if not observed try again or go back to building automaticity.</p>	<ul style="list-style-type: none"> • Teacher structures academic tasks to require that the student use the target skill regularly in assignments • Student receives encouragement, praise for using skill in new settings, situations • Teacher works with parents to identify tasks that the student can do outside of school to practice target skill • Teacher helps student to articulate the 'big ideas' or core element(s) of target skill that the student can modify to face novel tasks, situations • Encourage student to set own goals for adapting skill to new and challenging situations.

EXPLICIT VOCABULARY

Effect Size: 0.57

Explicit vocabulary instruction is clear, concise vocabulary instruction presenting the meaning and contextual examples of a word through multiple exposures. It is not the traditional procedure of having students copy a list of words, looking up words, copying definitions, or memorizing definitions.

Systematic vocabulary instruction increases reading comprehension, allows for greater access to content material, increases growth in vocabulary knowledge, and supports struggling readers.

Effective vocabulary/academic language instruction comes down to:

- Connection: Connect the new word to what the student knows, which helps to build the “semantic network” in the brain.
- Use: Academic speaking and writing is constructed as we apply it, not by simply memorizing.

Teacher should explicitly teach words that are:

- Based on essential concepts
- Unknown
- Critical to the future
- Difficult to obtain independently (or through context)

Critical Actions for Educators

- *Explicitly teach critical vocabulary before students are expected to use it in context.
- *Teach students to say, define, and use critical vocabulary in discreet steps.
- *Explicitly teach common academic vocabulary across all content areas.



Basic Instructional Protocol

- | | |
|--|---|
| 1. Introduce the word | 5. Check students’ understanding |
| 2. Provide student friendly definition of the word | 6. Deepen students’ understanding |
| 3. Identify word parts, families, and origin | 7. Check students’ understanding |
| 4. Illustrate word with examples | 8. Review and coach use (possible extensions) |

OPPORTUNITIES TO RESPOND

Effect Size: 0.57

Critical Actions for Educators

- *Actively engage ALL students in learning; students are active if they are saying, writing, or doing.
- *Pace instruction to allow for frequent student responses.
- *Call on a wide variety of students throughout each period.



Maximizing the opportunities to respond in a classroom increases students engagements. Engagement allows for positive interactions between teacher and student, creates opportunities for teachers to provide authentic feedback on learning, and decreases inappropriate student behavior.

Students are engaged through opportunities to respond when they are saying, writing, or doing (Feldman). When tied to learning objectives, these opportunities give the teacher and students feedback on their learning and understanding.

Engagement opportunities can be focused on an individual student or a group of students. Each of these approaches has different purposes. The teacher may choose to use a group OTR to minimize the risk the student feels in responding and to increase engagement for all students. Through group OTRs, students not only receive feedback from the teacher, but their peers as well as they hear and see other student responses. When seeking individual student understanding, teachers may choose to use individual OTRs.

Opportunities to respond can be verbal or non-verbal. Verbal responses help students to summarize and share their thoughts with others while non-verbal responses can increase writing skills or give students the opportunity to move around the room.

Structured Non-Verbal	Structured Verbal	Structured Writing	Structured Reading
<ul style="list-style-type: none"> • Cold Calling (Teacher Chosen) • Cold Calling (Random) • Choral Response • Think Pair Share • Precision Partner • Small Group Discussion 	<ul style="list-style-type: none"> • Hand Signals • Point at Something • 4 Corners • Response Cards • White Boards • Student Response System 	<ul style="list-style-type: none"> • Note-Taking: Cloze, Cornell • Graphic Organizer • Sentence Starter/ Quick Write • White Boards • Summarizing • Technology 	<ul style="list-style-type: none"> • Partner Reading w/ Comprehension Strategy • Choral Reading • Cloze Reading Guide • Model Reading Strategies • Task for each Reading Segment

FEEDBACK

BETWEEN TEACHERS & STUDENTS

Effect Size: 0.75

Feedback lets the learner know whether or not a task was performed correctly, and how it might be improved. Feedback is most effective when it is clear, purposeful, compatible with prior knowledge, immediate, and non-threatening.

Feedback from Students:

Educational research indicates that feedback is one of the most powerful drivers of student achievement. John Hattie’s synthesis of the overall effect size of feedback is very high (ES = .75). He states that feedback from students as to what they understand, when they are not engaged, where they make errors, and when they have misconceptions helps make student learning visible to the teacher.

Feedback to Students:

Positive academic and behavioral feedback, or teacher praise has been statistically correlated with student on-task behavior (Apter, Arnold & Stinson, 2010) and has strong empirical support for both increasing academic and behavioral performance and decreasing problem behaviors (Gable, Hester, Rock & Hughes, 2009). With regard to reprimands and corrective feedback, there is a continued assertion that teachers maintain a ratio of praise to correction at 3:1 or 4:1 (Gable, Hester, Rock, & Hughes, 2009; Stichter, Lewis, & Wittaker, 2009).

Feedback Types:

Critical Actions for Educators

- *Provide timely prompts that indicate when students have done something correctly or incorrectly.
- *Give students the opportunity to use the feedback to continue their learning process.
- *End feedback with the student performing the skill correctly and receiving positive acknowledgement.

Type	Description	Example	Non-Example
Positive	Teacher indicates that a target academic or social behavior is correct.	“Correct! 7 X 4 is 28”	“Johnny, pick up your pencil off the floor please
Corrective	Teacher indicates that a behavior is incorrect.	“That’s not quite right, let me give you another clue . . . ”	“Try harder on your math worksheet; I know you can do better.”
Harsh	Teacher shows frustration or is critical of the student.	I can’t believe you still can’t figure this out!	“Let me give you another clue . . . ”
Neutral	Teacher redirects the student or describes what she would like the student to do.	“Johnny, turn to page 4 and start reading.”	“Nice work! You really showed justification for your reasons.”

FEEDBACK CYCLE

Effect Size: 0.75

	Example	Non-Example
Corrective Sequence	<ul style="list-style-type: none"> • Teacher provides an opportunity to respond • Student responds incorrectly • Teacher indicates that the response was not correct and provides an opportunity for correction • Student gives correct response • Teacher affirms that response was correct 	<ul style="list-style-type: none"> • Teacher provides an opportunity to respond • Student responds incorrectly • Teacher indicates that the response was not correct but does not provide an opportunity for the student to answer correctly
Expansive Sequence	<ul style="list-style-type: none"> • Teacher provides an opportunity to respond • Student response is a partial response or could be expanded into a higher quality response • Teacher affirms response and provides guidance for expansion/refinement • Student revises or elaborates upon previous response • Teacher acknowledges response as an improvement 	<ul style="list-style-type: none"> • Teacher provides an opportunity to respond • Student response is a partial response or could be expanded into a higher quality response • Teacher affirms response but does not provide guidance for expansion/refinement
Challenge Sequence	<ul style="list-style-type: none"> • Teacher provides an opportunity to respond • Student response is fully correct • Teacher affirms student response and asks a more difficult question on the same topic as a follow up • Student answers • Teacher responds with positive or corrective feedback 	<ul style="list-style-type: none"> • Teacher provides an opportunity to respond • Student response is fully correct • Teacher affirms student response but does not ask a more difficult question on the same topic as a follow up

SCAFFOLDING & GROUPING

Effect Size: 0.57

Scaffolding is a process in which students are given support until they can apply new skills and strategies independently (Rosenshine & Meister, 1992). When students are learning new or challenging task, they are given more assistance. As they begin to demonstrate task mastery, the assistance or support is decreased gradually in order to shift the responsibility for learning from the teacher to the students. Thus, as the students assume more responsibility for learning, the teacher provides less support.

Structure of the Scaffolded Classroom:

The organization of the scaffolded classroom includes whole group, small group (skill-based or station teaching), partners, and independent work. The scaffolding supports that will be put in place for diverse learners should include interventions for striving and accelerated learners. When using small groups, identify the groups as skill-based or station teaching. Skill-based groups are organized homogeneously based upon the needs of students. Station teaching groups are organized heterogeneously to create diverse groups.

Critical Actions for Educators

- *Present information at various levels of difficulty.
- *Use data to identify needs and create small groups to target specific skills.
- *Frequently analyze current data and move students within groups depending on their changing needs.

Types of Scaffolds

Scaffold	Ways to use Scaffolds in an Instructional Setting
Advance Organizers	Tools used to introduce new content and tasks to help student learn about the topic: Venn diagrams to compare and contrast information; flow charts to illustrate processes; organizational charts to illustrate hierarchies; outlines that represent content; mnemonics to assist recall; statements to situate the task or content; rubrics that provide task expectations.
Checklists	Prepare a list of items required, things to be done, or points to be considered; used as a reminder as the student proceeds through the learning task.
Collaborative Grouping	Having students work in partners or small groups with students who can support/model students who may struggle with content.
Concept and Mind Maps	Maps that show relationships: Partially or completed maps for students to complete; students create their own maps based on their current knowledge of the task or concept.
Cue Cards	Prepared cards given to individual groups of students to assist in their discussion about a particular topic or content area: Vocabulary words to prepare for exams; content-specific stem sentences to complete; formula to associate with a problem; concepts to define.
Examples	Samples, specimens, illustrations, problems, modeling: Real objects; illustrative problems used to represent something. Demonstrate and model how to do something, giving an example of what it should look like.
Explanations	More detailed information to move students along on a task or in their thinking of a concept: Written instructions for a task; verbal explanation of how a process works.

Scaffold	Ways to use Scaffolds in an Instructional Setting
Handouts	Prepared handouts that contain task and content-related information, but with less detail and room for student note taking.
Images and Multimedia	Providing an image or other graphic representation, such as a video, that represents the word(s)/concept(s) being taught in conjunction with the explicit vocabulary routine can help to support students in learning new vocabulary and concepts. Images help provide a non-linguistic representation and allow students to recall the term more readily. This technique can be used with any Reading Street Vocabulary (Amazing Words, Story/Lesson Vocabulary), Math Vocabulary, or Content Vocabulary or concepts.
Manipulatives	Manipulatives, such as markers, toothpicks, blocks, or coins, are used to support hands-on learning and provide concrete models to help students solve problems and develop concepts. The students can manipulate the items to increase their understanding and come to accurate conclusions. May also include virtual manipulatives.
Pair-Share	Pose a problem, students have time to think about it individually, and then they work in pairs to solve the problem and share their ideas with the class. Providing think time increase the quality of the response.
Precision Partnering	Strategically appointed partners with assigned roles.
Previewing Text	Before reading a text, preview the text by providing students with an overview/synopsis of the text. This will allow students to know what to expect when they are reading and give them background knowledge to help them understand the text.
Prompts	A physical or verbal cue to remind—to aid in recall of prior or assumed knowledge. Physical: Body movements such as pointing, nodding the head, eye blinking, foot tapping. Verbal: Words, statements and questions such as "Go," "Stop," "It's right there," "Tell me now," "What toolbar menu item would you press to insert an image?" "Tell me why the character acted that way."
Question Cards	Prepared cards with content and task-specific <i>questions</i> given to individuals or groups of students to ask each other pertinent questions about a particular topic or content area.
Question Stems	Incomplete sentences which students complete: Encourages deep thinking by using higher order "What if" questions.
Realia	Anytime the real object, concept, or phenomena can be presented with the actual object helps to support learners in acquiring new ideas and concepts. For example, when teaching about the three types of rocks, having examples of those types for students to see and touch can help them to make deeper connections.
Rubrics	A rubric is an easily applicable form of authentic assessment. A rubric simply lists a set of criteria, which defines and describes the important components of the work being planned or evaluated.
Sentence Frames	Sentence frames provide an opportunity for students to use key vocabulary while providing a structure that may be higher than what they could produce on their own. For example, if students are to compare two ocean creatures, they might say something like "Whales have lungs, but fish have gills." In the preceding sentence, the simple frame is "_____ have _____, but _____ have _____." Note the sentence can be filled in with any content; this differs from cloze sentences that often have only a few possibilities.
Setting & Reviewing Objectives	Providing students with a purpose and intended outcome will help students to know what to focus their attention on and what they should be learning. Having student self-assess their progress towards the objectives at the end of the lesson will provide the teacher with information on their current levels of understanding.
Socratic Seminar	<p>The purpose of a Socratic Seminar is to achieve a deeper understanding about the ideas and values in a text. In the Seminar, participants systematically question and examine issues and principles related to a particular content, and articulate different points-of-view. The group conversation assists participants in constructing meaning through disciplined analysis, interpretation, listening, and participation.</p> <p>Prepare several questions in advance in addition to questions that students may bring to class. Questions should lead participants into the core ideas and values and to the use of the text in their answers. Questions must be open-ended, reflect genuine curiosity, and have no "one-right answer."</p>
Stories	Stories relate complex and abstract material to situations more familiar with students: Recite stories to inspire and motivate learners.
Student Work Exemplars	Providing students with example student work samples can provide models for students to use to support their development of the skill. For example, an anchor paper for a writing assignment of how a sample student responded to the assignment previously will provide an example of what the assignment looks like.
Visual Scaffolds	Pointing to call attention to an object; representational gestures (holding cured hands apart to illustrate roundness; moving rigid hands diagonally upward to illustrate steps or process), diagrams such as charts and graphs; methods of highlighting visual information.

KINDERGARTEN ½ Day MASTER SCHEDULE COMPONENTS 2016-2017

REGULAR SCHOOL DAY MONDAY-THURSDAY		FRIDAY		30 MINUTES- 1 DAY PER WEEK BRAIN BOOSTER	
70 MINUTES	<p>LITERACY BLOCK</p> <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • ELD • SPED 	60 MINUTES	<p>LITERACY BLOCK</p> <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • ELD • SPED 	70 MINUTES	<p>LITERACY BLOCK</p> <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • ELD • SPED
30 MINUTES	<p>MATH BLOCK</p> <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Lesson Objectives • Concept /Skill Development and Application <ul style="list-style-type: none"> • Skill-Based Instruction 	30 MINUTES	<p>MATH BLOCK</p> <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Lesson Objectives • Table time/Concept/Skill Development and Application 	30 MINUTES	<p>MATH BLOCK</p> <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Lesson Objectives • Concept /Skill Development and Application • Skill-Based Instruction
30 MINUTES	<p>ORAL LANGUAGE BLOCK</p> <ul style="list-style-type: none"> • PLAN • DO • REVIEW 	30 MINUTES	<p>ORAL LANGUAGE BLOCK</p> <ul style="list-style-type: none"> • PLAN • DO • REVIEW 	30 MINUTES	<p>BRAIN BOOSTER CHOICES</p> <ul style="list-style-type: none"> • PE/Playworks • Technology • Arts/BTS • Media • STEM
30 MINUTES	<p>FLEX TIME</p> <ul style="list-style-type: none"> • Recess • Extended Literacy, Numeracy or Oral Language Block 			30 MINUTES	<p>FLEX TIME</p> <ul style="list-style-type: none"> • Oral Language Block • Recess

Title I Full Day Kindergarten MASTER SCHEDULE COMPONENTS 2016-2017

Regular School Day MONDAY-THURSDAY		FRIDAY SCHEDULE		2 HOUR BLOCK 1 DAY PER WEEK BRAIN BOOSTER		1 HOUR BLOCK 2 DAYS PER WEEK BRAIN BOOSTER		40 MINUTE 3 DAYS PER WEEK BRAIN BOOSTER	
135 MINUTES	LITERACY BLOCK <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • SPED • Content Integration 	135 MINUTES	LITERACY BLOCK <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • SPED • Content Integration 	120 MINUTES	LITERACY BLOCK* <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • SPED 	125 MINUTES	LITERACY BLOCK <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • SPED 	135 MINUTES	LITERACY BLOCK <ul style="list-style-type: none"> • Get Ready to Read • Read and Comprehend • Language Arts • Skill-Based Instruction <ul style="list-style-type: none"> • SPED • Content Integration
30	ELD <ul style="list-style-type: none"> • Language Central 	30	ELD <ul style="list-style-type: none"> • Language Central 	20	ELD <ul style="list-style-type: none"> • Language Central 	30	ELD <ul style="list-style-type: none"> • Language Central 	30	ELD <ul style="list-style-type: none"> • Language Central
75 MINUTES	MATH BLOCK <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Lesson Objectives • Concept /Skill Development and Application • Skill-Based Instruction 	75 MINUTES	MATH BLOCK <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Lesson Objectives • Concept /Skill Development and Application • Skill-based Instruction 	50 MINUTES	MATH BLOCK* <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Lesson Objectives • Concept /Skill Development and Application • Skill-Based Instruction <i>*Compacted based on student need</i>	65 MINUTES	MATH BLOCK <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Practice • Lesson Objectives • Concept /Skill Development and Application • Skill-Based Instruction 	75 MINUTES	MATH BLOCK <ul style="list-style-type: none"> • Review or Preteach • Vocabulary and Fluency Practice • Lesson Objectives • Concept /Skill Development and Application • Skill-Based Instruction
55	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN
45-60	ORAL LANGUAGE BLOCK <ul style="list-style-type: none"> • Plan, Do, Review 			30	ORAL LANGUAGE BLOCK Plan, Do, Review	60	ORAL LANGUAGE BLOCK Plan, Do, Review	60	ORAL LANGUAGE BLOCK Plan, Do, Review
40-55 MINUTES	FLEX TIME <ul style="list-style-type: none"> • Science • Social Studies 			120 MIN.	BRAIN BOOSTER CHOICES <ul style="list-style-type: none"> • PE/Playworks • Technology • Arts/BTS • Media STEM 	60 MIN.	BRAIN BOOSTER CHOICES <ul style="list-style-type: none"> • PE/Playworks • Technology • Arts/BTS • Media STEM 	40 MIN.	BRAIN BOOSTER CHOICES <ul style="list-style-type: none"> • PE/Playworks • Technology • Arts/BTS • Media STEM

1ST-5TH GRADE MASTER SCHEDULE COMPONENTS 2016-2017

Intensified Plan MONDAY-THURSDAY		Regular School Day MONDAY-THURSDAY		FRIDAY SCHEDULE		2 HOUR BLOCK 1 DAY PER WEEK BRAIN BOOSTER		1 HOUR BLOCK 2 DAYS PER WEEK BRAIN BOOSTER		40 MINUTE 3 DAYS PER WEEK BRAIN BOOSTER	
180-205 MINUTES	LITERACY BLOCK <ul style="list-style-type: none">• Get Ready to Read• Read and Comprehend• Language Arts• Skill-Based Instruction<ul style="list-style-type: none">• ELD• SPED• Content Integration	180 MINUTES	LITERACY BLOCK <ul style="list-style-type: none">• Get Ready to Read• Read and Comprehend• Language Arts• Skill-Based Instruction<ul style="list-style-type: none">• ELD• SPED• Content Integration	150 MINUTES	LITERACY BLOCK <ul style="list-style-type: none">• Get Ready to Read• Read and Comprehend• Language Arts• Skill-Based Instruction<ul style="list-style-type: none">• ELD• SPED	135 MINUTES	LITERACY BLOCK* <ul style="list-style-type: none">• Get Ready to Read• Read and Comprehend• Language Arts• Skill-Based Instruction<ul style="list-style-type: none">• ELD• SPED <i>*Compacted based on student need</i>	150 MINUTES	LITERACY BLOCK <ul style="list-style-type: none">• Get Ready to Read• Read and Comprehend• Language Arts• Skill-Based Instruction<ul style="list-style-type: none">• ELD• SPED	180 MINUTES	LITERACY BLOCK <ul style="list-style-type: none">• Get Ready to Read• Read and Comprehend• Language Arts• Skill-Based Instruction<ul style="list-style-type: none">• ELD• SPED• Content Integration
	90 MINUTES		MATH BLOCK <ul style="list-style-type: none">• Review or Preteach• Vocabulary and Fluency Practice• Lesson Objectives• Concept /Skill Development and Application• Skill-Based Instruction		90 MINUTES		MATH BLOCK <ul style="list-style-type: none">• Review or Preteach• Vocabulary and Fluency Practice• Lesson Objectives• Concept /Skill Development and Application• Skill-Based Instruction		90 MINUTES		MATH BLOCK <ul style="list-style-type: none">• Review or Preteach• Vocabulary and Fluency Practice• Lesson Objectives• Concept /Skill Development and Application• Skill-based Instruction
55 MIN	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55 MIN	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55 MIN	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55 MIN	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55 MIN	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN	55 MIN	RECESS 15 MIN AM or PM LUNCH and RECESS 40 MIN
45-70 MIN	FLEX TIME <ul style="list-style-type: none">• Science• Social Studies	70 MINUTES	FLEX TIME <ul style="list-style-type: none">• Science• Social Studies			120 MINUTES	BRAIN BOOSTER CHOICES <ul style="list-style-type: none">• PE/Playworks• Technology• Arts/BTS• Media• STEM	60 MINUTES	BRAIN BOOSTER CHOICES <ul style="list-style-type: none">• PE/Playworks• Technology• Arts/BTS• Media• STEM	40 MINUTES	BRAIN BOOSTER CHOICES <ul style="list-style-type: none">• PE/Playworks• Technology• Arts/BTS• Media• STEM
							10 MIN	FLEX TIME <ul style="list-style-type: none">• Content Integration	40 MIN	FLEX TIME <ul style="list-style-type: none">• Content Integration• Science• Social Studies	30 MIN

Scheduling ELA Special Education Services for Title 1 Elementary Schools (For Students with IEP Reading/Writing Goals)

	Students needing Resource Instruction for Reading/Writing	Students needing ELD Instruction AND Resource Instruction for Reading/Writing
<p>When to provide Special Education Services <i>(Service minutes determined by IEP team based on student need)</i></p>	<p>During Reading Skill- Based Instruction (SBI) – (45 minutes)</p> <ul style="list-style-type: none"> • The Special Education Teacher (and if needed, Special Education Paraeducator) will provide ELA Services during SBI time • Service minutes are determined by IEP team • Service minutes can be up to 45 minutes a day during SBI time • If the IEP team determines a student needs more service time for ELA, choose from the following options: <u>1st option:</u> During Science and Social Studies <u>2nd option:</u> During Content Integration (20-30 minutes) <u>3rd option:</u> During Language Arts Block (35-45 minutes) 	<p><u>*1st option:</u> During Science and Social Studies</p> <p><u>2nd option:</u> During Content Integration (20-30 minutes)</p> <p><u>3rd option:</u> During Language Arts Block (35-45 minutes)</p> <p>*All students need access to the Core Curriculum. In order to provide Special Education services to students needing both SPED and ELD services, please choose from the above 3 options, with option 1 being the least impactful to a student’s access to the Core Curriculum.</p>

Scheduling Math Special Education Services for Title 1 Elementary Schools (For Students with IEP Math Goals)

	Students needing Special Education Services for Math	Students needing additional math Special Education Instruction <i>(As determined by IEP team)</i>
<p>When to provide Special Education Services <i>(Special education service minutes determined by IEP team based on student need)</i></p>	<p>1st option: During Math Skill-Based Instruction (SBI) – (30-45 minutes)</p> <ul style="list-style-type: none"> • The Special Education Teacher (and if needed, Special Education Para-educator) will provide Math Services during SBI time • Service minutes are determined by IEP team • Service minutes can be up to 45 minutes a day during SBI time <p>2nd option: During Math Core Instruction in the General Education Classroom (45-60 minutes) push-in model</p> <p>3rd option: Combination of SBI and Core Instruction push-in</p>	<p>If the IEP team determines a student needs more service time for Math, choose from the following options:</p> <p><u>*1st option:</u> During Science and Social Studies</p> <p><u>*2nd option:</u> During Content Integration (20-30 minutes)</p> <p>*All students need access to the Math Core Curriculum.</p>

Elementary Assessment Calendar 2016-17

AUGUST	Aug. 24	Start of School Year
	Aug. 24-26	Kindergarten DIBELS Next and DIBELS Math (Individual appointments - No school for K)
	Aug 29 - Sept 6	Reading Inventory/SRI - Grades 4 and 5
SEPTEMBER	Sept. 7 - 29	DIBELS Next - Grades 1-3 (All Students); Grades 4-5 (Only students that score Below Basic on Reading Inventory/SRI)
	Sept. 7 - 29	DIBELS Math - Grades 1-5 (All Students)
OCTOBER	Oct 3 - 28	AAPPL Testing - Dual Immersion Schools Only
NOVEMBER		
DECEMBER	Dec 7- 21	Reading Inventory/SRI - All Students Grades 4 and 5
JANUARY	Jan 4 - Jan 24	DIBELS Next - Grades 1-3 (All Students); Grades 4-5 (Only students that score Below Basic on Reading Inventory/SRI)
	Jan 4 - Jan 24	DIBELS Math - Grades 1-5 (All Students)
	Jan 9 - Mar 10	WIDA ACCESS Online Testing - English Learner Students K - 5
FEBRUARY		
MARCH	Mar 21 - 31	Grade 5 Keyboarding Assessment (Data Due Apr 7 th)
APRIL	Apr. 17 - 26	Reading Inventory/SRI - Grades 4 and 5
	Apr 24 - Jun 2	SAGE Summative Testing - Grades 3 - 5
MAY	May 8 - 26	DIBELS Next - Grades 1-3 (All Students); Grades 4-5 (Only students that score Below Basic on Reading Inventory/SRI on latest test)
	May 8 - 26	DIBELS Math - Grades 1-5 (All Students)
JUNE	June 7	End of School Year

ELA District-Wide Standards-Based Benchmarks Elementary			
Grade	Benchmark #1 Due by:	Benchmark #2 Due by:	Benchmark #3 Due by:
K	NA	NA	NA
1 st	NA	March 13-17	May 8-12
2 nd	Nov. 7- Dec 2	Jan. 17-Feb 9	March 13-31
3 rd	Nov. 7-Dec 2	Jan. 17-Feb 9	March 13-31
4 th	Nov. 7-Dec 2	Jan. 17-Feb 9	March 13-31
5 th	Nov. 7-Dec 2	Jan. 17-Feb 9	March 13-31

ASSESSMENT CHANGES:

There are many changes to testing this school year. Canyons has moved to DIBELS Next and DIBELS Math for fall, midyear and spring. Finally, AAPPL testing for DUAL Immersion schools has been moved to the fall as directed by the Utah Board of Education.

Math District-Wide Standards-Based Benchmarks Elementary				
Grade	Benchmark #1 Due by:	Benchmark #2 Due by:	Benchmark #3 Due by:	Benchmark #4 Due by:
K	NA	NA	NA	NA
1 st	November 11	February 24	April 28	June 6
2 nd	November 11	February 9	April 28	June 6
3 rd	November 11	February 3	April 14	June 6
4 th	November 11	February 3	April 21	June 6
5 th	November 11	March 3	April 28	June 6

CSD Assessment System

In a balanced assessment system, teachers use classroom assessments, team assessments, interim assessments, and comprehensive assessments to monitor and enhance student learning in relation to the state standards and goals for student proficiency (Schneider, Egan, & Julian, 2013). This level of balancing requires educators to understand and maximize the role of assessment for feedback and assessment for verification (Schimmer, 2016). In other words, assessment is viewed as teaching in that we engage in accurate assessment processes, day by day and moment by moment, rather than curriculum coverage (Erkens, 2016). Canyons School District System of Assessment outlines an integrated assessment system to support educators with gathering evidence of student thinking patterns in order to plan instructional responses before, during, and after instruction has taken place.

Assessment Uses

- measure effectiveness of instructional programs for all subgroups of students
- compare levels of achievement across grades, schools, districts, states
- identify gaps in student learning to inform class, team, school, and district supports
- set goals for class, team, school, and district improvement
- share information with stakeholders
- celebrate teaching and learning successes

Classroom Assessing Classroom assessing occurs when teachers plan and implement frequent checks for understanding to inform and modify instruction in the moment (instructional agility), within the context of the expected learning.

Purpose	Classroom assessing occurs when teachers plan and implement frequent checks for understanding to inform and modify instruction in the moment (instructional agility), within the context of the expected learning.
Focus	Assessing learning objectives and skills for immediate instructional adjustment
Assessment Tools	<ul style="list-style-type: none">• Instructional Priorities• Observations• Paired discussions• Quickwrites• Whiteboard responses• Exit tickets• Student self-assessments• Questioning• Performance Tasks• Progress monitoring
Who Uses the Data	<ul style="list-style-type: none">• Teacher• Students
Frequency	<ul style="list-style-type: none">• Ongoing during instruction

School-wide and Team Assessments are collaboratively designed by teachers to provide timely information about student learning in order to plan and adjust instruction or evaluate focused skill/strategy.

Assessment supports for School-wide and Team Assessments from Reading Street and enVision 2.0



Realize platform is the online support for access for the Reading Street and enVision 2.0. Teachers can access materials in their grade-level account.

To log in: <http://pearsonrealize.com>

User Name: SchoolNameCSD03 (insert your school name)
e.g., ParkLaneCSD03

Password: Canyons0grade
e.g., Canyons03

Reading Street Test Type	Description
Weekly Tests	<ul style="list-style-type: none"> • Multiple-choice tests administered on Day 5 • Measure students' understanding of each week's introduced vocabulary words, word analysis skills, and comprehension skills • Help identify students who have mastered each week's words and skills and students who may need intervention
Unit Tests	<ul style="list-style-type: none"> • Multiple-choice and constructed-response tests administered throughout the year, at the end of each six-week unit • Measure students' abilities to apply target comprehension skills and other literacy skills taught during each unit • Help make instructional decisions for each student • Provide feedback about the effectiveness of your instruction and help to plan instruction for the next unit
Fresh Reads for Fluency and Comprehension	<ul style="list-style-type: none"> • Multiple-choice and constructed-response tests administered throughout the year, each week after students have been taught the comprehension skill lesson • Give students opportunities to practice the target and review comprehension skills of the week with new selections matched to their instructional reading levels • Provide checks for oral reading fluency
enVision 2.0 Test Type	Description
Quick Check	<ul style="list-style-type: none"> • Three problems within Independent Practice, Math Practice and Problem Solving to check for student understanding • Assess students' understanding of the lesson content and support building skill-based math groups
Math Practices Proficiency Rubric	<ul style="list-style-type: none"> • Rubrics designed to monitor development of proficiency with mathematical practice standards
Topic Assessment	<ul style="list-style-type: none"> • Multiple-choice administered throughout the year, at the end of each topic. • Measure students' skills and ability of math content standards • Help make instructional decisions for each student • Provide feedback about the effectiveness of instruction and help plan instruction for the next topic
Performance Assessment	<ul style="list-style-type: none"> • Alternative assessments that measure student skill with open ended and short answer assessment items • Students engage in the mathematical practice standards by explaining thinking

District-Wide Standards-Based Benchmarks are designed to assess mastery of targeted standards at set points in time.

The ELA benchmarks will be given 3 times per year during these windows:

ELA District-Wide Standards-Based Benchmarks			
Grade Level	Benchmark #1	Benchmark #2	Benchmark #3
Kindergarten	NA	NA	NA
1 st	NA	March 13-17	May 8-12
2 nd	Nov. 7-Dec 2	Jan. 17-Feb 9	March 13-31
3 rd	Nov. 7-Dec2	Jan. 17-Feb 9	March 13-31
4 th	Nov. 7-Dec2	Jan. 17-Feb 9	March 13-31
5 th	Nov. 7-Dec2	Jan. 17-Feb 9	March 13-31

The Math benchmarks will be given 4 times per year

Math District-Wide Standards-Based Benchmarks				
Grade Level	Benchmark #1 Due by:	Benchmark #2 Due by:	Benchmark #3 Due by:	Benchmark #4 Due by:
Kindergarten	NA	NA	NA	NA
1 st	November 11	February 24	April 28	June 6
2 nd	November 11	February 9	April 28	June 6
3 rd	November 11	February 3	April 14	June 6
4 th	November 11	February 3	April 21	June 6
5 th	November 11	March 3	April 28	June 6

Reassessing Mastery

Use assessments to help identify skill deficits that are preventing students from mastering standards. Planning to address skill deficits should also include a plan to evaluate mastery once the skills have been retaught. Reassessing mastery utilizes assessment strategies that include direct observation during whole group and small group instruction. Also consider previewing upcoming units to determine if the skill and standard will be further reviewed and make note of students who will need additional practice opportunities.

Tracking Learning

There is a strong correlation between student achievement and a student’s involvement in his or her progress. Having students track their learning using a simple graph and setting goals for each assessment is an easy way to involve students. This provides students with a clear purpose and provides them feedback on their current learning progress.

Comprehensive Assessments are designed to measure the degree to which students have mastered content standards or achieved college and careers readiness. See Assessment calendar for SAGE dates.

Screening Assessments are designed to efficiently identify students who are at academic risk in reading and math who may need additional intervention. These assessments are standardized and brief. DIBELS and SRI are the screening instruments used in CSD. The following pages have the DIBELS screening targets.

Canyons School District Elementary Screening Targets Kindergarten--Math

DIBELS Math Measure	Performance Description	Fall * Score	Winter Score	Spring Score
Beginning Quantity Discrimination (BQD)	Benchmark	5 +	8 +	12 +
	Below	2 – 4	5 – 7	9 – 11
	Well Below	0 – 1	0 – 4	0 – 8
Number Identification Fluency (NIF)	Benchmark	6 +	15 +	25 +
	Below	4 – 5	8 – 14	14 – 24
	Well Below	0 – 3	0 – 7	0 – 13
Next Number Fluency (NNF)	Benchmark	5 +	11 +	13 +
	Below	2 – 4	8 – 10	10 – 12
	Well Below	0 – 1	0 – 7	0 – 9
DIBELS Math Composite Score	Benchmark	26 +	72 +	88 +
	Below	15 – 25	51 – 71	67 – 87
	Well Below	0 – 14	0 – 50	0 – 66

Kindergarten--Literacy

DIBELS Next Measure	Performance Description	Fall* Score	Winter Score	Spring Score
Letter Naming Fluency (LNF)	No Benchmarks	No Benchmarks	No Benchmarks	No Benchmarks
First Sound Fluency (FSF)	Benchmark	10 +	30 +	Not Administered
	Below	5 – 9	20 – 29	
	Well Below	0 – 4	0 – 19	
Phoneme Segmentation Fluency (PSF)	Benchmark	Not Administered	20 +	40 +
	Below		10 – 19	25 – 39
	Well Below		0 – 9	0 – 24
Nonsense Word Fluency—Correct Letter Sounds (NWF-CLS)	Benchmark	Not Administered	17 +	28 +
	Below		8 – 16	15 – 27
	Well Below		0 – 7	0 – 14
DIBELS Next Composite Score	Benchmark	26 +	122 +	119 +
	Below	13 – 25	85 – 121	89 – 118
	Well Below	0 – 12	0 – 84	0 – 88

*Note. Well Below Benchmark for Fall for a Kindergarten student may indicate minimal access to instruction.

Canyons School District Elementary Screening Targets

First Grade--Math

DIBELS Math Measure	Performance Description	Fall Score	Winter Score	Spring Score
Number Identification Fluency (NIF)	Benchmark	25 +	Not Administered	Not Administered
	Below	15 – 24		
	Well Below	0 – 14		
Next Number Fluency (NNF)	Benchmark	12 +	Not Administered	Not Administered
	Below	8 – 11		
	Well Below	0 – 7		
Advanced Quantity Discrimination (AQD)	Benchmark	10 +	19 +	21 +
	Below	6 – 9	14 – 18	16 – 20
	Well Below	0 – 5	0 – 13	0 – 15
Missing Number Fluency (MNF)	Benchmark	4 +	8 +	10 +
	Below	2 – 3	5 – 7	7 – 9
	Well Below	0 – 1	0 – 4	0 – 6
Computation (COMP)	Benchmark	5 +	10 +	15 +
	Below	3 – 4	7 – 9	11 – 14
	Well Below	0 – 2	0 – 6	0 – 10
DIBELS Math Composite Score	Benchmark	124 +	44 +	56 +
	Below	88 – 123	33 – 43	44 – 55
	Well Below	0 – 87	0 – 32	0 – 43

First Grade--Literacy Note: NWF = Nonsense Word Fluency

DIBELS Next Measure	Performance Description	Fall Score	Winter Score	Spring Score
Letter Naming Fluency (LNF)	No Benchmarks	No Benchmarks	Not Administered	Not Administered
Phoneme Segmentation Fluency (PSF)	Benchmark	40 +	Not Administered	Not Administered
	Below	25 – 39		
	Well Below	0 – 24		
Nonsense Word—Correct Letter Sounds (NWF-CLS)	Benchmark	27 +	43 +	58 +
	Below	18 – 26	33 – 42	47 – 57
	Well Below	0 – 17	0 – 32	0 – 46
Nonsense Word—Whole Words Read (NWF-WWR)	Benchmark	1 +	8 +	13 +
	Below	0	3 – 7	6 – 12
	Well Below	N/A	0 – 2	0 – 5
Oral Reading — Words Read Correctly (DORF-WRC)	Benchmark	Not Administered	23 +	47 +
	Below		16 – 22	32 – 46
	Well Below		0 – 15	0 – 31
Oral Reading— Accuracy (DORF-Accuracy)	Benchmark	Not Administered	78% +	90% +
	Below		68% – 77%	82% – 89%
	Well Below		0% – 67%	0% – 81%
DIBELS Next Composite Score	Benchmark	113 +	130 +	155 +
	Below	97 – 112	100 – 129	111 – 154
	Well Below	0 – 96	0 – 99	0 – 110

6/09/16

Canyons School District Elementary Screening Targets

Second Grade--Math

DIBELS Math Measure	Performance Description	Fall Score	Winter Score	Spring Score
Computation (COMP)	Benchmark	7 +	11 +	16 +
	Below	4 – 6	8 – 10	12 – 15
	Well Below	0 – 3	0 – 7	0 – 11
Concepts and Applications (C&A)	Benchmark	15 +	23 +	33 +
	Below	8 – 14	15 – 22	22 – 32
	Well Below	0 – 7	0 – 14	0 – 21
DIBELS Math Composite Score	Benchmark	30 +	48 +	66 +
	Below	20 – 29	34 – 47	48 – 65
	Well Below	0 – 19	0 – 33	0 – 47

Second Grade--Literacy

DIBELS Next Measure	Performance Description	Fall Score	Winter Score	Spring Score
Nonsense Word—Correct Letter Sounds (NWF-CLS)	Benchmark	54 +	Not Administered	
	Below	35 – 53		
	Well Below	0 – 34		
Nonsense Word—Whole Words Read (NWF-WWR)	Benchmark	13 +	Not Administered	
	Below	6 – 12		
	Well Below	0 – 5		
Oral Reading — Words Read Correctly (DORF-WRC)	Benchmark	52 +	72 +	87 +
	Below	37 – 51	55 – 71	65 – 86
	Well Below	0 – 36	0 – 54	0 – 64
Oral Reading— Accuracy (DORF-Accuracy)	Benchmark	90% +	96% +	97% +
	Below	81% – 89%	91% – 95%	93% – 96%
	Well Below	0% – 80%	0% – 90%	0% – 92%
Retell Fluency— (RF)	Benchmark	16 +	21 +	27 +
	Below	8 – 15	13 - 20	18 - 26
	Well Below	0 – 7	0 – 12	0 – 17
DIBELS Next Composite Score	Benchmark	141 +	190 +	238 +
	Below	109 – 140	145 – 189	180 – 237
	Well Below	0 – 108	0 – 144	0 – 179

Canyons School District Elementary Screening Targets

Third Grade--Math

DIBELS Math Measure	Performance Description	Fall Score	Winter Score	Spring Score
Computation (COMP)	Benchmark	14 +	22 +	29 +
	Below	9 – 13	16 – 21	22 – 28
	Well Below	0 – 8	0 – 15	0 – 21
Concepts and Applications (C&A)	Benchmark	23 +	36 +	40 +
	Below	13 – 22	22 – 35	26 – 39
	Well Below	0 – 12	0 – 21	0 – 25
DIBELS Math Composite Score	Benchmark	52 +	81 +	99 +
	Below	36 – 51	57 – 80	74 – 98
	Well Below	0 – 35	0 – 56	0 – 73

Third Grade--Literacy

DIBELS Next Measure	Performance Description	Fall Score	Winter Score	Spring Score
Oral Reading — Words Read Correctly (DORF-WRC)	Benchmark	70 +	86 +	100 +
	Below	55 – 69	68 – 85	80 – 99
	Well Below	0 – 54	0 – 67	0 – 79
Oral Reading— Accuracy (DORF-Accuracy)	Benchmark	95% +	96% +	97% +
	Below	89% – 94%	92% – 95 %	94% – 96%
	Well Below	0% – 88%	0 % – 91%	0% – 93%
Retell Fluency (RF)	Benchmark	20 +	26 +	30 +
	Below	10 – 19	18 – 25	20 – 29
	Well Below	0 – 9	0 – 17	0 – 19
DIBELS Maze (Daze) Adjusted Score	Benchmark	8 +	11 +	19 +
	Below	5 – 7	7 – 10	14 – 18
	Well Below	0 – 4	0 – 6	0 – 13
DIBELS Next Composite Score	Benchmark	220 +	285 +	330 +
	Below	180 – 219	235 – 284	280 – 329
	Well Below	0 – 179	0 – 234	0 – 279

Canyons School District Elementary Screening Targets

Fourth Grade--Math

DIBELS Math Measure	Performance Description	Fall Score	Winter Score	Spring Score
Computation (COMP)	Benchmark	18 +	31 +	46 +
	Below	13 – 17	21 – 30	33 – 45
	Well Below	0 – 12	0 – 20	0 – 32
Concepts and Applications (C&A)	Benchmark	32 +	43 +	69 +
	Below	21 – 31	27 – 42	44 – 68
	Well Below	0 – 20	0 – 26	0 – 43
DIBELS Math Composite Score	Benchmark	77 +	83 +	117 +
	Below	52 – 76	55 – 82	81 – 116
	Well Below	0 – 51	0 – 54	0 – 80

Fourth Grade--Literacy

Literacy Measure	Performance Description	Fall Score	Winter Score	Spring Score
Reading Inventory (SRI)—Lexile Scores	Advanced	Level Not Available		886 +
	Proficient	Level Not Available		770 – 885
	Basic	Level Not Available		500 – 769
	Below Basic	Level Not Available		0 – 499
DIBELS Oral Reading: Words read correctly (DORF-WRC)	Benchmark	90 +	103 +	115 +
	Below	70 – 89	79 – 102	95 – 114
	Well Below	0 – 69	0 – 78	0 – 94
DIBELS Oral Reading: Accuracy (DORF-Accuracy)	Benchmark	96% +	97% +	98% +
	Below	93% – 95%	94% – 96%	95% – 97%
	Well Below	0% – 92%	0% – 93%	0% – 94%
Retell Fluency (RF)	Benchmark	27 +	30 +	33 +
	Below	14 – 26	20 – 29	24 – 32
	Well Below	0 – 13	0 – 19	0 – 23
DIBELS Maze (Daze) Adjusted Score	Benchmark	15 +	17 +	24 +
	Below	10 – 14	12 – 16	20 – 23
	Well Below	0 – 9	0 – 11	0 – 19
DIBELS Next Composite Score	Benchmark	290 +	330 +	391 +
	Below	245 – 289	290 – 329	330 – 390
	Well Below	0 – 244	0 – 289	0 – 329

Canyons School District Elementary Screening Targets

Fifth Grade--Math

DIBELS Math Measure	Performance Description	Fall Score	Winter Score	Spring Score
Computation (COMP)	Benchmark	27 +	50 +	56 +
	Below	18 – 26	31 – 49	38 – 55
	Well Below	0 – 17	0 – 30	0 – 37
Concepts and Applications (C&A)	Benchmark	25 +	37 +	58 +
	Below	15 – 24	23 – 36	38 – 57
	Well Below	0 – 14	0 – 22	0 – 37
DIBELS Math Composite Score	Benchmark	58 +	93 +	114 +
	Below	38 – 57	63 – 92	81 – 113
	Well Below	0 – 37	0 – 62	0 – 80

Fifth Grade--Literacy

Literacy Measure	Performance Description	Fall Score	Winter Score	Spring Score
Reading Inventory (SRI)—Lexile Scores	Advanced	Level Not Available		981 +
	Proficient	Level Not Available		865 – 980
	Basic	Level Not Available		600 – 864
	Below Basic	Level Not Available		0 – 599
DIBELS Oral Reading: Words Read Correctly (DORF-WRC)	Benchmark	111 +	120 +	130 +
	Below	96 – 110	101 – 119	105 – 129
	Well Below	0 – 95	0 – 100	0 – 104
DIBELS Oral Reading: Accuracy (DORF-Accuracy)	Benchmark	98% +	98% +	99% +
	Below	95% – 97%	96% – 97%	97% – 98%
	Well Below	0% – 94%	0% – 95%	0% – 96%
Retell Fluency (RF)	Benchmark	33 +	36 +	36 +
	Below	22 – 32	25 – 35	25 – 35
	Well Below	0 – 21	0 – 24	0 – 24
DIBELS Maze (Daze) Adjusted Score	Benchmark	18 +	20 +	24 +
	Below	12 – 17	13 – 19	18 – 23
	Well Below	0 – 11	0 – 12	0 – 17
DIBELS Next Composite Score	Benchmark	357 +	372 +	415 +
	Below	258 – 256	310 – 371	340 – 414
	Well Below	0 – 257	0 – 309	0 – 339

Progress Monitoring

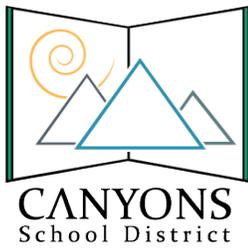
What is progress monitoring? Progress monitoring is “a scientifically based practice that is used to assess students’ academic performance and evaluate the effectiveness of instruction.” (National Center on Student Progress Monitoring, 2016). Progress monitoring involves frequent measurement of student performance for the purpose of evaluating a student’s growth toward a targeted objective. For example, the trajectory of reading growth can be measured with the weekly administration of reading probes. This is a powerful use of formative evaluation that can be highly motivating to students as they self-monitor their progress. Progress monitoring is an assessment strategy that has been demonstrated to have a high effect size on student achievement, particularly when data are graphed, shared with students, and decision rules are used to determine when an intervention is working or when interventions should be intensified.

Why progress monitor? Best practice indicates that students who are significantly behind in basic foundational skills, such as reading and math, should receive **intensified instruction** accompanied by frequent progress monitoring for the purpose of evaluating a student’s growth toward a targeted objective and **adjusting instruction** based on resulting student growth. For example, the rate of improvement can be measured with weekly administration of reading probes. This is a powerful use of formative evaluation and makes skill improvement visible to teacher and student alike. Being able to see progress is highly motivating; lack of progress prompts problem-solving and joint responsibility (student, teachers, and where possible, parents) to find a solution. Progress monitoring is essential for examining the effectiveness of Tier 2 and Tier 3 interventions within a Multi-Tiered System of Support (MTSS).

Who is progress monitored? Students who perform at grade-level (i.e. are meeting benchmarks) should not be progress monitored. Screening three times per year is enough to make sure these students are continuing on an appropriate trajectory. Students who are currently performing below or well-below benchmark on curriculum-based measures (e.g. DIBELS Next, DIBELS Math) should be progress monitored weekly, bi-weekly or monthly, depending on how far behind students are and the resources available for progress monitoring and intensified interventions. Ideally, students who are well below benchmark and are receiving intensive interventions should be progress monitored weekly with a curriculum-based measure. Once students are consistently performing above benchmark levels, progress monitoring is no longer necessary. As a very general rule of thumb, in elementary schools, one would expect the number of students requiring progress monitoring to be between 10% and 25% of the total student population. For some highly impacted schools with large numbers of ELs and/or high poverty, the percentage may be higher. However, keep in mind that progress monitoring too many students eats up resources that could be used for intensifying interventions for students who need it most.

Who conducts the progress monitoring assessment? Ideally, the teachers primarily responsible for a given student’s intensive intervention should conduct the progress monitoring. This could be a classroom teacher, a special education teacher, or an intervention specialist. However, instructional assistants and specialized staff who instruct students may also progress monitor students. In any case, in order to best inform decision making, data from progress monitoring should be shared with all teachers responsible for a student’s learning, the student, and the parents of that student. It is the combination of all of these individuals that makes a collaborative intervention team. If a teacher or staff member progress monitors 1-2 students per group per day, 10-20 students could potentially be monitored biweekly.

When to progress monitor within the school day? Each site will need to identify appropriate times to progress monitor students. Some suggested times for progress monitoring include: during skills-based instruction, during entrance and exit tasks, etc.



Instructional Supports Department
9150 S. 500 West Sandy, UT 84070
T: 801-826-5045 | F: 801-826-5056 | www.canyonsdistrict.org

Advanced Learner Services in Canyons School District

Definition

SALTA, advanced learner services in the Canyons School District, is a Latin-based word that means “leap” which stands for *Supporting Advanced Learners Toward Achievement*.

Mission Statement

To support teachers and administrators with rigorous curriculum, instruction, and assessment focusing on depth, complexity, higher-order thinking skills, and creativity to meet the needs of gifted and advanced learners by providing a continuum of extended learning activities, enrichment opportunities, and appropriately challenging curriculum.

Program Philosophy and Beliefs

Canyons School District administration and teachers believe that gifted and talented students have unique cognitive, academic, creative, and social needs. Students have a right to varied programming which is appropriate to their cognitive and academic abilities, thus optimizing learning opportunities. Programming must strive to offer a challenging learning environment that focuses on high achievement and is responsive to individual student needs. Canyons School District supports the use of research and evidence-based learning strategies, which provide a strong correlation between delivery of instruction and student learning outcomes. With these values at the forefront, Canyons School District continues to develop a continuum of SALTA services ranging from district-wide programs, school-specific services, and magnet schools.

SALTA Goals

Goal 1: Meet the needs of “gifted and talented” students.

Goal 2: Offer advanced learning opportunities at every school and grade-level.

Goal 3: Prepare all students with the skills necessary to be college and career ready.

Goal 4: Provide opportunities for students to focus on application of materials being learned, depth and complexity of those materials, and provide students with extended learning opportunities using the grade level Common Core State Standards as the foundation.

Goal 5: Ensure that ALL students are ready to begin higher-level courses in the secondary setting.

SALTA Magnet Services

SALTA (Supporting Advanced Learners Toward Achievement) Magnet Services are designed to serve students in grades 1-5 who demonstrate high cognitive and academic ability when compared with others of their age, experience, and/or environment. Students in a SALTA Magnet classroom require learning experiences beyond what is typically provided in the regular classroom. In the SALTA Magnet Program the pace of the curriculum is designed to meet the needs of advanced learners with an emphasis on depth and complexity, application of learning materials, higher order thinking skills, and creativity.

SALTA Focus

DEPTH

Refers to approaching or studying something from the concrete to the abstract, from the known to the unknown.

Requires students to examine topics by determining the facts, concepts, generalization, principles and theories related to them.

COMPLEXITY

Complexity is the why and how approach that connects and bridges to other disciplines to enhance the meaning of a unit of study.

Complexity encourages students to:

- Relate concepts and ideas at a more sophisticated level
- See associations among diverse subjects, topics or levels
- Find multiple solutions from multiple points of view

Complexity has three major dimensions:

- Relationships Over Time: Between the past, present and future, and within a time period
- Relationships From Different Points of View: Multiple perspectives, opposing viewpoints, differing roles and knowledge
- Interdisciplinary Relationship: With, between and across the disciplines

HIGHER ORDER THINKING SKILLS

Higher order thinking skills include critical, logical, reflective, metacognitive, and creative thinking.

Higher order thinking skills are activated when individuals encounter unfamiliar problems, uncertainties, questions, or dilemmas.

“In teaching for thinking, the concern is NOT how many answers students know, but what they do when they do NOT know; the goal is not merely to reproduce knowledge, but to create knowledge and grow in cognitive abilities.” (Best Practices in Gifted Education: An Evidence-Based Guide, 2007)

Supporting Framework for Depth, Complexity, and Higher Order Thinking Skills taken from “Hess’ Cognitive Rigor Matrix.”

SALTA Individualized Learning Plan

An **Individualized Learning Plan**, or **ILP** is a written record of gifted and talented programming for each student in the Canyons School District SALTA magnet program. The **ILP** is meant to follow the student throughout their school years and is to be used to plan and make educational decisions.

The **ILP** is a record of SALTA programming services and is meant to be a connection between the student performance profile created at the time of identification for SALTA magnet services and the student's progress in the program. **ILP**'s aid the teacher in providing a challenging learning environment that focuses on high achievement and is responsive to individual student needs. Your child's **ILP** will include the specific programs and practices that will be utilized to **Extend** and **Supplement** your child's **Core** instruction.

All SALTA students are taught the Utah **Core** standards, which are evidence-based, aligned with expectations for success in college and the work place, and allow students to compete internationally. The new standards stress rigor, depth, clarity, coherence, and 21st century skills, drawing from the National Assessment of Educational Progress (NAEP) Frameworks in Reading and Writing and the Trends in International and Science Study (TIMSS) report in Mathematics.

Extensions of core standards provide students with activities that are added to **Core** to deepen understanding. Examples of curriculum supports that may be used to **Extend** the core include:

- Research and Inquiry Skills from Reading Street
- Project-Based Learning
- District supported Extended Learning Activities
- Math Exemplars
- Extending the Challenge in Mathematics by Dr. Linda Sheffield

Supplemental curriculum supports are used to challenge students beyond the **Extend** and **Core** supports. *Junior Great Books* will be used as a supplement for SALTA English Language Arts. *Math M²: Mentoring Young Mathematicians* and *Math M³: Mentoring Mathematical Minds*, as well as *Mathematics Units for High Ability Learners* will be used as a supplement for SALTA math.

Depth, complexity, higher-order thinking skills, and creativity are the programming focus in SALTA to support gifted and talented learners. This focus ensures that the needs of SALTA students are being met and that the curriculum maintains a high level of rigor.

Each student will work towards a "Challenge" goal in English Language Arts and Math and an "Improvement" goal in English Language Arts and Math. A Challenge goal is meant to extend a student's thinking in any area of strength or interest. An Improvement goal is meant to address an area of need for the student, or an area in which the student needs to improve. Challenge and Improvement goals will be articulated on the **ILP**. Additional goals may be added if appropriate.

At the beginning of each school year, the student's current teacher in conjunction the student's parents will review the previous year's **ILP** and set new goals. The **ILP** will then be reviewed at each parent-teacher conference in conjunction with the Canyons School District report card and adjustments will be made as needed.

Writing S.M.A.R.T. Goals

Goals on an *ILP* should be simplistically written and clearly define what the student is going to do.

The purpose of SMART goals in the *ILP* is to inspire students toward new levels of learning and growth. SMART goals provide clear instructional and effective guidance for each student in the SALTA Magnet Program. SMART goals provide a measure of where we believe the student will progress as a result of programming. Results of SMART goals provide the student with an indicator of success, self-efficacy, and next steps.

A **S.M.A.R.T.** goal is defined as one that is **Specific, Measurable, Attainable, Results-oriented & relevant, and Time-bound.**

S	Specific
M	Measurable
A	Attainable
R	Results-oriented & Relevant
T	Time-bound

Specific: Goals should be simplistically written and clearly define what you are going to do. The goal should answer questions such as **how much, for whom, for what?**

Measurable: Goals should be measurable so that you have tangible evidence that you have accomplished the goal. The goal has an outcome that can be assessed or measured in some way. **Which requirements will be met?**

Attainable: An attainable goal has an outcome that is realistic given the current situation, resources and time available.

Results-oriented & Relevant: A results orientated and relevant goal helps maintain focus on the mission or the “bigger picture.” **Why-the specific reasons or purposes of accomplishing the goal.**

Time-bound: A time-bound goal includes realistic timeframes. Sometimes timeframes are imposed. When that is the case, carefully consider what is attainable within the imposed timeframe. The goal should have a clearly defined time frame including a deadline date. **When will it happen?**

Not a SMART goal:

(Student) will improve his/her writing skills.

Does not identify a measurement or time frame, nor identify why the improvement is needed or how it will be used.

SMART goal:

At the end of the first semester, (student) will touch-type a passage of text at a speed of 20 words per minute, with no more than 10 errors, with progress measured on a five-minute timed test.

(Student) will improve his/her writing and spelling skills so he/she can write a clear, cohesive, and readable paragraph consisting of at least 3 sentences, including compound and complex sentences that are clearly related by the end of the 2nd semester.

Examples of S.M.A.R.T. Goals

Challenge Goals

A challenge goal is meant to extend a student's thinking in any area of strength or interest.

Math

Susie will improve her ability to justify her mathematical thinking through writing to a level four by January using the writing rubrics in enVision or Exemplars.

Dorothy will deepen her math knowledge by passing the post test in the Math M3 unit with a score of 90% or greater by the end of the unit.

English Language Arts

Johnny will improve the number of times he participates in Shared Inquiry discussions in small group from 2 times to 5 times during each 30 minute session.

Paul will be able to focus ideas to a level 4 in an expository composition with well supported facts from the Expository Composition rubric found in Reading Street by January 15.

Improvement Goals

An improvement goal is meant to address an area of need for the student, or an area in which the student needs to improve.

Math

Susie will improve her ability to justify her mathematical thinking through writing to a level three by January using the writing rubrics in enVision or Exemplars.

Corky will improve his fluency with multiplication within 100 math facts by passing an progress monitoring probe every two weeks until mastery is reached or April 1.

English Language Arts

Paul will be able to focus ideas to a level 3 in an expository composition with well supported facts from the Expository Composition rubric found in Reading Street by January 15.

Bronson will have organization within the opinion essay with ideas that are presented in logical order to a level 3 from the Persuasive Essay rubric found in Reading Street by January.

Behavior

Sharon will complete three tasks daily as assigned and tracked by the teacher until the next parent teacher conference in March.

Evidence of Progress RIOT

Evidence of progress on a SALTA *ILP* is measured using the RIOT model. The RIOT model helps teachers work efficiently and quickly to decide what relevant information to collect on student academic performance and behavior. The RIOT model is not itself a data collection instrument. It is an organizing framework or heuristic that can enhance the quality of data collected.

The RIOT model includes four potential sources of student information: **Review**, **Interview**, **Observe**, and **Test**.

R	Review
I	Interview
O	Observe
T	Test (Includes Rubrics)

Review: Reviewing information consists of examining past or present records collected on the student. Examples include report cards, office disciplinary referral data, state test results, attendance records, curriculum-based measurement (CBM) testing, common formative assessments (CFA's), and summative assessments. Less obvious examples include student work samples, physical products of teacher interventions (e.g., a sticker chart used to reward positive student behaviors), and emails sent by a teacher to a parent detailing concerns about a student's study and organizational skills.

Interview: Interview targets can include teachers, paraprofessionals, administrators, and support staff in the school setting who have worked with or had interactions with the student in the present or past. Prospective interview candidates can also consist of parents and other relatives of the student as well as the student himself or herself. Interviews can be conducted face-to-face, via telephone, or email correspondence. Interviews can be structured (using a pre-determined series of questions) or follow an open-ended format, with questions guided by information supplied by the respondent.

Observation: Direct observation of the student's academic skills, study and organizational strategies, degree of focus and attention, and general conduct can be useful information. Observations can be structured (e.g., tallying the frequency of call-outs or calculating the percentage of on-task intervals during a class period) or less structured (e.g., observing a student and writing a running narrative of the observed events). Other examples of observation include a teacher keeping a frequency count of the times that he/she redirects an inattentive student to task during a certain time period or a school psychologist observing the number of intervals a student talks with peers during independent seatwork. Less obvious examples of observation include having a student rate his/her own academic performance or behavior (self-monitoring) and encouraging a parent to send to school narrative observations of the student's typical routine for completing homework.

Test: A test or examination is an assessment intended to measure a student's knowledge, skill, and/or aptitude. Testing takes many different forms and is conducted in a variety of ways. Examples of tests include curriculum-based measurements, formative and summative assessments, and the use of rubrics.

SALTA Individualized Learning Plan (ILP)

Plan Year					
Student Name					
Student ID #					
Grade	<input type="checkbox"/> 1 st	<input type="checkbox"/> 2 nd	<input type="checkbox"/> 3 rd	<input type="checkbox"/> 4 th	<input type="checkbox"/> 5 th
School	<input type="checkbox"/> Peruvian Park Elementary		<input type="checkbox"/> Sunrise Elementary		
Other Services	<input type="checkbox"/> IEP		<input type="checkbox"/> 504		<input type="checkbox"/> ELL

Student Profile

Program Entrance Date:		Qualification Testing Date:			
Cognitive (CogAT 6)		Academic (SAGES-2) [If Applicable]		Academic (IOWA-E) [If Applicable]	
Verbal Percentile Rank		Math/Science Percentile Rank		Reading Percentile Rank	
Quantitative Percentile Rank				Math Percentile Rank	
Nonverbal Percentile Rank		Language Arts/Social Studies Percentile Rank		Social Studies Percentile Rank	
Composite Percentile Rank				Science Percentile Rank	
Other Assessments:		Scores:		Word Analysis Percentile Rank	
				Vocabulary Percentile Rank	

Present Levels of Academic Performance					
DIBELS		Computation		SRI (4 th – 5 th)	
Fall		Fall		Fall	
Winter		Winter		Winter	
Spring		Spring		Spring	

SALTA Programming

Depth, Complexity, Higher Order Thinking Skills, Creativity

English Language Arts CORE: -Reading Street EXTEND: -Reading Street w/Research & Inquiry Skills (R&I Skills) -Project-Based Learning (PBL) -Extended Learning Opportunities (ExLO) SUPPLEMENTAL: -Jr. Great Books						Math CORE: -enVision w/Math Investigations EXTEND: -Math Exemplars -Extending the Challenge (A & B), Sheffield (ExCh) -Extended Learning Opportunities (ExLO) -Project-Based Learning (PBL) SUPPLEMENTAL: -Math M ² & M ³ -Mathematics Unit for High-Ability Learners		
Extend and Supplemental material support(s) marked below align to S.M.A.R.T goal(s) that will demonstrate student growth. (Mark at least one).								
Extend			Extend					
<input type="checkbox"/> R&I Skills	<input type="checkbox"/> PBL	<input type="checkbox"/> ExLO	<input type="checkbox"/> Exemplars	<input type="checkbox"/> ExCh	<input type="checkbox"/> ExLO	<input type="checkbox"/> PBL		
Supplemental			Supplemental					
<input type="checkbox"/> Jr. Great Books			<input type="checkbox"/> Math M ² or M ³		<input type="checkbox"/> High-Ability Learners Unit			

Student SMART Goals

<u>Specific</u> <u>Measureable</u> <u>Attainable</u> <u>Results-oriented & Relevant</u> <u>Time-bound</u>
Initial Conference Date:
<u>ENGLISH LANGUAGE ARTS</u>
SMART Goal:
Evidence of Progress: (Describe Below) <u>R</u> eview <u>I</u> nterview <u>O</u> bservation <u>T</u> est (Includes Rubrics)
<u>R</u> eview
<u>I</u> nterview
<u>O</u> bservation
<u>T</u> est (Includes Rubrics)
Follow-up Conference Date:
Describe Progress:
Final Notes:

Student SMART Goals

<u>Specific</u> <u>Measurable</u> <u>Attainable</u> <u>Results-oriented & Relevant</u> <u>Time-bound</u>
Initial Conference Date:
<u>MATH</u>
SMART Goal:
Evidence of Progress: (Describe Below) <u>R</u> eview <u>I</u> nterview <u>O</u> bservation <u>T</u> est (Includes Rubrics)
<u>R</u> eview
<u>I</u> nterview
<u>O</u> bservation
<u>T</u> est (Includes Rubrics)
Follow-up Conference Date:
Describe Progress:
Final Notes:

Student SMART Goals

<u>Specific</u> <u>Measureable</u> <u>Attainable</u> <u>Results-oriented & Relevant</u> <u>Time-bound</u>
Initial Conference Date:
OTHER Other Goal "Areas" may include Social/Behavioral, ELA, Math, Content Integration, Science, Social Studies, etc. Goal must be school related.
Area:
SMART Goal:
Evidence of Progress: (Describe Below) <u>R</u> eview <u>I</u> nterview <u>O</u> bservation <u>T</u> est (Includes Rubrics)
<u>R</u> eview
<u>I</u> nterview
<u>O</u> bservation
<u>T</u> est (Includes Rubrics)
Follow-up Conference Date:
Describe Progress:
Final Notes:

Signature Page

Initial Conference

Date: _____

Student _____

Parent _____

Teacher _____

Other/Title _____

Follow-up Conference

Date: _____

Student _____

Parent _____

Teacher _____

Other/Title _____

Homework—What Works?

Research indicates that when homework is carefully planned, there can be significant benefits to student achievement such as: increased time on task, readiness for classroom instruction, supports self-regulation, and develops traits of independence and responsibility.

Homework Characteristics:

- Build fluency
- Apply knowledge
- Reviewing and practicing past learning
- Extend learning across topics and disciplines

Rick Wormeli



Key Findings of Homework Research

Purpose

Homework needs a clear purpose and should be able to be completed *without* assistance. Homework should focus on the process of learning rather than the final result (Schimmer, 2016).

Valid purposes for homework include:

1. Practicing a skill or process that students can do independently, but not fluently;
2. Elaborating on information that has been addressed in class to deepen students' knowledge; and,
3. Providing opportunities for students to explore topics of their own interest (Vatterott, 2009).

CSD resources that align to these purposes include the [ELA Homework Skills](#) pages and the *enVision Daily Common Core Review Sheet*. Additionally, *Reflex Math* is an effective tool for allowing students to develop their fluency in the basic operations.

- Homework provides formative data for teachers and learners when it becomes a tool for continuing the learning the next day (Erkens, 2016).
- “Homework is most effective when it covers material already taught. Material that was taught the same day is not as effective as an assignment given to review and reinforce skills learned previously” (AFT, 2006)
- “Homework is also most effective when it is used to reinforce skills learned in previous weeks or months” (AFT, 2006). This will provide additional reinforcement to build automaticity in the concept being practiced.

Time and Communication

- Shorter, more frequent homework is better than longer assignments given infrequently (Vatterott, 2009).
- Homework should be time-based. This means students should be given a specific amount of time to complete it and stop when that time is up. The general rule of thumb in elementary is 10 minutes per grade level (Cooper, 2001).
- Simple feedback keeps the focus on learning (Hattie, 2008). For example, when providing feedback on math homework it would be best to review student responses prior to math instruction. If a common error is found in student work, then take a few minutes to explain to the students that many students in the class missed the problem and we are going to take a few minutes to learn from our errors. If it is only a small group of students who missed the skill, then provide additional instruction to those students in a small group setting.
- Parents should be made aware of the purpose of the homework assignments, the length of time the student should spend, and the expectations. Parents should feel free to call a halt to homework assignments if their child is getting frustrated, spending an inordinate amount of time on homework, or obviously doesn't understand what to do. Sending a note or an email to the teacher is entirely appropriate and teachers should respond positively.

The overall message of homework research is the right amount of homework that is high quality, provides timely feedback, and is purposeful can be beneficial for learning and too much homework has negative effects on student achievement.

Creating a Classroom Culture for Structured Interactions

Arrange Classroom	Examples
Seating to be conducive to structured interactions with pairs and groups	<ul style="list-style-type: none"> • Maintain visibility to teacher • Maintain visibility to reference points, (e.g., whiteboard, response frames, anchor charts etc.) • Possible seating arrangements <ul style="list-style-type: none"> ○ rows – one partner to the left and one partner behind ○ tables - one partner across and one beside ○ chevron – one partner to the side and one behind
Assign and Alternate Partners	Examples
<ul style="list-style-type: none"> • First few days of school, look for ways to use random partnering • Allow for students to partner with at least 2 different classmates • Allow for students to experience different individuals 	<u>Partnering Strategies:</u> <ol style="list-style-type: none"> 1. Assign partners 2. Designate 1s and 2s/As and Bs (no 3's – have second 2) 3. Provide question or discussion topic 4. Assign which partner should go first 5. State how much time will be allotted <ul style="list-style-type: none"> * structure Academic Language – (see sentence frames) 6. Circulate to monitor discussions 7. Call on 1-4 individuals who had good answers; make it look random (no hands up) 8. Ask who else has something different to add
Consider Variables in Partnerships	Examples
<ul style="list-style-type: none"> • Use data to determine how to best assign partners (avoid pairing high performing students with low performing students). • Teach expectations for absences - have substitute partners identified 	<ul style="list-style-type: none"> • ELL proficiency • Communicative competence • Reading and writing proficiency • Attendance • Maturity • Behavioral needs <p>- Assign partners taking into consideration literacy and language skills. Rank your students numerically from highest (1, 2, 3) to lowest (28, 29, 30). #1 is paired with #16, #2 is paired with 17, #3 is paired with #18, #15 is paired with #30, and so on.</p> <p>- Observe how these partners work together and adjust as needed.</p>
Establish, Teach and Reinforce Expectations	Examples
<ul style="list-style-type: none"> • Foster setting that collaborative interactions are the expectation <ul style="list-style-type: none"> ○ Model ○ Teach ○ Provide practice ○ Provide a reference for the expectations 	<u>Use the 4 L's</u> <ol style="list-style-type: none"> 1. Look at partner 2. Lean toward partner 3. Lower your voice 4. Listen attentively
Listening accountability	Examples
Utilize strategies to elicit democratic contributions	<ul style="list-style-type: none"> • Preselect initial reporters from the partnership • Invite contributions from students that have not had the opportunity • Randomly select students by using a name card • Allow for students to report their partner's idea • Cue partners A or B to stand and ask for one of the student's standing to report out

Adapted from Kate Kinsella, 2015

Academic Language

(a.k.a. Academic English)

“Closely related to text complexity and inextricably connected to reading comprehension is a focus on academic vocabulary: words that appear in a variety of content areas (such as ignite and commit) ... their use extends across reading, writing, speaking, and listening.” (corestandards.org, May, 2015)

Academic Language is “the oral and written text required to succeed in school that entails deep understanding and communication of the language content within a classroom environment.” (wida.us, 2012).

Academic language is often described as the more *formal* ‘language of school and testing’ contrasting the *informal* language spoken on the school bus, playground or while students are in the hallways with friends. Like this sentence, and others found in textbooks and on assessments, academic language is more formal in tone and structures and includes words, phrases and sentences that are information dense (Childress, 2013). Academic language is often thought of as just the unfamiliar or technical vocabulary associated with content area lessons, however it is much more than words!

Academic language instruction should be integrated into the core curriculum and explicitly taught throughout the day. Teachers should be models of academic language all day long. Students with language deficits do not need to master conversational oral English before they are taught the features of academic English.

Academic Language IS	Academic Language is NOT
<ul style="list-style-type: none"> Used in both writing and speaking Different from social conversations A register of language for specific purposes (text message vs essay) Much broader than a focus on “correct” usage Built around meaning and purpose 	<ul style="list-style-type: none"> Just written Just formal language Just words or specialized vocabulary Just the use of standard (“correct”) forms Just linguistic forms without meaning or purpose

What makes language sound academic?		
Everyday Language	VS	Academic Language
Casual language spoken with or to peers or adults with whom you feel close <i>“You guys get it?”</i>		Spoken with or by teachers, principals, authority figures <i>“Do you understand what the text is saying?”</i>
More informal with simple grammatical structures <i>I thought the author did a great job making the characters real to me.</i>		More formal with complex grammatical structures <i>The author skillfully captured the essence of each character through vivid descriptions.</i>
Shorter and incomplete sentences <i>“Thanks!”</i>		Longer and complete sentences <i>“I appreciate your help with this.”</i>
Repetition of words <i>“And then...and then...and then”</i>		Variety of words <i>“First...then...finally...consequently”</i>
Less sophisticated vocabulary <i>This shows It’s about</i>		More sophisticated vocabulary <i>Your response demonstrates, illustrates, portrays It concerns, It’s in regards to</i>
Sentences start with conjunctions such as ‘and’, ‘but’ and ‘because’		Sentences start with transitions such as ‘however’ and ‘in addition to’
Actions through verbs <i>solve, fail, discover “Solve the problem.”</i>		Actions turned into nouns to build concepts <i>solution, failure, discovery “Find a solution to the problem.”</i>
Active voice more common <i>John purchased five books.</i>		Passive voice more common. <i>Five books were purchased by John.</i>
Shorter noun phrases <i>The dog</i>		Longer noun phrases <i>The drooling, long-eared Labrador pup</i>
Use of slang <i>“My bad!”</i>		No slang <i>“I made a mistake.”</i>

Adapted from: Jennifer Childress, Assoc. Professor, Art Education, The College of Saint Rose 10/8/13
<https://communications.madison.k12.wi.us/what-is-academic-language>

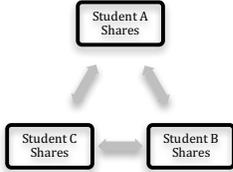
Structures to Support Academic Language

Reading and writing float on a sea of talk. ~ James Britton

All language learners need access to instruction that clearly connects the four domains of language: listening, speaking, reading and writing. This is especially important for English Language Learners (ELLs). While ‘student talk’ takes time that we often do not feel we have enough of, it is an absolute necessity. Developing oracy through **structured and intentionally planned academic discussion** is critical to achieve our goal of high-level literacy.

Output VS Interaction

Adapted from Oakland Unified School District

	What is it?	Example	Benefit
Output	Students sharing their answer to a prompt.	<p><i>“Share one consequence the Great Depression had on the United States with your group.”</i></p> 	Good practice to support the more challenging task of authentic interaction .
Interaction	Students working together to co-construct meaning . When students interact, they challenge each other, elaborate, clarify responses and build on one another’s ideas.	<p><i>“Decide which consequence of the Great Depression had the most impact on the United States.”</i></p> 	Deeper meaning and concept building and understanding develops

Teacher Responsibilities	Examples
Improve Academic Discussion and Discourse	<p>Student Alternatives to “I don’t know,” “What,” or “Huh?”</p> <ul style="list-style-type: none"> • May I please have more information? • May I have some more time to think? • Would you please repeat the question? • Where can I find information? • May I ask a friend for help?
Use prompts and questioning to maximize participation and elaboration. (Asking meaningful, challenging, and open-ended questions)	<p>Teacher prompts to increase elaboration</p> <ul style="list-style-type: none"> • Tell us more. • Would you like to ask me a question? • Would you say that again? • Give us another example to help us understand. • I’d like to hear what others are thinking about Joe’s comment. • Take your time. I can see you have more to say about this. • Where can we find that information you just brought up? <p>Fisher & Frey, Educational Leadership, Speaking Volumes, November 2014, Volume 72 pages 18-23</p>

Webb's Depth of Knowledge (DOK)

Webb's Depth of Knowledge (DOK) provides a vocabulary and a frame of reference that connects the type of thinking with the complexity of the task. Using DOK levels offers a common language to understand "rigor," or cognitive demand, in assessments, as well as curricular units, lessons, and tasks. Consequently, teachers need to develop the ability to design questions, tasks and classroom assessments for a greater range of cognitive demand. Most often a scaffolded support is needed to help students organize or break down information. All learners K-12 should experience a variety of DOK levels.

Depth of Knowledge Generalizations:

If there is one correct answer, it is most likely a DOK 1 or DOK 2.

- DOK 1: Either you know it or you don't
- DOK 2: Make connections with known information

If there is more than one answer, requiring supporting evidence, it is a DOK 3 or DOK 4.

- DOK 3: Interpret implied information, provide supporting evidence and reasoning. Explain not just HOW but WHY for each step and decision made
- DOK 4: Includes all of DOK 3 and the use of multiple sources/data/ texts

DOK Level 1: Recall & Reproduction	
Students are to recall or reproduce knowledge and /or skills. Content involves working with facts, terms, details and calculations. Level 1 items have a correct answer with nothing to reason or figure out.	
Teacher Role	Student Role
Questions to direct or focus attention, shows, tells, demonstrates, provides examples, examines, leads, breaks down, defines	Recognizes, responds, remembers, memorizes, restates, absorbs, describes, demonstrates, follows directions, applies routine processes, definitions, and procedures
Possible Task and Products	
<ul style="list-style-type: none"> • Fill in the blank • Quiz • Calculate, compute • Oral reading fluency • Decoding words • Write complete sentences • Document with highlighting/ citing/ annotating sources • Locate and recall quotes • Recite math facts, poems etc. 	<ul style="list-style-type: none"> • Write a list of key words about . . . • Memorize lines • Complete basic calculation tasks (e.g., add, subtract, divide, multiply) • Complete measurement tasks using rulers or thermometers • Read for fact/details or plot • Locate or retrieve information in verbatim form to answer a question
Potential Questions	
Can you recall _____?	Can you select _____?
When did _____ happen?	How would you write _____?
Who was _____?	What might you include on a list about _____?
How can you recognize _____?	Who discovered _____?
What is _____?	What is the formula for _____?
How can you find the meaning of _____?	Can you identify _____?

Hess, 2013. Adapted from A Guide for Using Webb's Depth of Knowledge with Common Core State Standards

Webb's Depth of Knowledge (DOK)

DOK Level 2: Skill/Concept	
Includes the engagement of mental processing beyond recalling, reproducing or locating an answer. This level generally requires students to compare and contrast, cause and effect, classify, or sort items into meaningful categories, describe or explain relationships, provide examples and non-examples.	
Teacher Role	Student Role
Provides questions to differentiate, infer, or check conceptual understanding, models, organizes,/reorganizes, explores, possible options or connections, provides, examples and non-examples	Solves routine problems/tasks involving multiple decisions points and concepts, constructs models to show relationships, demonstrates use of conceptual knowledge, compiles and organizes, illustrates with examples or models and examines.
Possible Tasks and Products	
<ul style="list-style-type: none"> • Timeline • Number line • Graphic organizer • Science logs • Concept Maps • Captioned Story Board • Use a Venn Diagram that shows how two topics from the same source are the same and different 	<ul style="list-style-type: none"> • Write a summary • Explain a series of steps used to find a solution • Sequence of events using a graphic organizer • Explain the meaning of a concept using words, objects and/or visuals • Complex calculations involving decision points • Conduct, collect, and organize data
Potential Questions:	
What other way could you solve/find out ___? What is your prediction and why? How would you organize ___ to show ___? Can you explain how ___ affected ___? How would you apply what you learned to develop ___? How would you compare ___ and contrast ___? How would you classify?	What facts are relevant to show ___? How or why would we use ___? What examples or non-examples can we find? What is the relationship between ___ and ___? How would you summarize? How are __ alike and different? What do you notice about ___? How would you estimate ___?

Webb's Depth of Knowledge (DOK)

DOK Level 3: Strategic Thinking and Reasoning	
<p>Stating reasons and providing relevant supporting evidence are key markers of DOK 3 tasks. The expectation established for tasks at his level require an in-depth integration of conceptual knowledge and multiple skills to reach a solution or produce a final product. DOK 3 tasks focus on in-depth understanding of one text, one data set, one investigation, or one key source.</p>	
Teacher Roles	Student Role
<p>Questions to probe reasoning and underlying thinking, asks open-ended questions, acts as a resource and coach, provides criteria and examples for making judgments and supporting claims. Encourages multiple approaches and solutions and determines when in depth exploration is appropriate.</p>	<p>Uncovers and selects relevant and credible supporting evidence for analyses, critiques, debates, claims and judgments, plans, initiates questions, disputes, argues, tests ideas/solutions, sustains inquiry into topics or deeper problems, applies to the real world.</p>
Possible Tasks and Products:	
<ul style="list-style-type: none"> • Complex graph • Analyze survey results • Multiple paragraph essay or short story • Fact-based argument • Chart and draw conclusions about data sets • Investigation • Drawing conclusions from text or data sets • Generalize from a set of evidence or data • Justification of the solution to a problem • Debate from a given perspective 	<ul style="list-style-type: none"> • Design a questionnaire to gather information • Survey classmates/industry members to find out what they think about a particular topics • Make a flow chart to show the critical stages. • Participate in a discussion that represents different viewpoints • Write a opinion essay • Convince others with evidence • Solve non-routine problems • Interpret information from a complex graph
Potential Questions	
<p>How is ___ related to ____?</p> <p>What are the possible flaws in ____?</p> <p>What is the theme/lesson-learned ____?</p> <p>How would the moral change if ____?</p> <p>What underlying bias is there ____?</p> <p>What inferences will these facts support____?</p> <p>How does the author create tension/suspense____?</p> <p>What is the author's reasoning for____?</p>	<p>How can you prove that your solution is reasonable?</p> <p>What evidence can you find to support____?</p> <p>What ideas justify ____?</p> <p>What conclusions can you draw?</p> <p>What information can you draw on to support your reason for ____?</p> <p>How would you ____ to create a different ____?</p> <p>What is the best answer and why?</p> <p>Can you elaborate on your reason and give examples?</p>

Webb's Depth of Knowledge (DOK)

DOK Level 4: Extended Thinking	
<p>Stating reasons and providing relevant supporting evidence are key markers of DOK 4 tasks. The expectation established for tasks at this level require an in-depth integration of conceptual knowledge and multiple skills to reach a solution or produce a final product. DOK 4 tasks focus on in-depth understanding of multiple texts, multiple data sets, multiple investigations, or multiple key sources.</p>	
Teacher Roles	Student Role
<p>Questions extend thinking and broaden perspectives; facilitates teaming, collaboration and self-evaluation of students.</p>	<p>Designs, takes risks, researches synthesizing multiple sources, collaborates, plans, organizes, modifies, creates concrete tangible products.</p>
Possible Tasks and Products:	
<ul style="list-style-type: none"> • Presentation—using diverse media formats • Research report synthesizing multiple sources • Essay (informational, narrative or opinion) using multiple sources • Multiple data sources synthesized to develop original graphs • Assessment based on application of the content knowledge 	<ul style="list-style-type: none"> • Applying information from more than one discipline to solve non-routine problems in novel or real-world situations. • Tasks that require making multiple strategic and procedural decisions as new information is processed • Tasks that require multiple roles and collaboration with others. (peer revision, editing of a script) • Tasks that draw evidence from multiple sources to support solutions/conclusions
Potential Questions—all require multiple sources for evidence	
	<p>What changes would you make to solve or address this major issue/problem _____?</p> <p>Can you propose an alternate solution?</p> <p>Do you agree with the actions, outcomes, or decisions?</p> <p>How would you prove or disprove?</p> <p>Can you assess the value or importance of?</p>

Table 1: Math Descriptors – Applying Depth of Knowledge Levels for Mathematics (Webb, 2002) & NAEP 2002 Mathematics Levels of Complexity (M. Petit, Center for Assessment 2003, K. Hess, Center for Assessment, updated 2006)

Level 1 Recall	Level 2 Skills/Concepts	Level 3 Strategic Thinking	Level 4 Extended Thinking
<ul style="list-style-type: none"> a. Recall, observe, or recognize a fact, definition, term, or property b. Apply/compute a well-known algorithm (e.g., sum, quotient) c. Apply a formula d. Determine the area or perimeter of rectangles or triangles given a drawing and labels e. Identify a plane or three dimensional figure f. Measure g. Perform a specified or routine procedure (e.g., apply rules for rounding) h. Evaluate an expression i. Solve a one-step word problem j. Retrieve information from a table or graph k. Recall, identify, or make conversions between and among representations or numbers (fractions, decimals, and percents), or within and between customary and metric measures l. Locate numbers on a number line, or points on a coordinate grid m. Solve linear equations n. Represent math relationships in words, pictures, or symbols o. Read, write, and compare decimals in scientific notation 	<ul style="list-style-type: none"> a. Classify plane and three dimensional figures b. Interpret information from a simple graph c. Use models to represent mathematical concepts d. Solve a routine problem requiring multiple steps/decision points, or the application of multiple concepts e. Compare and/or contrast figures or statements f. Construct 2-dimensional patterns for 3-dimensional models, such as cylinders and cones g. Provide justifications for steps in a solution process h. Extend a pattern i. Retrieve information from a table, graph, or figure and use it solve a problem requiring multiple steps j. Translate between tables, graphs, words and symbolic notation k. Make direct translations between problem situations and symbolic notation l. Select a procedure according to criteria and perform it m. Specify and explain relationships between facts, terms, properties, or operations n. Compare, classify, organize, estimate, or order data 	<ul style="list-style-type: none"> a) Interpret information from a complex graph b) Explain thinking when more than one response is possible c) Make and/or justify conjectures d) Use evidence to develop logical arguments for a concept e) Use concepts to solve non-routine problems f) Perform procedure with multiple steps and multiple decision points g) Generalize a pattern h) Describe, compare, and contrast solution methods i) Formulate a mathematical model for a complex situation j) Provide mathematical justifications k) Solve a multiple- step problem and provide support with a mathematical explanation that justifies the answer l) Solve 2-step linear equations/inequalities in one variable over the rational numbers, interpret solution(s) in the original context, and verify reasonableness of results m) Translate between a problem situation and symbolic notation that is not a direct translation n) Formulate an original problem, given a situation o) Analyze the similarities and differences between procedures p) Draw conclusion from observations or data, citing evidence 	<ul style="list-style-type: none"> a) Relate mathematical concepts to other content areas b) Relate mathematical concepts to real-world applications in new situations c) Apply a mathematical model to illuminate a problem, situation d) Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results e) Design a mathematical model to inform and solve a practical or abstract situation f) Develop generalizations of the results obtained and the strategies used and apply them to new problem situations g) Apply one approach among many to solve problems h) Apply understanding in a novel way, providing an argument/justification for the application <p><i>NOTE: Level 4 involves such things as complex restructuring of data or establishing and evaluating criteria to solve problems.</i></p>

**Table 1: Sample Depth-of-Knowledge Level Descriptors for Reading
(Based on Webb and Wixson, K. Hess, Center for Assessment/NCIEA, 2004)**

Level 1 Recall of Information	Level 2 Basic Reasoning	Level 3 Complex Reasoning	Level 4 Extended Reasoning
<ul style="list-style-type: none"> a. Read words orally in isolation b. Read words orally in connected text c. Read multi-syllabic words d. Locate or recall facts or details explicitly presented in text e. Identify or describe characters, setting, sequence of events f. Use language structure (pre/suffix) or word relationships (synonym/antonym) to determine meaning of words g. Select appropriate words to use in context (e.g., content-specific words, shades of meaning) when intended meaning is clearly evident 	<ul style="list-style-type: none"> a. Use context cues or resources to identify the meaning of unfamiliar words b. Predict a logical outcome based on information in a reading selection c. Make basic inferences or draw basic conclusions about information presented in text (e.g., According to this report, what caused ___?) d. Recognizing appropriate generalizations about text (e.g., possible titles, main ideas) e. Identify and summarize the major events, problem, solution, conflicts in a literary text f. Determine whether a text is fact or fiction g. Distinguish between fact and opinion h. Describe the characteristics or features of various types of text i. Obtain information using text features of informational text (e.g., Table of Contents, sidebar, chart) j. Organize information presented in informational text using mapping, charting, or summarizing k. Locate information to answer questions related to explicit or implicit central ideas in informational texts l. Identify use of literary devices (e.g., imagery, idioms, exaggeration, alliteration, etc.) 	<ul style="list-style-type: none"> a. Explain, generalize, or connect ideas, using supporting evidence from the text or from other sources b. Draw inferences about author's purpose, author's message or theme (explicit or implied) c. Make and support inferences about implied causes and effects d. Describe how word choice, point of view, or bias affects the interpretation of a reading selection e. Summarize or compare information within and across text passages f. Analyze interrelationships among elements of the text (plot, subplots, characters, setting) g. Analyze or interpret use of author's craft (literary devices) to analyze or critique a literary text 	<ul style="list-style-type: none"> a. Compare or analyze multiple works by the same author, including author's craft b. Compare or analyze multiple works from the same time period or from the same genre c. Gather, analyze, organize, and interpret information from multiple (print and non print) sources for the purpose of drafting a reasoned report d. Evaluate the relevancy and accuracy of information from multiple (print and non print) sources (e.g., verifying factual information or assertions with other sources; researching the source of information)

2 August 2004 Compiled by Karin Hess, National Center for Assessment, Dover, NH
 © Karin K. Hess permission to reproduce is given when authorship is fully cited khess@nciea.org

Table 1: Sample Depth-of-Knowledge Level Descriptors for Social Studies
(Based on Webb, Karin Hess, 2005, National Center for Assessment www.nciea.org)

Level 1 Recall of Information	Level 2 Basic Reasoning	Level 3 Complex Reasoning	Level 4 Extended Reasoning
<ul style="list-style-type: none"> a. Recall or recognition of: fact, term, concept, trend, generalization, event, or document b. Identify or describe features of places or people c. Identify key figures in a particular context meaning of words d. Describe or explain: who, what, where, when e. Identify specific information contained in maps, charts, tables, graphs, or drawings 	<ul style="list-style-type: none"> a. Describe cause-effect of particular events b. Describe or explain: how (relationships or results), why, points of view, processes, significance, or impact c. Identify patterns in events or behavior d. Categorize events or figures in history into meaningful groups e. Identify and summarize the major events, problem, solution, conflicts f. Distinguish between fact and opinion g. Organize information to show relationships h. Compare and contrast people, events, places, concepts i. Give examples and non-examples to illustrate an idea/concept 	<ul style="list-style-type: none"> a. Explain, generalize, or connect ideas, using supporting evidence from a text/source b. Apply a concept in other contexts c. Make and support inferences about implied causes and effects d. Draw conclusion or form alternative conclusions e. Analyze how changes have affected people or places f. Use concepts to solve problems g. Analyze similarities and differences in issues or problems h. Propose and evaluate solutions i. Recognize and explain misconceptions related to concepts 	<ul style="list-style-type: none"> a. Analyze and explain multiple perspectives or issues within or across time periods, events, or cultures b. Gather, analyze, organize, and synthesize information from multiple (print and non print) sources c. Make predictions with evidence as support d. Plan and develop solutions to problems e. Given a situation/problem, research, define, and describe the situation/problem and provide alternative solutions f. Describe, define, and illustrate common social, historical, economic, or geographical themes and how they interrelate

Table 1: Detailed Descriptors of Depth-of-Knowledge Levels for Science
(K. Hess, Center for Assessment, based on Webb, update 2005)

Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking	Level 4 Extended Thinking
<ul style="list-style-type: none"> a. Recall or recognize a fact, term, definition, simple procedure (such as one step), or property b. Demonstrate a rote response c. Use a well-known formula d. Represent in words or diagrams a scientific concept or relationship e. Provide or recognize a standard scientific representation for simple phenomenon f. Perform a routine procedure, such as measuring length g. Perform a simple science process or a set procedure (like a recipe) h. Perform a clearly defined set of steps i. Identify, calculate, or measure 	<ul style="list-style-type: none"> a. Specify and explain the relationship between facts, terms, properties, or variables b. Describe and explain examples and non-examples of science concepts c. Select a procedure according to specified criteria and perform it d. Formulate a routine problem given data and conditions e. Organize, represent, and compare data f. Make a decision as to how to approach the problem g. Classify, organize, or estimate h. Compare data i. Make observations j. Interpret information from a simple graph k. Collect and display data 	<ul style="list-style-type: none"> a. Interpret information from a complex graph (such as determining features of the graph or aggregating data in the graph) b. Use reasoning, planning, and evidence c. Explain thinking (beyond a simple explanation or using only a word or two to respond) d. Justify a response e. Identify research questions and design investigations for a scientific problem f. Use concepts to solve non-routine problems/more than one possible answer g. Develop a scientific model for a complex situation h. Form conclusions from experimental or observational data i. Complete a multi-step problem that involves planning and reasoning j. Provide an explanation of a principle k. Justify a response when more than one answer is possible l. Cite evidence and develop a logical argument for concepts m. Conduct a designed investigation n. Research and explain a scientific concept o. Explain phenomena in terms of concepts 	<ul style="list-style-type: none"> a. Select or devise approach among many alternatives to solve problem b. Based on provided data from a complex experiment that is novel to the student, deduct the fundamental relationship between several controlled variables. c. Conduct an investigation, from specifying a problem to designing and carrying out an experiment, to analyzing its data and forming conclusions d. Relate ideas <i>within</i> the content area or <i>among</i> content areas e. Develop generalizations of the results obtained and the strategies used and apply them to new problem situations

Hess' Cognitive Rigor Matrix & Curricular Examples: Applying Webb's Depth-of-Knowledge Levels to Bloom's Cognitive Process Dimensions - Reading

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Reproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/ Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	<ul style="list-style-type: none"> Recall, recognize, or locate basic facts, details, events, or ideas explicit in texts Read words orally in connected text with fluency & accuracy Define terms 			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion), predict, compare/contrast, match like ideas, explain, construct models	<ul style="list-style-type: none"> Identify or describe literary elements (characters, setting, sequence, etc.) Select appropriate words when intended meaning/definition is clearly evident Describe/explain who, what, where, when, or how 	<ul style="list-style-type: none"> Specify, explain, show relationships; explain why, cause-effect Give non-examples/examples Summarize results, concepts, ideas Make basic inferences or logical predictions from data or texts Identify main ideas or accurate generalizations of texts Locate information to support explicit-implicit central ideas 	<ul style="list-style-type: none"> Explain, generalize, or connect ideas using supporting evidence (quote, example, text reference) Identify/ make inferences about explicit or implicit themes Describe how word choice, point of view, or bias may affect the readers' interpretation of a text 	<ul style="list-style-type: none"> Explain how concepts or ideas specifically relate to <i>other</i> content domains or concepts Develop generalizations of the results obtained or strategies used and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	<ul style="list-style-type: none"> Use language structure (pre/suffix) or word relationships (synonym/antonym) to determine meaning of words 	<ul style="list-style-type: none"> Use context to identify the meaning of words/phrases Obtain and interpret information using text features 	<ul style="list-style-type: none"> Apply a concept in a new context 	<ul style="list-style-type: none"> Illustrate how multiple themes (historical, geographic, social) may be interrelated
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias or point of view)	<ul style="list-style-type: none"> Identify whether specific information is contained in graphic representations (e.g., map, chart, table, graph, T-chart, diagram) or text features (e.g., headings, subheadings, captions) 	<ul style="list-style-type: none"> Categorize/compare literary elements, terms, facts, details, events Identify use of literary devices Analyze format, organization, & internal text structure (signal words, transitions, semantic cues) of different texts Distinguish: relevant-irrelevant information; fact/opinion Identify characteristic text features; distinguish between texts, genres 	<ul style="list-style-type: none"> Analyze information within data sets or texts Analyze interrelationships among concepts, issues, problems Analyze or interpret author's craft (literary devices, viewpoint, or potential bias) to critique a text Use reasoning, planning, and evidence to support inferences 	<ul style="list-style-type: none"> Analyze multiple sources of evidence, or multiple works by the same author, or across genres, time periods, themes Analyze complex/abstract themes, perspectives, concepts Gather, analyze, and organize multiple information sources Analyze discourse styles
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			<ul style="list-style-type: none"> Cite evidence and develop a logical argument for conjectures Describe, compare, and contrast solution methods Verify reasonableness of results Critique conclusions drawn 	<ul style="list-style-type: none"> Evaluate relevancy, accuracy, & completeness of information from multiple sources Draw & justify conclusions Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, produce		<ul style="list-style-type: none"> Generate conjectures or hypotheses based on observations or prior knowledge and experience 	<ul style="list-style-type: none"> Synthesize information within one source or text Develop a complex model for a given situation Develop an alternative solution 	<ul style="list-style-type: none"> Synthesize information across multiple sources or texts Articulate a new voice, alternate theme, new knowledge or perspective

Hess' Cognitive Rigor Matrix & Curricular Examples: Applying Webb's Depth-of-Knowledge Levels to Bloom's Cognitive Process Dimensions - *Writing*

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Reproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/ Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify				
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion), predict, compare/contrast, match like ideas, explain, construct models	<ul style="list-style-type: none"> ○ Describe or define facts, details, terms ○ Select appropriate words to use when intended meaning/definition is clearly evident ○ Write simple sentences 	<ul style="list-style-type: none"> ○ Specify, explain, show relationships; explain why, cause-effect ○ Give non-examples/examples ○ Take notes; organize ideas/data ○ Summarize results, concepts, ideas ○ Identify main ideas or accurate generalizations of texts 	<ul style="list-style-type: none"> ○ Explain, generalize, or connect ideas using supporting evidence (quote, example, text reference) ○ Write multi-paragraph composition for specific purpose, focus, voice, tone, & audience ○ 	<ul style="list-style-type: none"> ○ Explain how concepts or ideas specifically relate to <i>other</i> content domains or concepts ○ Develop generalizations of the results obtained or strategies used and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	<ul style="list-style-type: none"> ○ Apply rules or use resources to edit specific spelling, grammar, punctuation, conventions, word use ○ Apply basic formats for documenting sources 	<ul style="list-style-type: none"> ○ Use context to identify the meaning of words/phrases ○ Obtain and interpret information using text features ○ Develop a text that may be limited to one paragraph ○ Apply simple organizational structures (paragraph, sentence types) in writing 	<ul style="list-style-type: none"> ○ Revise final draft for meaning or progression of ideas ○ Apply internal consistency of text organization and structure to composing a full composition ○ Apply a concept in a new context ○ Apply word choice, point of view, style to impact readers' interpretation of a text 	<ul style="list-style-type: none"> ○ Select or devise an approach among many alternatives to research a novel problem ○ Illustrate how multiple themes (historical, geographic, social) may be interrelated
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias, point of view)	<ul style="list-style-type: none"> ○ Decide which text structure is appropriate to audience and purpose 	<ul style="list-style-type: none"> ○ Compare literary elements, terms, facts, details, events ○ Analyze format, organization, & internal text structure (signal words, transitions, semantic cues) of different texts ○ Distinguish: relevant-irrelevant information; fact/opinion 	<ul style="list-style-type: none"> ○ Analyze interrelationships among concepts, issues, problems ○ Apply tools of author's craft (literary devices, viewpoint, or potential dialogue) with intent ○ Use reasoning, planning, and evidence to support inferences made 	<ul style="list-style-type: none"> ○ Analyze multiple sources of evidence, or multiple works by the same author, or across genres, or time periods ○ Analyze complex/abstract themes, perspectives, concepts ○ Gather, analyze, and organize multiple information sources
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			<ul style="list-style-type: none"> ○ Cite evidence and develop a logical argument for conjectures ○ Describe, compare, and contrast solution methods ○ Verify reasonableness of results ○ Justify or critique conclusions 	<ul style="list-style-type: none"> ○ Evaluate relevancy, accuracy, & completeness of information from multiple sources ○ Draw & justify conclusions ○ Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, produce	<ul style="list-style-type: none"> ○ Brainstorm ideas, concepts, problems, or perspectives related to a topic or concept 	<ul style="list-style-type: none"> ○ Generate conjectures or hypotheses based on observations or prior knowledge and experience 	<ul style="list-style-type: none"> ○ Develop a complex model for a given situation ○ Develop an alternative solution 	<ul style="list-style-type: none"> ○ Synthesize information across multiple sources or texts ○ Articulate a new voice, alternate theme, new knowledge or perspective

Hess' Cognitive Rigor Matrix & Curricular Examples: Applying Webb's Depth-of-Knowledge Levels to Bloom's Cognitive Process Dimensions – *Math/Science*

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Reproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/ Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	<ul style="list-style-type: none"> o Recall, observe, & recognize facts, principles, properties o Recall/ identify conversions among representations or numbers (e.g., customary and metric measures) 			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion (such as from examples given), predict, compare/contrast, match like ideas, explain, construct models	<ul style="list-style-type: none"> o Evaluate an expression o Locate points on a grid or number on number line o Solve a one-step problem o Represent math relationships in words, pictures, or symbols o Read, write, compare decimals in scientific notation 	<ul style="list-style-type: none"> o Specify and explain relationships (e.g., non-examples/examples; cause-effect) o Make and record observations o Explain steps followed o Summarize results or concepts o Make basic inferences or logical predictions from data/observations o Use models /diagrams to represent or explain mathematical concepts o Make and explain estimates 	<ul style="list-style-type: none"> o Use concepts to solve <u>non-routine</u> problems o Explain, generalize, or connect ideas <u>using supporting evidence</u> o Make <u>and justify</u> conjectures o Explain thinking when more than one response is possible o Explain phenomena in terms of concepts 	<ul style="list-style-type: none"> o Relate mathematical or scientific concepts to other content areas, other domains, or other concepts o Develop generalizations of the results obtained and the strategies used (from investigation or readings) and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	<ul style="list-style-type: none"> o Follow simple procedures (recipe-type directions) o Calculate, measure, apply a rule (e.g., rounding) o Apply algorithm or formula (e.g., area, perimeter) o Solve linear equations o Make conversions among representations or numbers, or within and between customary and metric measures 	<ul style="list-style-type: none"> o Select a procedure according to criteria and perform it o Solve routine problem applying multiple concepts or decision points o Retrieve information from a table, graph, or figure and use it solve a problem requiring multiple steps o Translate between tables, graphs, words, and symbolic notations (e.g., graph data from a table) o Construct models given criteria 	<ul style="list-style-type: none"> o Design investigation for a specific purpose or research question o Conduct a designed investigation o Use concepts to solve non-routine problems o <u>Use & show reasoning, planning, and evidence</u> o Translate between problem & symbolic notation when not a direct translation 	<ul style="list-style-type: none"> o Select or devise approach among many alternatives to solve a problem o Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct	<ul style="list-style-type: none"> o Retrieve information from a table or graph to answer a question o Identify whether specific information is contained in graphic representations (e.g., table, graph, T-chart, diagram) o Identify a pattern/trend 	<ul style="list-style-type: none"> o Categorize, classify materials, data, figures based on characteristics o Organize or order data o Compare/ contrast figures or data o Select appropriate graph and organize & display data o Interpret data from a simple graph o Extend a pattern 	<ul style="list-style-type: none"> o Compare information within or across data sets or texts o Analyze and <u>draw conclusions from data, citing evidence</u> o Generalize a pattern o Interpret data from complex graph o Analyze similarities/differences between procedures or solutions 	<ul style="list-style-type: none"> o Analyze multiple sources of evidence o analyze complex/abstract themes o Gather, analyze, and evaluate information
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			<ul style="list-style-type: none"> o <u>Cite evidence and develop a logical argument</u> for concepts or solutions o Describe, compare, and contrast solution methods o <u>Verify reasonableness of results</u> 	<ul style="list-style-type: none"> o Gather, analyze, & evaluate information to draw conclusions o Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, construct, produce	<ul style="list-style-type: none"> o Brainstorm ideas, concepts, or perspectives related to a topic 	<ul style="list-style-type: none"> o Generate conjectures or hypotheses based on observations or prior knowledge and experience 	<ul style="list-style-type: none"> o Synthesize information within one data set, source, or text o Formulate an original problem given a situation o Develop a scientific/mathematical model for a complex situation 	<ul style="list-style-type: none"> o Synthesize information across multiple sources or texts o Design a mathematical model to inform and solve a practical or abstract situation



I CAN...go deeper and rock the rigor!



Revised Bloom's Taxonomy	1 Webb's DOK Level 1 Recall & Reproduction	2 Webb's DOK Level 2 Skills & Concepts	3 Webb's DOK Level 3 Strategic Thinking/Reasoning	4 Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	<ul style="list-style-type: none"> I can... find or recall facts, details, and definitions in a text or on a website. I can... recall math facts. 			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion, predict, observe, compare/contrast, match like ideas, explain, construct models	<ul style="list-style-type: none"> I can... explain who, what, where, when, or how after reading, listening to, or viewing. I can show relationships using numbers, symbols, and pictures. 	<ul style="list-style-type: none"> I can ... summarize the sequence of events or state the main idea. I can... provide examples and non-examples to show I understand a concept. I can... show how two ideas connect. I can...specify and explain relationships. 	<ul style="list-style-type: none"> I can ...identify the lesson learned or theme and use evidence from the text to support my interpretation. I can... solve a problem one way and explain my reasoning using another strategy. I can...develop a presentation for a specific purpose and audience. 	<ul style="list-style-type: none"> I can... use examples to explain how ideas in one text specifically connect to another text. I can... write a report using more than one resource or more than one concept.
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (transfer) to an unfamiliar or non-routine task	<ul style="list-style-type: none"> I can... apply spelling rules to edit my work. I can...calculate, measure, or follow a rule – like rounding a number or finding the average. I can... solve an equation. 	<ul style="list-style-type: none"> I can...locate and use data in a table or graph to solve a word problem. I can... use the clues in a text to figure out what a new word means. I can... use captions and graphics to find more information. 	<ul style="list-style-type: none"> I can...plan how I would collect and analyze data to answer a question. I can...revise the words and visuals in an advertisement for a new audience. 	<ul style="list-style-type: none"> I can...identify a real-world problem, and plan and conduct an investigation to show how the problem could be solved. I can... use what I learned to find other solutions.
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias, point of view, approach/strategy used)	<ul style="list-style-type: none"> I can ... find and record data from a weather map. I can... identify a pattern or trend. I can... list the best key words to use for an Internet search. 	<ul style="list-style-type: none"> I can ... compare and contrast weather data from two regions or two states. I can ... compare two characters in a story. I can... sort objects by different features. I can...extend a pattern. I can...interpret a simple graph or visual. 	<ul style="list-style-type: none"> I can...figure out if there is conflicting or confusing information in one text and explain my reasoning. I can...interpret a political cartoon and use factual information to support my reasoning. I can...generalize a pattern. 	<ul style="list-style-type: none"> I can ... compare styles or themes in two books by the same author. I can...gather and analyze information from many sources to find the best evidence to support an opinion. I can... break down opposing claims or arguments.
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique	<ul style="list-style-type: none"> I can...complain that the weather is not good for skiing. I can...state that I like or don't like something and not back up my opinion. I can...state a claim that something is true or not true without giving any justification. 		<ul style="list-style-type: none"> I can ...explain why I'm planning my ski vacation in Utah, using evidence from historical weather patterns. I can... find possible flaws in an experiment or a solution. 	<ul style="list-style-type: none"> I can... use historical weather data from multiple places to choose the best location for my next ski vacation.
Create Reorganize elements into new patterns/structures/ or schemas, generate, hypothesize, design, plan, produce	<ul style="list-style-type: none"> I can...brainstorm what I know - ideas, concepts, or perspectives on a topic 	<ul style="list-style-type: none"> I can ... use facts, observations, and what I know to make a prediction or state an hypothesis. I can... tell you WHY a claim or opinion might be believable. 	<ul style="list-style-type: none"> I can ... re-present an author's idea in my own way. I can ... develop a model or a media message that shows a stated perspective or a new solution. I can...justify a claim with hard evidence. 	<ul style="list-style-type: none"> I can...write a sequel to a story, with a logical story line for the main character I can...use historical facts to develop believable historical fiction. I can...use historical weather data from multiple sources to choose the best location for my next ski vacation.



The Cornerstone of WIDA's Standards: Guiding Principles of Language Development

1. Students' languages and cultures are valuable resources to be tapped and incorporated into schooling.

Escamilla & Hopewell (2010); Goldenberg & Coleman (2010); Garcia (2005); Freeman, Freeman, & Mercuri (2002); González, Moll, & Amanti (2005); Scarcella (1990)

2. Students' home, school, and community experiences influence their language development.

Nieto (2008); Payne (2003); Collier (1995); California State Department of Education (1986)

3. Students draw on their metacognitive, metalinguistic, and metacultural awareness to develop proficiency in additional languages.

Cloud, Genesee, & Hamayan (2009); Bialystok (2007); Chamot & O'Malley (1994); Bialystok (1991); Cummins (1978)

4. Students' academic language development in their native language facilitates their academic language development in English. Conversely, students' academic language development in English informs their academic language development in their native language.

Escamilla & Hopewell (2010); Gottlieb, Katz, & Ernst-Slavit (2009); Tabors (2008); Espinosa (2009); August & Shanahan (2006); Genesee, Lindholm-Leary, Saunders, & Christian (2006); Snow (2005); Genesee, Paradis, & Crago (2004); August & Shanahan (2006); Riches & Genesee (2006); Gottlieb (2003); Schleppegrell & Colombi (2002); Lindholm & Molina (2000); Pardo & Tinajero (1993)

5. Students learn language and culture through meaningful use and interaction.

Brown (2007); Garcia & Hamayan, (2006); Garcia (2005); Kramsch (2003); Diaz-Rico & Weed (1995); Halliday & Hasan (1989); Damen (1987)

6. Students use language in functional and communicative ways that vary according to context.

Schleppegrell (2004); Halliday (1976); Finocchiaro & Brumfit (1983)

7. Students develop language proficiency in listening, speaking, reading, and writing interdependently, but at different rates and in different ways.

Gottlieb & Hamayan (2007); Spolsky (1989); Vygotsky (1962)

8. Students' development of academic language and academic content knowledge are inter-related processes.

Gibbons (2009); Collier & Thomas (2009); Gottlieb, Katz, & Ernst-Slavit (2009); Echevarria, Vogt, & Short (2008); Zwiers (2008); Gee (2007); Bailey (2007); Mohan (1986)

9. Students' development of social, instructional, and academic language, a complex and long-term process, is the foundation for their success in school.

Anstrom, et.al. (2010); Francis, Lesaux, Kieffer, & Rivera (2006); Bailey & Butler (2002); Cummins (1979)

10. Students' access to instructional tasks requiring complex thinking is enhanced when linguistic complexity and instructional support match their levels of language proficiency.

Gottlieb, Katz, & Ernst-Slavit (2009); Gibbons (2009, 2002); Vygotsky (1962)



Can Do Descriptors: Grade Level Cluster PreK-K

For the given level of English language proficiency and with visual, graphic, or interactive support through Level 4, English language learners can process or produce the **language** needed to:

	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 - Reaching
LISTENING	<ul style="list-style-type: none"> Match oral language to classroom and everyday objects Point to stated pictures in context Respond non-verbally to oral commands or statements (e.g., through physical movement) Find familiar people and places named orally 	<ul style="list-style-type: none"> Sort pictures or objects according to oral instructions Match pictures, objects or movements to oral descriptions Follow one-step oral directions (e.g., “stand up”; “sit down”) Identify simple patterns described orally Respond with gestures to songs, chants, or stories modeled by teachers 	<ul style="list-style-type: none"> Follow two-step oral directions, one step at a time Draw pictures in response to oral instructions Respond non-verbally to confirm or deny facts (e.g., thumbs up, thumbs down) Act out songs and stories using gestures 	<ul style="list-style-type: none"> Find pictures that match oral descriptions Follow oral directions and compare with visual or nonverbal models (e.g., “Draw a circle under the line.”) Distinguish between what happens first and next in oral activities or readings Role play in response to stories read aloud 	<ul style="list-style-type: none"> Order pictures of events according to sequential language Arrange objects or pictures according to descriptive oral discourse Identify pictures/realia associated with grade-level academic concepts from oral descriptions Make patterns from real objects or pictures based on detailed oral descriptions 	
SPEAKING	<ul style="list-style-type: none"> Identify people or objects in illustrated short stories Repeat words, simple phrases Answer yes/no questions about personal information Name classroom and everyday objects 	<ul style="list-style-type: none"> Restate some facts from illustrated short stories Describe pictures, classroom objects or familiar people using simple phrases Answer questions with one or two words (e.g., “Where is Sonia?”) Complete phrases in rhymes, songs, and chants 	<ul style="list-style-type: none"> Retell short narrative stories through pictures Repeat sentences from rhymes and patterned stories Make predictions (e.g. “What will happen next?”) Answer explicit questions from stories read aloud (e.g., who, what, or where) 	<ul style="list-style-type: none"> Retell narrative stories through pictures with emerging detail Sing repetitive songs and chants independently Compare attributes of real objects (e.g., size, shape, color) Indicate spatial relations of real-life objects using phrases or short sentences 	<ul style="list-style-type: none"> Tell original stories with emerging detail Explain situations (e.g., involving feelings) Offer personal opinions Express likes, dislikes, or preferences with reasons 	

The Can Do Descriptors work in conjunction with the WIDA Performance Definitions of the English language proficiency standards. The Performance Definitions use three criteria (1. linguistic complexity; 2. vocabulary usage; and 3. language control) to describe the increasing quality and quantity of students’ language processing and use across the levels of language proficiency.

Can Do Descriptors: Grade Level Cluster PreK-K

For the given level of English language proficiency and with visual, graphic, or interactive support through Level 4, English language learners can process or produce the **language** needed to:

	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 - Reaching
READING	<ul style="list-style-type: none"> Match icons and symbols to corresponding pictures Identify name in print Find matching words or pictures Find labeled real-life classroom objects 	<ul style="list-style-type: none"> Match examples of the same form of print Distinguish between same and different forms of print (e.g., single letters and symbols) Demonstrate concepts of print (e.g., left to right movement, beginning/end, or top/bottom of page) Match labeled pictures to those in illustrated scenes 	<ul style="list-style-type: none"> Use pictures to identify words Classify visuals according to labels or icons (e.g., animals v. plants) Demonstrate concepts of print (e.g., title, author, illustrator) Sort labeled pictures by attribute (e.g., number, initial sound) 	<ul style="list-style-type: none"> Identify some high-frequency words in context Order a series of labeled pictures described orally to tell stories Match pictures to phrases/short sentences Classify labeled pictures by two attributes (e.g., size and color) 	<ul style="list-style-type: none"> Find school-related vocabulary items Differentiate between letters, words, and sentences String words together to make short sentences Indicate features of words, phrases, or sentences that are the same and different 	
WRITING	<ul style="list-style-type: none"> Draw pictures and scribble Circle or underline pictures, symbols, and numbers Trace figures and letters Make symbols, figures or letters from models and realia (e.g., straws, clay) 	<ul style="list-style-type: none"> Connect oral language to print (e.g., language experience) Reproduce letters, symbols, and numbers from models in context Copy icons of familiar environmental print Draw objects from models and label with letters 	<ul style="list-style-type: none"> Communicate using letters, symbols, and numbers in context Make illustrated “notes” and cards with distinct letter combinations Make connections between speech and writing Reproduce familiar words from labeled models or illustrations 	<ul style="list-style-type: none"> Produce symbols and strings of letters associated with pictures Draw pictures and use words to tell a story Label familiar people and objects from models Produce familiar words/phrases from environmental print and illustrated text 	<ul style="list-style-type: none"> Create content-based representations through pictures and words Make “story books” with drawings and words Produce words/phrases independently Relate everyday experiences using phrases/short sentences 	

The Can Do Descriptors work in conjunction with the WIDA Performance Definitions of the English language proficiency standards. The Performance Definitions use three criteria (1. linguistic complexity; 2. vocabulary usage; and 3. language control) to describe the increasing quality and quantity of students’ language processing and use across the levels of language proficiency.



Can Do Descriptors: Grade Level Cluster 1-2

For the given level of English language proficiency and with visual, graphic, or interactive support through Level 4, English language learners can process or produce the **language** needed to:

	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 - Reaching
LISTENING	<ul style="list-style-type: none"> Follow modeled, one-step oral directions (e.g., “Find a pencil.”) Identify pictures of everyday objects as stated orally (e.g., in books) Point to real-life objects reflective of content-related vocabulary or oral statements Mimic gestures or movement associated with statements (e.g., “This is my left hand.”) 	<ul style="list-style-type: none"> Match oral reading of stories to illustrations Carry out two- to three-step oral commands (e.g., “Take out your science book. Now turn to page 25.”) Sequence a series of oral statements using real objects or pictures Locate objects described orally 	<ul style="list-style-type: none"> Follow modeled multi-step oral directions Sequence pictures of stories read aloud (e.g., beginning, middle, and end) Match people with jobs or objects with functions based on oral descriptions Classify objects according to descriptive oral statements 	<ul style="list-style-type: none"> Compare/contrast objects according to physical attributes (e.g., size, shape, color) based on oral information Find details in illustrated, narrative, or expository text read aloud Identify illustrated activities from oral descriptions Locate objects, figures, places based on visuals and detailed oral descriptions 	<ul style="list-style-type: none"> Use context clues to gain meaning from grade-level text read orally Apply ideas from oral discussions to new situations Interpret information from oral reading of narrative or expository text Identify ideas/concepts expressed with grade-level content-specific language 	
SPEAKING	<ul style="list-style-type: none"> Repeat simple words, phrases, and memorized chunks of language Respond to visually-supported (e.g., calendar) questions of academic content with one word or phrase Identify and name everyday objects Participate in whole group chants and songs 	<ul style="list-style-type: none"> Use first language to fill in gaps in oral English (code switch) Repeat facts or statements Describe what people do from action pictures (e.g., jobs of community workers) Compare real-life objects (e.g., “smaller,” “biggest”) 	<ul style="list-style-type: none"> Ask questions of a social nature Express feelings (e.g., “I’m happy because...”) Retell simple stories from picture cues Sort and explain grouping of objects (e.g., sink v. float) Make predictions or hypotheses Distinguish features of content-based phenomena (e.g., caterpillar, butterfly) 	<ul style="list-style-type: none"> Ask questions for social and academic purposes Participate in class discussions on familiar social and academic topics Retell stories with details Sequence stories with transitions 	<ul style="list-style-type: none"> Use academic vocabulary in class discussions Express and support ideas with examples Give oral presentations on content-based topics approaching grade level Initiate conversation with peers and teachers 	

The Can Do Descriptors work in conjunction with the WIDA Performance Definitions of the English language proficiency standards. The Performance Definitions use three criteria (1. linguistic complexity; 2. vocabulary usage; and 3. language control) to describe the increasing quality and quantity of students’ language processing and use across the levels of language proficiency.

Can Do Descriptors: Grade Level Cluster 1-2

For the given level of English language proficiency and with visual, graphic, or interactive support through Level 4, English language learners can process or produce the **language** needed to:

	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 - Reaching
READING	<ul style="list-style-type: none"> Identify symbols, icons, and environmental print Connect print to visuals Match real-life familiar objects to labels Follow directions using diagrams or pictures 	<ul style="list-style-type: none"> Search for pictures associated with word patterns Identify and interpret pre-taught labeled diagrams Match voice to print by pointing to icons, letters, or illustrated words Sort words into word families 	<ul style="list-style-type: none"> Make text-to-self connections with prompting Select titles to match a series of pictures Sort illustrated content words into categories Match phrases and sentences to pictures 	<ul style="list-style-type: none"> Put words in order to form sentences Identify basic elements of fictional stories (e.g., title, setting, characters) Follow sentence-level directions Distinguish between general and specific language (e.g., flower v. rose) in context 	<ul style="list-style-type: none"> Begin using features of non-fiction text to aid comprehension Use learning strategies (e.g., context clues) Identify main ideas Match figurative language to illustrations (e.g., “as big as a house”) 	
WRITING	<ul style="list-style-type: none"> Copy written language Use first language (L1, when L1 is a medium of instruction) to help form words in English Communicate through drawings Label familiar objects or pictures 	<ul style="list-style-type: none"> Provide information using graphic organizers Generate lists of words/phrases from banks or walls Complete modeled sentence starters (e.g., “I like ____.”) Describe people, places, or objects from illustrated examples and models 	<ul style="list-style-type: none"> Engage in prewriting strategies (e.g., use of graphic organizers) Form simple sentences using word/phrase banks Participate in interactive journal writing Give content-based information using visuals or graphics 	<ul style="list-style-type: none"> Produce original sentences Create messages for social purposes (e.g., get well cards) Compose journal entries about personal experiences Use classroom resources (e.g., picture dictionaries) to compose sentences 	<ul style="list-style-type: none"> Create a related series of sentences in response to prompts Produce content-related sentences Compose stories Explain processes or procedures using connected sentences 	

The Can Do Descriptors work in conjunction with the WIDA Performance Definitions of the English language proficiency standards. The Performance Definitions use three criteria (1. linguistic complexity; 2. vocabulary usage; and 3. language control) to describe the increasing quality and quantity of students’ language processing and use across the levels of language proficiency.



Can Do Descriptors: Grade Level Cluster 3-5

For the given level of English language proficiency and with visual, graphic, or interactive support through Level 4, English language learners can process or produce the **language** needed to:

	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 - Reaching
LISTENING	<ul style="list-style-type: none"> Point to stated pictures, words, or phrases Follow one-step oral directions (e.g., physically or through drawings) Identify objects, figures, people from oral statements or questions (e.g., “Which one is a rock?”) Match classroom oral language to daily routines 	<ul style="list-style-type: none"> Categorize content-based pictures or objects from oral descriptions Arrange pictures or objects per oral information Follow two-step oral directions Draw in response to oral descriptions Evaluate oral information (e.g., about lunch options) 	<ul style="list-style-type: none"> Follow multi-step oral directions Identify illustrated main ideas from paragraph-level oral discourse Match literal meanings of oral descriptions or oral reading to illustrations Sequence pictures from oral stories, processes, or procedures 	<ul style="list-style-type: none"> Interpret oral information and apply to new situations Identify illustrated main ideas and supporting details from oral discourse Infer from and act on oral information Role play the work of authors, mathematicians, scientists, historians from oral readings, videos, or multi-media 	<ul style="list-style-type: none"> Carry out oral instructions containing grade-level, content-based language Construct models or use manipulatives to problem-solve based on oral discourse Distinguish between literal and figurative language in oral discourse Form opinions of people, places, or ideas from oral scenarios 	
SPEAKING	<ul style="list-style-type: none"> Express basic needs or conditions Name pre-taught objects, people, diagrams, or pictures Recite words or phrases from pictures of everyday objects and oral modeling Answer yes/no and choice questions 	<ul style="list-style-type: none"> Ask simple, everyday questions (e.g., “Who is absent?”) Restate content-based facts Describe pictures, events, objects, or people using phrases or short sentences Share basic social information with peers 	<ul style="list-style-type: none"> Answer simple content-based questions Re/tell short stories or events Make predictions or hypotheses from discourse Offer solutions to social conflict Present content-based information Engage in problem-solving 	<ul style="list-style-type: none"> Answer opinion questions with supporting details Discuss stories, issues, and concepts Give content-based oral reports Offer creative solutions to issues/problems Compare/contrast content-based functions and relationships 	<ul style="list-style-type: none"> Justify/defend opinions or explanations with evidence Give content-based presentations using technical vocabulary Sequence steps in grade-level problem-solving Explain in detail results of inquiry (e.g., scientific experiments) 	

The Can Do Descriptors work in conjunction with the WIDA Performance Definitions of the English language proficiency standards. The Performance Definitions use three criteria (1. linguistic complexity; 2. vocabulary usage; and 3. language control) to describe the increasing quality and quantity of students’ language processing and use across the levels of language proficiency.

Can Do Descriptors: Grade Level Cluster 3-5

For the given level of English language proficiency and with visual, graphic, or interactive support through Level 4, English language learners can process or produce the **language** needed to:

	Level 1 Entering	Level 2 Beginning	Level 3 Developing	Level 4 Expanding	Level 5 Bridging	Level 6 - Reaching
READING	<ul style="list-style-type: none"> Match icons or diagrams with words/concepts Identify cognates from first language, as applicable Make sound/symbol/word relations Match illustrated words/phrases in differing contexts (e.g., on the board, in a book) 	<ul style="list-style-type: none"> Identify facts and explicit messages from illustrated text Find changes to root words in context Identify elements of story grammar (e.g., characters, setting) Follow visually supported written directions (e.g., "Draw a star in the sky.") 	<ul style="list-style-type: none"> Interpret information or data from charts and graphs Identify main ideas and some details Sequence events in stories or content-based processes Use context clues and illustrations to determine meaning of words/phrases 	<ul style="list-style-type: none"> Classify features of various genres of text (e.g., "and they lived happily ever after"—fairy tales) Match graphic organizers to different texts (e.g., compare/contrast with Venn diagram) Find details that support main ideas Differentiate between fact and opinion in narrative and expository text 	<ul style="list-style-type: none"> Summarize information from multiple related sources Answer analytical questions about grade-level text Identify, explain, and give examples of figures of speech Draw conclusions from explicit and implicit text at or near grade level 	
WRITING	<ul style="list-style-type: none"> Label objects, pictures, or diagrams from word/phrase banks Communicate ideas by drawing Copy words, phrases, and short sentences Answer oral questions with single words 	<ul style="list-style-type: none"> Make lists from labels or with peers Complete/produce sentences from word/phrase banks or walls Fill in graphic organizers, charts, and tables Make comparisons using real-life or visually-supported materials 	<ul style="list-style-type: none"> Produce simple expository or narrative text String related sentences together Compare/contrast content-based information Describe events, people, processes, procedures 	<ul style="list-style-type: none"> Take notes using graphic organizers Summarize content-based information Author multiple forms of writing (e.g., expository, narrative, persuasive) from models Explain strategies or use of information in solving problems 	<ul style="list-style-type: none"> Produce extended responses of original text approaching grade level Apply content-based information to new contexts Connect or integrate personal experiences with literature/content Create grade-level stories or reports 	

The Can Do Descriptors work in conjunction with the WIDA Performance Definitions of the English language proficiency standards. The Performance Definitions use three criteria (1. linguistic complexity; 2. vocabulary usage; and 3. language control) to describe the increasing quality and quantity of students' language processing and use across the levels of language proficiency.



Performance Definitions for the Levels of English Language Proficiency in Grades K-12

At the given level of English language proficiency, English language learners will process, understand, produce, or use:

6 Reaching	<ul style="list-style-type: none"> specialized or technical language reflective of the content areas at grade level a variety of sentence lengths of varying linguistic complexity in extended oral or written discourse as required by the specified grade level oral or written communication in English comparable to English-proficient peers
5 Bridging	<ul style="list-style-type: none"> specialized or technical language of the content areas a variety of sentence lengths of varying linguistic complexity in extended oral or written discourse, including stories, essays, or reports oral or written language approaching comparability to that of English-proficient peers when presented with grade-level material
4 Expanding	<ul style="list-style-type: none"> specific and some technical language of the content areas a variety of sentence lengths of varying linguistic complexity in oral discourse or multiple, related sentences, or paragraphs oral or written language with minimal phonological, syntactic, or semantic errors that do not impede the overall meaning of the communication when presented with oral or written connected discourse with sensory, graphic, or interactive support
3 Developing	<ul style="list-style-type: none"> general and some specific language of the content areas expanded sentences in oral interaction or written paragraphs oral or written language with phonological, syntactic, or semantic errors that may impede the communication, but retain much of its meaning, when presented with oral or written, narrative, or expository descriptions with sensory, graphic, or interactive support
2 Beginning	<ul style="list-style-type: none"> general language related to the content areas phrases or short sentences oral or written language with phonological, syntactic, or semantic errors that often impede the meaning of the communication when presented with one- to multiple-step commands, directions, questions, or a series of statements with sensory, graphic, or interactive support
1 Entering	<ul style="list-style-type: none"> pictorial or graphic representation of the language of the content areas words, phrases, or chunks of language when presented with one-step commands, directions, WH-, choice, or yes/no questions, or statements with sensory, graphic, or interactive support oral language with phonological, syntactic, or semantic errors that often impede meaning when presented with basic oral commands, direct questions, or simple statements with sensory, graphic, or interactive support

ISTE Standards Students

1. Creativity and innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

- a. Apply existing knowledge to generate new ideas, products, or processes
- b. Create original works as a means of personal or group expression
- c. Use models and simulations to explore complex systems and issues
- d. Identify trends and forecast possibilities

2. Communication and collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

- a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
- b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats
- c. Develop cultural understanding and global awareness by engaging with learners of other cultures
- d. Contribute to project teams to produce original works or solve problems

3. Research and information fluency

Students apply digital tools to gather, evaluate, and use information.

- a. Plan strategies to guide inquiry
- b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
- c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
- d. Process data and report results

4. Critical thinking, problem solving, and decision making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

- a. Identify and define authentic problems and significant questions for investigation
- b. Plan and manage activities to develop a solution or complete a project
- c. Collect and analyze data to identify solutions and/or make informed decisions
- d. Use multiple processes and diverse perspectives to explore alternative solutions

5. Digital citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

- a. Advocate and practice safe, legal, and responsible use of information and technology
- b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
- c. Demonstrate personal responsibility for lifelong learning
- d. Exhibit leadership for digital citizenship

6. Technology operations and concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

- a. Understand and use technology systems
- b. Select and use applications effectively and productively
- c. Troubleshoot systems and applications
- d. Transfer current knowledge to learning of new technologies

Standards•S © 2007 International Society for Technology in Education.

ISTE® is a registered trademark of the International Society for Technology in Education.

If you would like to reproduce this material, please contact permissions@iste.org.



English Language Arts 2016-2017

4th Grade



CANYONS
School District

Table of Contents

SECTION 1: OVERVIEW

Introduction	page 1
General Instructions	page 2
Evidence-Based Instructional Priorities	page 3-4
Implementation Assessment	page 5

SECTION 2: STANDARDS

SAGE Blueprint	page 6
ELA Standards Not Represented	page 7-8
3-5 ELA Utah Core Standards	page 9-18
K-5 ELA Standards Vertical Alignment	page 19-42

SECTION 3: SCOPE & SEQUENCE

SALTA Materials—ELA	page 43
CSD Literacy Block	page 44
Five-Day Plan for Instruction	page 45-48
Intensified Routines	page 49-65
Text Complexity	page 66-67
Ten-Day Plan for Unit 6	page 68-70
Reading Street Schedule and Pacing	page 71-73
Reading Street Scope and Sequence	page 74-91

SECTION 4: INSTRUCTIONAL RESOURCES

Small Group Instruction Resources	page 92-10
Four Day Plan Spelling / Word Study	page 104
Best Practices for Handwriting Instruction	page 105-106
Writing Instructional Practices and Supports	page 109-131

ENGLISH LANGUAGE ARTS (ELA) CURRICULUM MAP

CANYONS SCHOOL DISTRICT

Curriculum Mapping Purpose

Canyons School District's language arts curriculum maps are standards-based maps driven by the Utah Core Standards and implemented using Pearson Reading Street ©2011. Student achievement is increased when both teachers and students know where they are going, why they are going there, and what is required of them to get there.

Curriculum Maps are a tool for:

- **ALIGNMENT:** Provides support and coordination between concepts, skills, standards, curriculum, and assessments
- **COMMUNICATION:** Articulates expectations and learning goals for students
- **PLANNING:** Focuses instruction and targets critical information
- **COLLABORATION:** Promotes professionalism and fosters dialogue between colleagues about best practices pertaining to sequencing, unit emphasis and length, integration, and review strategies
- **SCAFFOLDED INSTRUCTION AND GROUPING STRUCTURES:** The organization of a scaffolded classroom includes whole group, small group (e.g., teacher-led skill-based, cooperative learning), partner, and independent work where students are provided support towards mastery. As students assume more responsibility for the learning, gradual support is decreased in order to shift the responsibility for learning from the teacher to the students. (see pages 78-81 for scaffolding ideas)

General Instructions

Pacing

This curriculum map provides guidance for intertwining the Utah Core Standards and the Reading Street curriculum. Following the map will allow students to access all core standards by the end of the year. To support students' mastery of the standards, targeted standards have been identified for each unit. Attending to these targeted standards will allow teachers to focus instruction for the given unit and better assess students' understanding of each standard.

Units

There are six units that are to be covered over the course of the school year. Each unit represents six weeks of instruction.

Big Question and Question of the Week

These questions provide an anchor for a thematic unit of instruction (six weeks) and are represented in the classroom on a Concept Board. Questions are referred to during Content Knowledge, Concept Talk, Concept Mapping, Main Selection, and in content integration when the question supports Science and/or Social Studies standards.

Assessment

Assessment options include student observation, progress monitoring, Weekly Tests, Fresh Reads, Unit Tests, and Writing to Sources Writing Rubrics. Through the use of the Realize platform for online assessment, teachers can access reports to support student goal-setting and assessment. District-wide Standard-based Assessments are used as our common district assessments. DWSBA are mandatory and are given during a common assessment window.

Targeted Technology Standards

In each unit, one of the International Society for Technology in Education (ISTE) Standards is integrated into the ELA block. Resources are available at <http://edtech.canyonsdistrict.org/elementary-curriculum-maps-iste-standards.html> to assist teachers in integrating technology into ELA instruction based on Reading Street units. The school's Educational Technology Specialist can provide additional supports as requested.

Homework

The struggle to develop independent reading skills and language arts skills should occur while the teacher is available to support and scaffold the learning and correct student errors. Work that is sent home for students to complete should consist of concepts and skills that have been taught in class, been practiced, and the student can do independently. Homework should be used to build automaticity of skills already acquired and not for development of new skills without instruction. For appropriate homework practice, please see the HW Study Skill Pages available at <http://csdela.weebly.com/weekly-study-skills-hw-sheets.html>

Evidence-Based Instructional Priorities

Applied to Literacy Instruction

<p>Explicit Instruction I Do - We Do - Y'all Do - You Do Model - Guide Practice – Partner - Independent</p>			
<p>Systematic</p> <ul style="list-style-type: none"> <input type="checkbox"/> Focused on critical content <input type="checkbox"/> Skills, strategies, and concepts are sequenced logically <input type="checkbox"/> Break down complex skills <input type="checkbox"/> Lessons are organized and focused <input type="checkbox"/> Instructional routines are used <input type="checkbox"/> Examples and non-examples <input type="checkbox"/> Step-by-step demonstrations 	<p>Relentless</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adequate initial practice NOTE: Students who struggle may require 10-30 more times as many practice opportunities than their peers. <input type="checkbox"/> Distributed practice--frequent exposure to content/skill over time <input type="checkbox"/> Cumulative review <input type="checkbox"/> Teach to mastery 	<p>Engaging</p> <ul style="list-style-type: none"> <input type="checkbox"/> Increasing Opportunities to Respond <input type="checkbox"/> Explicit Vocabulary Instruction <input type="checkbox"/> Feedback <input type="checkbox"/> Instructional Grouping <input type="checkbox"/> Acquire – Auto – Apply <input type="checkbox"/> Classroom PBIS 	
<p>Increasing Opportunities to Respond <i>Saying, Writing, Doing</i></p>		<p>Explicit Vocabulary Instruction</p>	
<p>Group Reading Strategies for Student Engagement</p> <ul style="list-style-type: none"> <input type="checkbox"/> Model: All students track as the teacher reads the passage. Teacher emphasizes reading in phrases with expression. <i>“My turn to model. Everyone tracking.”</i> - Choose this strategy when text contains dialogue, advanced punctuation or other content that makes it more difficult for students. <input type="checkbox"/> Echo Reading: The teacher reads a sentence fluently and immediately the students read it back to the teacher. Keep the time between the model and test very short. All students must track as the teacher or peer reads. <i>“My turn. Echo read. Everyone tracking.” (Model) “Tracking back. Your turn, read.”</i> <input type="checkbox"/> Choral: Students and teacher read together aloud as all students are tracking. This should be only on short sentences and title. Teacher sets pace. <i>“Everyone...choral read.”</i> - Choose this strategy with text that all students can read. <input type="checkbox"/> Cloze: Teacher reads and pauses at a word (focused vocabulary words) and students read the word. Continue for a paragraph or so. <i>“My turn. Everyone tracking. Cloze read....”</i> <input type="checkbox"/> Partner: <i>Partner A</i> reads a sentence and <i>Partner B</i> reads a sentence. Students must track as their partners read. 		<ul style="list-style-type: none"> <input type="checkbox"/> Introduce the word <ul style="list-style-type: none"> • Teacher says the word • All students repeat the word • Teacher gives a child-friendly definition • All students repeat the definition (with teacher guidance) • Repeat above steps as necessary <input type="checkbox"/> Demonstrate <ul style="list-style-type: none"> • Provide an example • Provide a non-example • Repeat above steps as necessary <input type="checkbox"/> Apply <ul style="list-style-type: none"> • Students turn to a partner and use the word in a sentence • Teacher shares a sentence using the word 	
<p>Feedback</p> <ul style="list-style-type: none"> <input type="checkbox"/> Corrective and Affirmative <input type="checkbox"/> Timely and Frequent <input type="checkbox"/> Specific and Reinforcing 	<p>Instructional Grouping</p> <ul style="list-style-type: none"> <input type="checkbox"/> Whole group, Small groups, Partners <input type="checkbox"/> Fluid and flexible <input type="checkbox"/> Skill-Based Small Group Instruction 	<p>Acquire – Auto – Apply</p> <ul style="list-style-type: none"> <input type="checkbox"/> Learn (acquire) the skill <input type="checkbox"/> Build the skill to automaticity <input type="checkbox"/> Apply the skill 	<p>Classroom PBIS</p> <ul style="list-style-type: none"> <input type="checkbox"/> Forming clear behavior expectations <input type="checkbox"/> Explicitly teaching expectations to students <input type="checkbox"/> Reinforcing expectations with students <input type="checkbox"/> Correcting of problem behaviors in a systematic manner

Intensified Systematic Vocabulary Instruction Routine for Building Academic Language

Acquisition DOK 1	<p>Introduction Phase</p> <ol style="list-style-type: none"> 1. Teacher writes/says the word. 2. Students repeat the word. 3. Multisyllabic breakdown 4. Teacher gives a student friendly definition, incorporating synonyms as appropriate. 5. Students restate definition with teacher guidance. 6. Teacher identifies any prefixes, suffixes, base/root words, origin. 	<p>Teacher/Student Responsibilities</p> <p>T: The word is survive. What word? S: Survive. T: Let’s clap/tap “survive” into syllables. T & S: “sur” “vive”. T: How many syllables? S: 2 syllables T: Where’s the syllable break? S: In between sur-vive. T: When people or animals don’t die when things are really bad or dangerous, they survive. T & S: So when people or animals don’t die when things are really bad or dangerous, they survive. T: The prefix “sur” means over, above or more. The suffix “vive” means to live.</p>
Building Automaticity DOK 2	<p>Demonstration Phase</p> <ol style="list-style-type: none"> 7. Illustrate with examples/non-examples <ol style="list-style-type: none"> a) Concrete examples (<i>realia</i>) b) Visual representations—video, pictures, diagrams, etc. c) Physical gesture d) Verbal Examples 8. Sentence Frames (ex. If I had to survive cold weather, I would need _____). 9. Check for students’ understanding by discerning between examples and non-examples (repeat as necessary) 	<p>T: Look at people on this river. It is very dangerous. However, they don’t get hurt or die, they survive.</p> <p>S: If I had to survive in cold weather, I would need to <i>wear a warm coat, snow boots, gloves and a hat.</i></p> <p>T: (Example) If whooping cranes had no food in the winter and all the food was buried in the snow, would they survive? Ones tell your partner why they wouldn’t survive. S1: The cranes wouldn’t survive because they need food. T: (Non-example) If there was an ample supply of food for the whooping crane would they survive. Twos tell your partner why they would survive. S2: The crane would survive because it has plenty of food and it needs food to survive.</p>
Application DOK 3	<p>Application Phase</p> <ol style="list-style-type: none"> 10. Deepen students’ understanding by applying the word in a new context <ol style="list-style-type: none"> a) Teacher asks a deep processing question b) Students responds via a quick write and/or orally with a partner or in a small group or whole group setting. 	<p>T: If a coyote was chasing a rabbit, what could the rabbit do to survive. S: (<i>Student responses will vary, but should demonstrate their level of understanding via their answer</i>)</p>

Reading Street Implementation Assessment

Systematic Use of Materials

- Teacher Edition is being referred to during instruction
- Concept Board is displayed
 - current
 - visible for student use
 - ELL Poster
- A-Z Sound Spelling Cards (1-3) and Alphabet Cards (K) are displayed
- Student editions are easily accessible for use
 - Students reading student editions and/or other RS ancillary materials
- Lesson/Unit is in line with CSD ELA Curriculum Map
- Digital resources from SuccessNet are used, as appropriate, to reinforce instruction

Instructional Routines

- Instructional objectives are
 - posted
 - referred to throughout the lesson
- Instructional content is primarily focused on the lesson in the Teacher's Edition
- Concept Board is being built upon daily as part of instruction
- Teacher uses instructional routines as organized in Teacher's Manual (with additional enhancements such as the
 - intensified routines
 - vocabulary routine
 - group reading strategies
 - sentence frames
- Teacher frequently elicits responses from students:
 - verbal
 - non-verbal
 - physical
 - chorally
 - partners
 - individually
- Teacher provides timely
 - positive
 - corrective feedback to students and
 - provides looped feedback
- Teacher scaffolds and paces instruction based on student responses
- Transitions are smooth and students are clearly following a previously articulated routine

Skill-Based Small Group Instruction

- Small group instruction is included in the daily schedule
- Small group teaching area is
 - well-organized
 - differentiated materials aligned to identified need based on data (e.g., decodable readers, leveled readers, RtI Kit, PALS, FCRR, etc.)
- Teacher provides students with ample feedback loops and opportunities to practice
- Practice Station routines, procedures, and expectations are evident
- Evidence of differentiated practice station activities to support varying student need
- Practice Stations reinforce, review, and/or extend content



English Language Arts Adaptive Testing Item Selection Criteria

Grade 3		
Strands	Min	Max
Reading Standards for Literature	20%	23%
Reading Standards for Informational Text	20%	23%
Listening Comprehension (Informational)	11%	14%
Language	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 4		
Strands	Min	Max
Reading Standards for Literature	20%	23%
Reading Standards for Informational Text	20%	23%
Listening Comprehension (Informational)	11%	14%
Language	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 5		
Strands	Min	Max
Reading Standards for Literature	20%	23%
Reading Standards for Informational Text	20%	23%
Listening Comprehension (Informational)	11%	14%
Language	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 6		
Strands	Min	Max
Reading Standards for Literature	17%	20%
Reading Standards for Informational Text	21%	24%
Listening Comprehension (Informational)	11%	14%
Language (vocabulary, 2 editing items)	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 7		
Strands	Min	Max
Reading Standards for Literature	17%	20%
Reading Standards for Informational Text	21%	24%
Listening Comprehension (Informational)	11%	14%
Language (vocabulary, 2 editing items)	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 8		
Strands	Min	Max
Reading Standards for Literature	17%	20%
Reading Standards for Informational Text	21%	24%
Listening Comprehension (Informational)	11%	14%
Language (vocabulary, 2 editing items)	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 9		
Strands	Min	Max
Reading Standards for Literature	16%	19%
Reading Standards for Informational Text	23%	26%
Listening Comprehension (Informational)	11%	14%
Language (vocabulary, 2 editing items)	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 10		
Strands	Min	Max
Reading Standards for Literature	13%	16%
Reading Standards for Informational Text	26%	29%
Listening Comprehension (Informational)	11%	14%
Language (vocabulary, 2 editing items)	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

Grade 11		
Strands	Min	Max
Reading Standards for Literature	13%	16%
Reading Standards for Informational Text	26%	29%
Listening Comprehension (Informational)	11%	14%
Language (vocabulary, 2 editing items)	17%	17%
Writing	29%	29%
DOK 1	11%	19%
DOK 2	17%	30%
DOK 3	14%	23%
DOK 4 (Writing)	29%	29%

NOTE: Writing and DOK 4 reflect 2 essays, each scored on 3 dimensions, for a total of 6 scores

DOK Blueprint : Depth of Knowledge (DOK) is an essential component of ELA instruction. As such, DOK is integrated in all ELA items throughout the Student Assessment of Growth and Excellence (SAGE). All students will see a variety of DOK and item difficulty. For more information about DOK please see: http://static.pdesas.org/content/documents/M1-Slide_22_DOK_Hess_Cognitive_Rigor.pdf



4th Grade

ELA Standards Not Explicitly Represented in the Curriculum Map

There are a few standards that have not been represented as targeted standards in any of the units. Below are those standards and the rationale for not being represented in the maps.

Reading Literature Standard 4: Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology.

Reading Informational Text Standard 4: Ask and answer questions to help determine or clarify the meaning of words and phrases in the text.

Language 4.a: Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.

Language 4.c: Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the meaning of key words and phrases.

Language 5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- a) Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context.
- b) Recognize and explain the meaning of common idioms, adages and proverbs.
- c) Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).

Language 6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

- These six standards all attend to various components of word knowledge or vocabulary. Reading Street intertwines these standards throughout each unit over the course of the year and a consistent focus on these standards is essential in order to master many of the other standards.

Reading Literature Standard 10: By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range. Continue to develop fluency when reading documents written in cursive.

Reading Informational Text Standard 10: By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range. Continue to develop fluency when reading documents written in cursive.

- *The material taught in the literacy block and the content areas is aimed to helping students achieve Reading Standard 10. It is an on-going target that will be addressed all year long and is the ultimate outcome of instruction.*

Language Standard 2.d: Spell grade-appropriate words correctly, consulting references as needed.

Language Standard 1.i: Correctly use frequently confused words (e.g., to, too, two; there, their)

Language 3: Use knowledge of language and its conventions when writing, speaking, reading, or listening.

a) Choose words and phrases to convey ideas precisely.

b) Choose punctuation for effect.

c) Differentiate between contexts that call for formal English (e.g. presenting ideas) and situations where informal discourse is appropriate (e.g., small group discussions).

- *These three standards are an integrated component of the curriculum all year long; thus, it was not necessary to identify these standards as targets.*

Grade 3 Students:	Grade 4 Students:	Grade 5 Students:
KEY IDEAS AND DETAILS		
<ol style="list-style-type: none"> 1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. 2. Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text. 3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events. 	<ol style="list-style-type: none"> 1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. 2. Determine a theme of a story, drama, or poem from details in the text; summarize the text. 3. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character’s thoughts, words, or actions). 	<ol style="list-style-type: none"> 1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. 2. Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text. 3. Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
CRAFT AND STRUCTURE		
<ol style="list-style-type: none"> 4. Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language. 5. Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as <i>chapter</i>, <i>scene</i>, and <i>stanza</i>; describe how each successive part builds on earlier sections. 6. Distinguish their own point of view from that of the narrator or those of the characters. 	<ol style="list-style-type: none"> 4. Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., <i>Herculean</i>). 5. Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text. 6. Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations. 	<ol style="list-style-type: none"> 4. Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes. 5. Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem. 6. Describe how a narrator’s or speaker’s point of view influences how events are described.
INTEGRATION OF KNOWLEDGE AND IDEAS		
<ol style="list-style-type: none"> 7. Explain how specific aspects of a text’s illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting). 8. (Not applicable to literature) 9. Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series). 	<ol style="list-style-type: none"> 7. Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text. 8. (Not applicable to literature) 9. Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures. 	<ol style="list-style-type: none"> 7. Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem). 8. (Not applicable to literature) 9. Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.
RANGE OF READING AND LEVEL OF TEXT COMPLEXITY		
<ol style="list-style-type: none"> 10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 2–3 text complexity band independently and proficiently. Recognize and begin to read documents written in cursive. 	<ol style="list-style-type: none"> 10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range. Continue to develop fluency when reading documents written in cursive. 	<ol style="list-style-type: none"> 10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity band independently and proficiently. Continue to develop fluency when reading documents written in cursive.

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

KEY IDEAS AND DETAILS

1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
2. Determine the main idea of a text; recount the key details and explain how they support the main idea.
3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
2. Determine the main idea of a text and explain how it is supported by key details; summarize the text.
3. Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
3. Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

CRAFT AND STRUCTURE

4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.
5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
6. Distinguish their own point of view from that of the author of a text.

4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.
5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
6. Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.

4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.
5. Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
6. Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

INTEGRATION OF KNOWLEDGE AND IDEAS

7. Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
8. Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).
9. Compare and contrast the most important points and key details presented in two texts on the same topic.

7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
8. Explain how an author uses reasons and evidence to support particular points in a text.
9. Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.

7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
8. Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
9. Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Reading Standards for Informational Text K–5

[RI]

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

RANGE OF READING AND LEVEL OF TEXT COMPLEXITY

10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently. Recognize and begin to read documents written in cursive.

10. By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range. Continue to develop fluency when reading documents written in cursive.

10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently. Continue to develop fluency when reading documents written in cursive.

Reading Standards: Foundational Skills (K–5)

[RF]

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

PHONICS AND WORD RECOGNITION

- 3.** Know and apply grade-level phonics and word analysis skills in decoding words.
- Identify and know the meaning of the most common prefixes and derivational suffixes.
 - Decode words with common Latin suffixes.
 - Decode multisyllable words.
 - Read grade-appropriate irregularly spelled words.

- 3.** Know and apply grade-level phonics and word analysis skills in decoding words.
- Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

- 3.** Know and apply grade-level phonics and word analysis skills in decoding words.
- Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

FLUENCY

- 4.** Read with sufficient accuracy and fluency to support comprehension.
- Read grade-level text with purpose and understanding.
 - Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
 - Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

- 4.** Read with sufficient accuracy and fluency to support comprehension.
- Read grade-level text with purpose and understanding.
 - Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
 - Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

- 4.** Read with sufficient accuracy and fluency to support comprehension.
- Read grade-level text with purpose and understanding.
 - Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
 - Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

TEXT TYPE AND PURPOSES

1. Write opinion pieces on topics or texts, supporting a point of view with reasons.
 - a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.
 - b. Provide reasons that support the opinion.
 - c. Use linking words and phrases (e.g., *because, therefore, since, for example*) to connect opinion and reasons.
 - d. Provide a concluding statement or section.

2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension.
 - b. Develop the topic with facts, definitions, and details.
 - c. Use linking words and phrases (e.g., *also, another, and, more, but*) to connect ideas within categories of information.
 - d. Provide a concluding statement or section.

3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
 - a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.
 - b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.
 - c. Use temporal words and phrases to signal event order.
 - d. Provide a sense of closure.

1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
 - a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer’s purpose.
 - b. Provide reasons that are supported by facts and details.
 - c. Link opinion and reasons using words and phrases (e.g., *for instance, in order to, in addition*).
 - d. Provide a concluding statement or section related to the opinion presented.

2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
 - b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
 - c. Link ideas within categories of information using words and phrases (e.g., *another, for example, also, because*).
 - d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
 - e. Provide a concluding statement or section related to the information or explanation presented.

3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
 - a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.
 - b. Use dialogue and description to develop experiences and events or show the responses of characters to situations.
 - c. Use a variety of transitional words and phrases to manage the sequence of events.
 - d. Use concrete words and phrases and sensory details to convey experiences and events precisely.
 - e. Provide a conclusion that follows from the narrated experiences or events.

1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
 - a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer’s purpose.
 - b. Provide logically ordered reasons that are supported by facts and details.
 - c. Link opinion and reasons using words, phrases, and clauses (e.g., *consequently, specifically*).
 - d. Provide a concluding statement or section related to the opinion presented.

2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
 - b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
 - c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., *in contrast, especially*).
 - d. Use precise language and domain-specific vocabulary to inform about or explain the topic.
 - e. Provide a concluding statement or section related to the information or explanation presented.

3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
 - a. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.
 - b. Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.
 - c. Use a variety of transitional words, phrases, and clauses to manage the sequence of events.
 - d. Use concrete words and phrases and sensory details to convey experiences and events precisely.
 - e. Provide a conclusion that follows from the narrated experiences or events.

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

PRODUCTION AND DISTRIBUTION OF WRITING

4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language Standards 1–3 up to and including grade 3 on page 30.)
6. With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.

4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language Standards 1–3 up to and including grade 4 on page 30.)
6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.

4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language Standards 1–3 up to and including grade 5 on page 30.)
6. With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.

RESEARCH TO BUILD AND PRESENT KNOWLEDGE

7. Conduct short research projects that build knowledge about a topic.
8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
9. (Begins in grade 4)

7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.
8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.
 - a. Apply *grade 4 Reading Standards* to literature (i.e., “Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”).
 - b. Apply *grade 4 Reading Standards* to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text”).

7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
8. Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research.
 - a. Apply *grade 5 Reading Standards* to literature (i.e., “Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”).
 - b. Apply *grade 5 Reading Standards* to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).

RANGE OF WRITING

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Speaking and Listening Standards K–5

[SL]

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

COMPREHENSION AND COLLABORATION

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
 - d. Explain their own ideas and understanding in light of the discussion.
2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.
 - a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
 - c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
 - d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Identify the reasons and evidence a speaker provides to support particular points.

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.
 - a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
 - c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
 - d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

PRESENTATION OF KNOWLEDGE AND IDEAS

4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 on page 30 for specific expectations.)

4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
5. Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards 1 and 3 on page 30 for specific expectations.)

4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
5. Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
6. Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards 1 and 3 on page 30 for specific expectations.)

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

CONVENTIONS OF STANDARD ENGLISH

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Independently and legibly write all upper- and lower-case cursive letters.
 - b. Produce grade-appropriate text using legible cursive writing.
 - c. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.
 - d. Form and use regular and irregular plural nouns.
 - e. Use abstract nouns (e.g., *childhood*).
 - f. Form and use regular and irregular verbs.
 - g. Form and use the simple (e.g., *I walked; I walk; I will walk*) verb tenses.
 - h. Ensure subject-verb and pronoun-antecedent agreement.*
 - i. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified.
 - j. Use coordinating and subordinating conjunctions.
 - k. Produce simple, compound, and complex sentences.

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Capitalize appropriate words in titles.
 - b. Use commas in addresses.
 - c. Use commas and quotation marks in dialogue.
 - d. Form and use possessives.
 - e. Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., *sitting, smiled, cries, happiness*).
 - f. Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words.
 - g. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Fluently, independently, and legibly write all upper and lower case cursive letters.
 - b. Produce grade-appropriate text using legible cursive writing.
 - c. Use relative pronouns (*who, whose, whom, which, that*) and relative adverbs (*where, when, why*).
 - d. Form and use the progressive (e.g., *I was walking; I am walking; I will be walking*) verb tenses.
 - e. Use modal auxiliaries (e.g., *can, may, must*) to convey various conditions.
 - f. Order adjectives within sentences according to conventional patterns (e.g., *a small red bag rather than a red small bag*).
 - g. Form and use prepositional phrases.
 - h. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.*
 - i. Correctly use frequently confused words (e.g., *to, too, two; there, their*).*

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Use correct capitalization.
 - b. Use commas and quotation marks to mark direct speech and quotations from a text.
 - c. Use a comma before a coordinating conjunction in a compound sentence.
 - d. Spell grade-appropriate words correctly, consulting references as needed.

1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Maintain legible and fluent cursive writing.
 - b. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
 - c. Form and use the perfect (e.g., *I had walked; I have walked; I will have walked*) verb tenses.
 - d. Use verb tense to convey various times, sequences, states, and conditions.
 - e. Recognize and correct inappropriate shifts in verb tense.*
 - f. Use correlative conjunctions (e.g., *either/or, neither/nor*).

2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Use punctuation to separate items in a series.*
 - b. Use a comma to separate an introductory element from the rest of the sentence.
 - c. Use a comma to set off the words yes and no (e.g., Yes, thank you), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*).
 - d. Use underlining, quotation marks, or italics to indicate titles of works.
 - e. Spell grade-appropriate words correctly, consulting references as needed.

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

KNOWLEDGE OF LANGUAGE

- 3.** Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- Choose words and phrases for effect.*
 - Recognize and observe differences between the conventions of spoken and written standard English.
- 4.** Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- Use sentence-level context as a clue to the meaning of a word or phrase.
 - Determine the meaning of the new word formed when a known affix is added to a known word (e.g., *agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat*).
 - Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *company, companion*).
 - Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.

- 3.** Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- Choose words and phrases to convey ideas precisely.*
 - Choose punctuation for effect.*
 - Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).
- 4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.
- Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
 - Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *telegraph, photograph, autograph*).
 - Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

- 3.** Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.
 - Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.
- 4.** Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 5 reading and content*, choosing flexibly from a range of strategies.
- Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
 - Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., *photograph, photosynthesis*).
 - Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

Grade 3 Students:

Grade 4 Students:

Grade 5 Students:

VOCABULARY ACQUISITION AND USE

5. Demonstrate understanding of word relationships and nuances in word meanings.
- Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., *take steps*).
 - Identify real-life connections between words and their use (e.g., describe people who are *friendly* or *helpful*).
 - Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., *knew, believed, suspected, heard, wondered*).
6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Explain the meaning of simple similes and metaphors (e.g., *as pretty as a picture*) in context.
 - Recognize and explain the meaning of common idioms, adages, and proverbs.
 - Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).
6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., *quizzed, whined, stammered*) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
- Interpret figurative language, including similes and metaphors, in context.
 - Recognize and explain the meaning of common idioms, adages, and proverbs.
 - Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., *however, although, nevertheless, similarly, moreover, in addition*).

Comprehension and Collaboration

Standard 1

Anchor Standard 1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

Kindergarten: Participate in collaborative conversations with diverse partners about *kindergarten topics and texts* with peers and adults in small and larger groups. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). Continue a conversation through multiple exchanges.

1st Grade: Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups. Follow agreed-upon rules for discussions (e.g., listening to others *with care, speaking one at a time about the topics and texts under discussion*). Build on others' talk in conversations by responding to the comments of others through multiple exchanges. Ask questions to clear up any confusion about the topics and texts under discussion.

2nd Grade: Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. Follow agreed-upon rules for discussions (e.g., *gaining the floor in respectful ways*, listening to others with care, speaking one at a time about the topics and texts under discussion). Build on others' talk in conversations by *linking their comments to the remarks of others*. Ask for *clarification and further explanation as needed* about the topics and texts under discussion.

3rd Grade: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). Ask questions to *check understanding of information presented, stay on topic*, and link their comments to the remarks of others. *Explain their own ideas and understanding in light of the discussion.*

4th Grade: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. Follow agreed-upon rules for discussions and *carry out assigned roles. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. Review the key ideas expressed* and explain their own ideas and understanding in light of the discussion.

5th Grade: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. Follow agreed-upon rules for discussions and carry out assigned roles. Pose and respond to specific questions by making comments that contribute to the discussion and *elaborate on the remarks of others*. Review the key ideas expressed and *draw conclusions in light of information and knowledge gained from the discussions.*

Standard 2

Anchor Standard 2: Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Kindergarten: Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
1 st Grade: Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
2 nd Grade: Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
3 rd Grade: Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
4 th Grade: Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
5 th Grade: Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Standard 3

Anchor Standard 3: Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric.

Kindergarten: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
1 st Grade: Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
2 nd Grade: Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
3 rd Grade: Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
4 th Grade: Identify the reasons and evidence a speaker provides to support particular points.
5 th Grade: Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

Presentation of Knowledge and Ideas

Standard 4

Anchor Standard 4: Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Kindergarten: Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
1 st Grade: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
2 nd Grade: Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
3 rd Grade: Report on a topic or text , tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
4 th Grade: Report on a topic or text, tell a story, or recount an experience in an organized manner , using appropriate facts and relevant, descriptive details to support main ideas or themes ; speak clearly at an understandable pace.
5 th Grade: Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Standard 5

Anchor Standard 5: Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

Kindergarten: Add drawings or other visual displays to descriptions as desired to provide additional detail.
1 st Grade: Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
2 nd Grade: Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
3 rd Grade: Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
4 th Grade: Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes
5 th Grade: Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

Standard 6

Anchor Standard 6: Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Kindergarten: Speak audibly and express thoughts, feelings, and ideas clearly.
1 st Grade: Produce complete sentences when appropriate to task and situation. (See grade 1 Language standards 1 and 3.)
2 nd Grade: Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3.)
3 rd Grade: Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification (See grade 3 Language standards 1 and 3.)
4 th Grade: Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standard 1.)
5 th Grade: Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards 1 and 3.)

Key Ideas and Details

Standard 1

Anchor Standard 1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from text.

Kindergarten: With prompting and support, ask and answer questions about key details in text.
1 st Grade: Ask and answer about key details in text.
2 nd Grade: Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text
3 rd Grade: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
4 th Grade: Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
5 th Grade: Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Standard 2

Anchor Standard 2: Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

Kindergarten: With prompting and support, retell familiar stories, including key details.
1 st Grade: Retell stories, including key details, and demonstrate understanding of their central message or lesson.
2 nd Grade: Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
3 rd Grade: Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.
4 th Grade: Determine a theme of a story, drama, or poem from details in the text; summarize the text.
5 th Grade: Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.

Standard 3

Anchor Standard 3: Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

Kindergarten: With prompting and support, identify characters, settings, and major events in a story.
1 st Grade: Describe characters, settings, and major events in a story, using key details.
2 nd Grade: Describe how characters in a story respond to major events and challenges.
3 rd Grade: Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
4 th Grade: Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
5 th Grade: Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).

Craft and Structure**Standard 4**

Anchor Standard 4: Interpret words and phrases as they are used in text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Kindergarten: Ask and answer questions about unknown words in text.

1st Grade: Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.

2nd Grade: Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.

3rd Grade: Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.

4th Grade: Determine the meaning of words and phrases as they are used in text, including those that allude to significant characters found in mythology (e.g., Herculean).

5th Grade: Determine the meaning of words and phrases as they are used in text, including figurative language such as metaphors and similes.

Standard 5

Anchor Standard 5: Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of text (e.g., a section, chapter, scene or stanza) relate to each other and the whole.

Kindergarten: Recognize common types of texts (e.g., storybooks, poems).

1st Grade: Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.

2nd Grade: Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.

3rd Grade: Refer to parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene and stanza; describe how each successive part builds on earlier sections.

4th Grade: Explain major differences between poems, drama, prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g. casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.

5th Grade: Explain how a series of chapters, scenes or stanzas fits together to provide the overall structure of a particular story, drama, or poem.

Standard 6

Anchor Standard 6: Assess how point of view or purpose shapes the content and style of a text.

Kindergarten: With prompting and support, name the author and illustrator of a story and define the role of each in tell the story.

1st Grade: Identify who is telling the story at various points in a text.

2nd Grade: Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.

3rd Grade: Distinguish their own point of view from that of the narrator or those of the characters.

4th Grade: Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.

5th Grade: Describe how a narrator's or speaker's point of view influences how event are described.

**Integration of Knowledge and Ideas
Standard 7**

Anchor Standard 7: Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Kindergarten: With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).

1st Grade: Use illustrations and details in a story to describe its characters, setting, or events.

2nd Grade: Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting or plot.

3rd Grade: Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting)

4th Grade: Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.

5th Grade: Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g. graphic novel, multimedia presentation of fiction, folktale, myth, poem).

Standard 8

Anchor Standard 8: Delineate and evaluate the argument and specific claims in a text, including the validity of reasoning as well as the relevance and sufficiency of the evidence.

Kindergarten: Not applicable.

1st Grade: Not applicable.

2nd Grade: Not applicable.

3rd Grade: Not applicable.

4th Grade: Not applicable.

5th Grade: Not applicable.

Standard 9

Anchor Standard 9: Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Kindergarten: With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.

1st Grade: Compare and contrast the adventures and experiences of characters in stories.

2nd Grade: Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.

3rd Grade: Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series)

4th Grade: Compare and contrast the treatment of similar themes and topics (e.g. opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.

5th Grade: Compare and contrast stories in the same genre (e.g. mysteries and adventure stories) on their approaches to similar themes and topics.

Range of Reading and Level of Text Complexity
Standard 10

Anchor Standard 10: Read and comprehend complex literary and informational texts independently and proficiently.

Kindergarten: <i>Actively engage in group reading activities with purpose and understanding.</i>
1 st Grade: <i>With prompting and support, read prose and poetry of appropriate complexity for grade 1.</i>
2 nd Grade: <i>By the end of the year, read and comprehend literature, including stories and poetry, in grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range.</i>
3 rd Grade: <i>By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 2-3 complexity band proficiently and independently.</i>
4 th Grade: <i>By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.</i>
5 th Grade: <i>By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4-5 text complexity band independently and proficiently.</i>

Key Ideas and Details

Standard 1

Anchor Standard 1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from text.

Kindergarten: With prompting and support, ask and answer questions about key details in a text.
1 st Grade: Ask and answer questions about key details in a text.
2 nd Grade: Ask and answer such questions as <i>who, what, where, when, why, and how</i> to demonstrate understanding of key details in a text.
3 rd Grade: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
4 th Grade: Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
5 th Grade: Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Standard 2

Anchor Standard 2: Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

Kindergarten: With prompting and support, identify the main topic and retell key details of a text.
1 st Grade: Identify the main topic and retell key details of a text.
2 nd Grade: Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.
3 rd Grade: Determine the main idea of a text; recount the key details and explain how they support the main idea.
4 th Grade: Determine the main idea of a text and explain how it is supported by key details; summarize the text.
5 th Grade: Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

Standard 3

Anchor Standard 3: Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

Kindergarten: With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text
1 st Grade: Describe the connection between two individuals, events, ideas, or pieces of information in a text.
2 nd Grade: Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
3 rd Grade: Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
4 th Grade: Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
5 th Grade: Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Craft and Structure
Standard 4

Anchor Standard 4: Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Kindergarten: With prompting and support, ask and answer questions about unknown words in a text.
1 st Grade: Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
2 nd Grade: Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
3 rd Grade: Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
4 th Grade: Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
5 th Grade: Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

Standard 5

Anchor Standard 5: Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

Kindergarten: Identify the front cover, back cover, and title page of a book.
1 st Grade: Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
2 nd Grade: Know and use various text features (e.g., captions, bold print, subheadings , glossaries, indexes , electronic menus, icons) to locate key facts or information in a text efficiently.
3 rd Grade: Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
4 th Grade: Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
5 th Grade: Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.

Standard 6

Anchor Standard 6: Assess how point of view or purpose shapes the content and style of a text.

Kindergarten: Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.
1 st Grade: Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
2 nd Grade: Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
3 rd Grade: Distinguish their own point of view from that of the author of a text.
4 th Grade: Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.
5 th Grade: Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

**Integration of Knowledge and Ideas
Standard 7**

Anchor Standard 7: Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.¹

Kindergarten: With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).
1 st Grade: Use the illustrations and details in a text to describe its key ideas.
2 nd Grade: Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
3 rd Grade: Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
4 th Grade: Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
5 th Grade: Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

Standard 8

Anchor Standard 8: Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

Kindergarten: With prompting and support, identify the reasons an author gives to support points in a text.
1 st Grade: Identify the reasons an author gives to support points in a text.
2 nd Grade: Describe how reasons support specific points the author makes in a text.
3 rd Grade: Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).
4 th Grade: Explain how an author uses reasons and evidence to support particular points in a text.
5 th Grade: Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).

Standard 9

Anchor Standard 9: Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Kindergarten: With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
1 st Grade: Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
2 nd Grade: Compare and contrast the most important points presented by two texts on the same topic.
3 rd Grade: Compare and contrast the most important points and key details presented in two texts on the same topic.
4 th Grade: Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
5 th Grade: Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Range of Reading and Level of Complexity
Standard 10

Anchor Standard 10: Read and comprehend complex literary and informational texts independently and proficiently.

Kindergarten: Actively engage in group reading activities with purpose and understanding.
1 st Grade: With prompting and support, read informational texts appropriately complex for grad
2 nd Grade: By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.
3 rd Grade: By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.
4 th Grade: By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.
5 th Grade: By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.

Text Types and Purposes

Standard 1

Anchor Standard 1: Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

Kindergarten: Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., <i>My favorite book is...</i>).
1 st Grade: Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure .
2 nd Grade: Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section .
3 rd Grade: Write opinion pieces on topics or texts, supporting a point of view with reasons . Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons . Provide reasons that support the opinion. Use linking words and phrases (e.g., because, therefore, since, for example) to connect opinion and reasons. Provide a concluding statement or section.
4 th Grade: Write opinion pieces on topics or texts, supporting a point of view with reasons and information . Introduce a topic or text clearly , state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose . Provide reasons that are supported by facts and details . Link opinion and reasons using words and phrases (e.g., <i>for instance, in order to, in addition</i>). Provide a concluding statement or section related to the opinion presented .
5 th Grade: Write opinion pieces on topics or texts, supporting a point of view with reasons and information. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose. Provide logically ordered reasons that are supported by facts and details. Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically) . Provide a concluding statement or section related to the opinion presented.

Standard 2

Anchor Standard 2: Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

Kindergarten: Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic .
1 st Grade: Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure .
2 nd Grade: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points , and provide a concluding statement or section .
3 rd Grade: Write informative/explanatory texts to examine a topic and convey ideas and information clearly . Introduce a topic and group related information together; include illustrations when useful to aiding comprehension . Develop the topic with facts, definitions, and details . Use linking words and phrases (e.g., <i>also, another, and, more, but</i>) to connect ideas within categories of information. Provide a concluding statement or section.
4 th Grade: Write informative/explanatory texts to examine a topic and convey ideas and information clearly. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension . Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic . Link ideas within categories of information using words and phrases (e.g., <i>another, for example, also, because</i>). Use precise language and domain-specific vocabulary to inform about or explain the topic. Provide a concluding statement or section related to the information or explanation presented .
5 th Grade: Write informative/explanatory texts to examine a topic and convey ideas and information clearly. Introduce a topic clearly, provide a general observation and focus , and group related information logically ; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic . Link ideas

within and across categories of information using words, phrases, and **clauses** (e.g., *in contrast, especially*). Use precise language and domain-specific vocabulary to inform about or explain the topic. Provide a concluding statement or section related to the information or explanation presented.

Standard 3

Anchor Standard 3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.

Kindergarten: Use a **combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order** in which they occurred, and **provide a reaction** to what happened.

1st Grade: Write narratives in which they **recount two or more appropriately sequenced events**, include some **details** regarding what happened, **use temporal words** to signal event order, and provide some **sense of closure**.

2nd Grade: Write narratives in which they recount a **well-elaborated event or short sequence of events**, include details to **describe actions, thoughts, and feelings**, use temporal words to signal event order, and provide a sense of closure.

3rd Grade: Write narratives to develop **real or imagined** experiences or events using **effective technique, descriptive details, and clear event sequences**. Establish a **situation** and **introduce a narrator and/or characters; organize an event sequence that unfolds naturally**. Use **dialogue** and descriptions of actions, thoughts, and feelings to develop experiences and events or show the **response of characters to situations**. Use temporal words and **phrases** to signal event order. Provide a sense of closure.

4th Grade: Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. Use dialogue and description to develop experiences and events or show the responses of characters to situations. Use a **variety of transitional words and phrases** to manage the sequence of events. Use **concrete words and phrases and sensory details** to convey experiences and events precisely. Provide a **conclusion that follows from the narrated experiences or events**.

5th Grade: Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. Use narrative techniques, such as dialogue, description, and **pacing**, to develop experiences and events or show the responses of characters to situations. Use a variety of transitional words, phrases, and **clauses** to manage the sequence of events. Use concrete words and phrases and sensory details to convey experiences and events precisely. Provide a conclusion that follows from the narrated experiences or events.

Production and Distribution of Writing

Standard 4

Anchor Standard 4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Kindergarten: N/A

1st Grade: N/A

2nd Grade: N/A

3rd Grade: **With guidance and support from adults**, produce writing in which the **development and organization are appropriate to task and purpose**. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

4th Grade: Produce **clear and coherent writing** in which the development and organization are appropriate to task, purpose, and **audience**. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

5th Grade: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

Standard 5

Anchor Standard 5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.

Kindergarten: With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.
1 st Grade: With guidance and support from adults, focus on a topic , respond to questions and suggestions from peers, and add details to strengthen writing as needed.
2 nd Grade: With guidance and support from adults and peers , focus on a topic and strengthen writing as needed by revising and editing .
3 rd Grade: With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing . (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 3.)
4 th Grade: With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 4.)
5 th Grade: With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach . (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 5.)

Standard 6

Anchor Standard 6: Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Kindergarten: With guidance and support from adults , explore a variety of digital tools to produce and publish writing , including in collaboration with peers .
1 st Grade: With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
2 nd Grade: With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
3 rd Grade: With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.
4 th Grade: With some guidance and support from adults, use technology, including the Internet , to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting .
5 th Grade: With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.

Research to Build and Present Knowledge**Standard 7**

Anchor Standard 7: Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

Kindergarten: Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
1 st Grade: Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).
2 nd Grade: Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
3 rd Grade: Conduct short research projects that build knowledge about a topic.
4 th Grade: Conduct short research projects that build knowledge through investigation of different aspects of a topic.
5 th Grade: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

Standard 8

Anchor Standard 8: Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Kindergarten: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
1 st Grade: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
2 nd Grade: Recall information from experiences or gather information from provided sources to answer a question.
3 rd Grade: Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
4 th Grade: Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.
5 th Grade: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.

Standard 9

Anchor Standard 9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

Kindergarten: N/A
1 st Grade: N/A
2 nd Grade: N/A
3 rd Grade: N/A
4 th Grade: Draw evidence from literary or informational texts to support analysis, reflection, and research. Apply grade 4 Reading standards to literature (e.g., “Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”) Apply grade 4 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text”).
5 th Grade: Draw evidence from literary or informational texts to support analysis, reflection, and research. Apply grade 5 Reading standards to literature (e.g., “Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”). Apply grade 5 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).

Range of Writing**Standard 10**

Anchor Standard 10: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Kindergarten: N/A
1 st Grade: N/A
2 nd Grade: N/A
3 rd Grade: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences
4 th Grade: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
5 th Grade: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Conventions of Standard English
Standard 1

Anchor Standard 1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking

Kindergarten:

- a. With guidance and support, identify and write many upper- and lowercase letters, including those in the student's name.
- b. Use frequently occurring nouns and verbs.
- c. Form regular plural nouns orally by adding /s/ or /es/ (e.g., dog, dogs; wish, wishes).
- d. Understand and use question words (interrogatives) (e.g., who, what, where, when, why, how).
- e. Use the most frequently occurring prepositions (e.g., to, from, in, out, on, off, for, of, by, with).
- f. Produce and expand complete sentences in shared language activities.

1st Grade:

- a. Independently identify and legibly write all upper- and lowercase letters (legibility is defined as the letter being recognizable to readers in isolation from other letters in a word).
- b. Produce grade-appropriate text using legible writing.
- c. Use common, proper, and possessive nouns.
- d. Use singular and plural nouns with matching verbs in basic sentences (e.g., He hops; We hop).
- e. Use personal, possessive, and indefinite pronouns (e.g., I, me, my; they, them, their, anyone, everything).
- f. Use verbs to convey a sense of past, present, and future (e.g., Yesterday I walked home; Today I walk home; Tomorrow I will walk home).
- g. Use frequently occurring adjectives.
- h. Use frequently occurring conjunctions (e.g., and, but, or, so, because).
- i. Use determiners (e.g., articles, demonstratives).
- j. Use frequently occurring prepositions (e.g., during, beyond, toward).
- k. Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to prompts.

2nd Grade:

- a. Fluently, independently, and legibly write all upper- and lowercase letters.
- b. Produce grade-appropriate text using legible writing.
- c. Understand that cursive is different from manuscript.
- d. Use collective nouns (e.g., group).
- e. Form and use frequently occurring irregular plural nouns (e.g., feet, children, teeth, mice, fish).
- f. Use reflexive pronouns (e.g., myself, ourselves).
- g. Form and use the past tense of frequently occurring irregular verbs (e.g., sat, hid, told).
- h. Use adjectives and adverbs, and choose between them depending on what is to be modified.
- i. Produce, expand, and rearrange complete simple and compound sentences (e.g., The boy watched the movie; The little boy watched the movie; The action movie was watched by the little boy).

3rd Grade:

- a. Independently and legibly write all upper-and lower-case cursive letters.
- b. Produce grade-appropriate text using legible cursive writing.
- c. Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences
- d. Form and use regular and irregular plural nouns.
- e. Use abstract nouns (e.g., *childhood*).
- f. Form and use regular and irregular verbs.
- g. Form and use the simple (e.g., *I walked; I walk; I will walk*) verb tenses.
- h. Ensure subject-verb and pronoun-antecedent agreement.
- i. Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified.
- j. Use coordinating and subordinating conjunctions.
- k. Produce simple, compound and complex sentences.

4th Grade:

- a. Fluently, independently, and legibly write all upper and lower case cursive letters.
- b. Produce grade-appropriate text using legible cursive.
- c. Use relative pronouns (*who, whose, whom, which, that*) and relative adverbs (*where, when, why*).
- d. Form and use the progressive (e.g., *I was walking; I am walking; I will be walking*) verb tenses.
- e. Use modal auxiliaries (e.g., *can, may, must*) to convey various conditions.
- f. Order adjectives within sentences according to conventional patterns (e.g., *a small red bag rather than a red small bag*).
- g. Form and use prepositional phrases.
- h. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- i. Correctly use frequently confused words (e.g., *to, too, two; there, their*).

5th Grade:

- a. Maintain legible and fluent cursive writing.
- b. Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
- c. Form and use the perfect (e.g., *I had walked; I have walked; I will have walked*) verb tenses.
- d. Use verb tense to convey various times, sequences, states, and conditions.
- e. Recognize and correct inappropriate shifts in verb tense.
- f. Use correlative conjunctions (e.g., *either/or, neither/nor*).

Conventions of Standard English
Standard 2

Anchor Standard 2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

<p>Kindergarten:</p> <ol style="list-style-type: none"> Capitalize the first word in a sentence and the pronoun <i>I</i>. Recognize and name end punctuation. Write a letter or letters for most consonant and short-vowel sounds (phonemes). Spell simple words phonetically, drawing on knowledge of sound-letter relationships.
<p>1st Grade:</p> <ol style="list-style-type: none"> Capitalize dates and names of people. Use end punctuation for sentences. Use commas in dates and to separate single words in a series. Use conventional spellings for words with common spelling patterns and for frequently occurring irregular words. Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.
<p>2nd Grade:</p> <ol style="list-style-type: none"> Capitalize holidays, product names, and geographic names. Use commas in greetings and closings of letters. Use an apostrophe to form contractions and frequently occurring possessives Generalize learned spelling patterns when writing words (e.g., cage - badge; boy - boil). Consult reference materials, including beginning dictionaries, as needed to check and correct spellings
<p>3rd Grade</p> <ol style="list-style-type: none"> Capitalize appropriate words in titles. Use commas in addresses. Use commas and quotation marks in dialogue. Form and use possessives. Use conventional spelling for high- frequency and other studied words and for adding suffixes to base words (e.g., sitting, smiled, cries, happiness). Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, meaningful word parts) in writing words. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
<p>4th Grade:</p> <ol style="list-style-type: none"> Use correct capitalization. Use commas and quotation marks to mark direct speech and quotations from a text. Use a comma before a coordinating conjunction in a compound sentence. Spell grade- appropriate words correctly, consulting references as needed.
<p>5th Grade:</p> <ol style="list-style-type: none"> Use punctuation to separate items in a series. Use a comma to separate an introductory element from the rest of the sentence. Use a comma to set off the words yes and no (e.g., Yes, thank you), to set off a tag question from the rest of the sentence (e.g., It's true, isn't it?), and to indicate direct address (e.g., Is that you, Steve?). Use underlining, quotation marks, or italics to indicate titles of works. Spell grade- appropriate words correctly, consulting references as needed.

Knowledge of Language**Standard 3**

Anchor Standard 3: Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

Kindergarten: (Begins in grade 2)
1 st Grade: (Begins in grade 2)
2 nd Grade: a. Compare formal and informal uses of English.
3 rd Grade: a. Choose words and phrases for effect. b. Recognize and observe differences between the conventions of spoken and written standard English.
4 th Grade: a. Choose words and phrases to convey ideas precisely. b. Choose punctuation for effect. c. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).
5 th Grade: a. Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. b. Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.

Vocabulary Acquisition and Use**Standard 4**

Anchor Standard 4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

Kindergarten: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content. a. Identify new meanings for familiar words and apply them accurately (e.g., knowing duck is a bird and learning the verb to duck). b. Use the most frequently occurring inflections and affixes (e.g., -ed, -s, re-, un-, pre-, -ful, -less) as a clue to the meaning of an unknown word.
1 st Grade: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning. b. Use frequently occurring affixes as a clue to the meaning of a word. c. Identify frequently occurring root words (e.g., look) and their inflectional forms (e.g., looks, looked, looking).

<p>2nd Grade: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies.</p> <ol style="list-style-type: none"> Use sentence-level context as a clue to the meaning of a word or phrase. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., <i>happy/unhappy, tell/retell</i>). Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>addition, additional</i>). Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., <i>birdhouse, lighthouse, housefly; bookshelf, notebook, bookmark</i>). Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.
<p>3rd Grade: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 3 reading and content, choosing flexibly from an array of strategies.</p> <ol style="list-style-type: none"> Use sentence-level context as a clue to the meaning of a word or phrase. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., <i>agreeable/disagreeable, comfortable/uncomfortable, care/careless, heat/preheat</i>). Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., <i>company, companion</i>). Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.
<p>4th Grade: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from an array of strategies.</p> <ol style="list-style-type: none"> Use context (e.g., <i>definitions, examples, or restatements in text</i>) as a clue to the meaning of a word or phrase. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., <i>telegraph, photograph, autograph</i>). Consult reference materials (e.g., <i>dictionaries, glossaries, thesauruses</i>), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
<p>5th Grade: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from an array of strategies.</p> <ol style="list-style-type: none"> Use context (e.g., <i>cause/ effect relationships and comparisons in text</i>) as a clue to the meaning of a word or phrase. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., <i>photograph, photosynthesis</i>). Consult reference materials (e.g., <i>dictionaries, glossaries, thesauruses</i>), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

Vocabulary Acquisition and Use
Standard 5

Anchor Standard 5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

<p>Kindergarten:</p> <ol style="list-style-type: none"> Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent. Demonstrate understanding of frequently occurring verbs and adjectives by relating them to their opposites (antonyms). Identify real-life connections between words and their use (e.g., note places at school that are colorful). Distinguish shades of meaning among verbs describing the same general action (e.g., walk, march, strut, prance) by acting out the meanings.
<p>1st Grade:</p> <ol style="list-style-type: none"> Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent. Define words by category and by one or more key attributes (e.g., a duck is a bird that swims; a tiger is a large cat with stripes). Identify real-life connections between words and their use (e.g., note places at home that are cozy). Distinguish shades of meaning among verbs differing in manner (e.g., look, peek, glance, stare, glare, scowl) and adjectives differing in intensity (e.g., large, gigantic) by defining or choosing them or by acting out the meanings.
<p>2nd Grade:</p> <ol style="list-style-type: none"> Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy). Distinguish shades of meaning among closely related verbs (e.g., toss, throw, hurl) and closely related adjectives (e.g., thin, slender, skinny, scrawny).
<p>3rd Grade:</p> <ol style="list-style-type: none"> Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., take steps). Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful). Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, wondered)
<p>4th Grade:</p> <ol style="list-style-type: none"> Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context Recognize and explain the meaning of common idioms, adages, and proverbs. Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms)
<p>5th Grade:</p> <ol style="list-style-type: none"> Interpret figurative language, including similes and metaphors, in context. Recognize and explain the meaning of common idioms, adages, and proverbs. Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.

Vocabulary Acquisition and Use
Standard 6

Anchor Standard 6: Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Kindergarten: Use words and phrases acquired through conversations, reading and being read to, and responding to texts.
1 st Grade: Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., because).
2 nd Grade: Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., When other kids are happy that makes me happy).
3 rd Grade: Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., After dinner that night we went looking for them).
4 th Grade: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).
5 th Grade: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).

**Print Concepts
Standard 1**

Kindergarten: Demonstrate understanding of the organization and basic features of print. Follow words from left to right, top to bottom, and page-by-page. Recognize that spoken words are represented in written language by specific sequences of letters. Understand that words are separated by spaces in print. Recognize and name all upper and lowercase letters of the alphabet.
1 st Grade: Demonstrate understanding of the organization and basic features of print. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
2 nd Grade: (Not applicable)
3 rd Grade: (Not applicable)
4 th Grade: (Not applicable)
5 th Grade: (Not applicable)

**Phonological Awareness
Standard 2**

Kindergarten: Demonstrate understanding of spoken words, syllables, and sounds (phonemes). Recognize and produce rhyming words. Count, pronounce, blend, and segment syllables in spoken words. Blend and segment onsets and rimes of single-syllable spoken words. Isolate and pronounce the initial medial vowel, and final sounds (phonemes) in three phoneme CVC words. (This does not include CVCs ending in /l/, /r/ or /x/.) Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.
1 st Grade: Demonstrate understanding of spoken words, syllables, and sounds (phonemes). Distinguish long from short vowel sounds in spoken single-syllable words. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words. Segment spoken single - syllable words into their complete sequence of individual sounds (phonemes).
2 nd Grade: (Not applicable)
3 rd Grade: (Not applicable)
4 th Grade: (Not applicable)
5 th Grade: (Not applicable)

**Phonics and Words Recognition
Standard 3**

Kindergarten: Know and apply grade-level phonics and word analysis skills in decoding words. Demonstrate basic knowledge of on-to-one letter sound correspondences by producing the primary or many of the most frequent sound of each consonant. Associate the long and short sounds with common spellings (graphemes) for the five major vowels. Read common high-frequency words by sight (e.g. the, of, to, you, she, my, are, do, does). Distinguish between similarly spelled words by identifying the sounds of the letters that differ.
1 st Grade: Know and apply grade-level phonics and word analysis skills in decoding words. Know the spelling-sound correspondences for common consonant digraphs. Decode regularly spelled one-syllable words. Know final –e and common vowel team conventions for representing long vowel sounds. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word. Decode two-syllable words following basic patterns by breaking the words into syllables. Read words with inflectional endings. Recognize and read grade-appropriate irregularly spelled words.
2 nd Grade: Know and apply grade-level phonics and word analysis skills in decoding words. Distinguish long and short vowels when reading regularly spelled one-syllable words. Know spelling-sound correspondences for additional common vowel teams. Decode regularly spelled two-syllable words with long vowels. Decode words with common prefixes and suffixes. Identify words with inconsistent but common spelling-sound correspondences. Recognize and read grade-appropriate irregularly spelled words.

3 rd Grade: Know and apply grade-level phonics and word analysis skills in decoding words. Distinguish long and short vowels when reading regularly spelled one-syllable words. Know spelling-sound correspondences for additional common vowel teams. Decode regularly spelled two-syllable words with long vowels. Decode words with common prefixes and suffixes. Identify words with inconsistent but common spelling-sound correspondences. Recognize and read grade-appropriate irregularly spelled words.
4 th Grade: Know and apply grade-level phonics and word analysis skills in decoding words. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
5 th Grade: Know and apply grade-level phonics and word analysis skills in decoding words. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

Fluency Standard 4

Kindergarten: Read emergent reader texts with purpose and understanding.
1 st Grade: Read with sufficient accuracy and fluency to support comprehension. Read on-level text with purpose and understanding. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
2 nd Grade: Read with sufficient accuracy and fluency to support comprehension. Read on-level text with purpose and understanding. Read on-level text orally with accuracy, appropriate rate, and expression on successive readings. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
3 rd Grade: Read with sufficient accuracy and fluency to support comprehension. Read on-level text with purpose and understanding. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
4 th Grade: Read with sufficient accuracy and fluency to support comprehension. Read on-level text with purpose and understanding. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
5 th Grade: Read with sufficient accuracy and fluency to support comprehension. Read on-level text with purpose and understanding. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SALTA Materials English Language Arts

CORE

All SALTA students are taught the Utah **Core** standards. Core standards are evidence-based, aligned with expectations for success in college and the workplace, and will allow students to compete internationally. The new standards stress rigor, depth, clarity, coherence, and 21st century skills, to prepare students for college and careers.

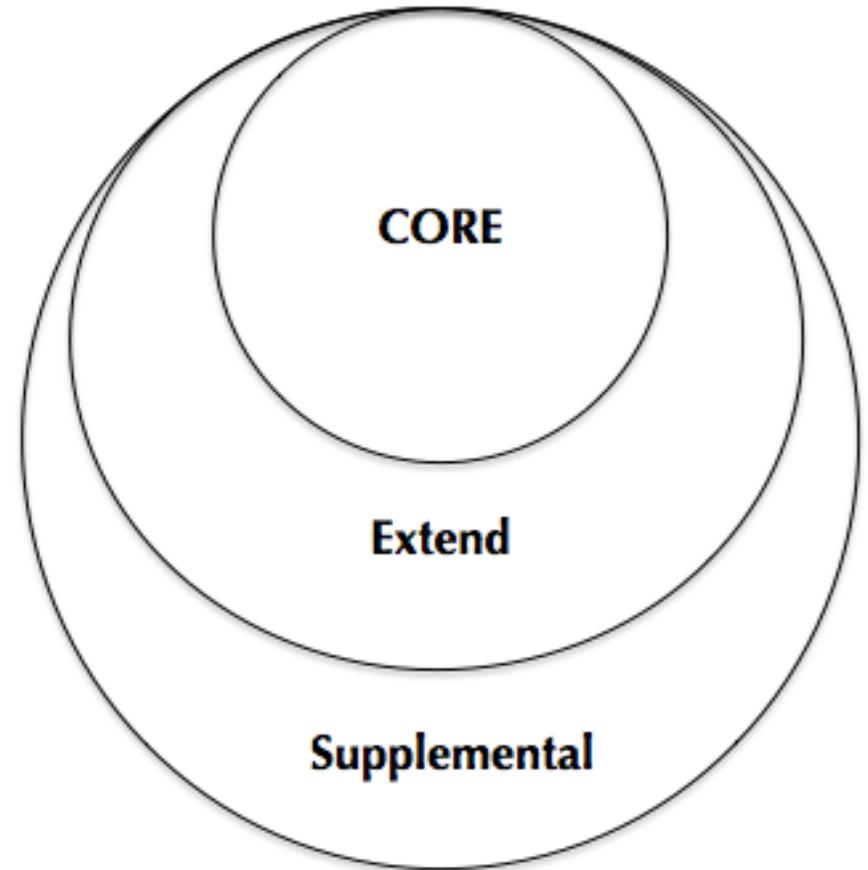
EXTEND

Extension of core standards provides students with activities that are added to **CORE** to enlarge or deepen understanding. Examples of **EXTEND** include:

- Reading Street w/Research & Inquiry Skills (R&I Skills)
- Project-Based Learning (PBL)
- Extended Learning Opportunities (ExLO)

SUPPLEMENTAL

Supplemental resources are materials and activities in addition to ones found in **EXTEND** and **CORE**. Junior Great Books are the supplemental materials for SALTA English Language Arts.



SALTA CSD 4th Grade Literacy Block

Literacy Component	Range of Time	Class Configuration	Focus of Instruction		
Reading	55-65 minutes	Whole Group Cooperative Groups & Partners	<ul style="list-style-type: none"> • Concept Development • Oral Vocabulary • Phonics • Word Study 		
Language Arts	30-45 minutes	Whole Group Cooperative Groups & Partners	<ul style="list-style-type: none"> • Comprehension • Lesson Vocabulary • Grammar • Writing 		
<p>Skill-Based Instruction Additional skill-based instruction in small group setting with teacher. Other students engage in Practice Stations that review, reinforce, extend, English Language development or instruction based on Individualized Education Plans will be provided for identified students.</p>	<p>45-60 minutes</p> <p>10-15 minutes per group</p>	<i>Teach and Model Practice Stations</i>			
		Small Groups	Focus of Instruction		Instructional Materials
		<p>Group 1 Accurate & Benchmark Rate</p> <p>Met benchmark on DORF and accurate in Fall 96%, Winter 97%, Spring 98%</p>	<p>Comprehension</p> <ul style="list-style-type: none"> • Monitoring for meaning • Identifying, summarizing, and extending main ideas • Self-monitoring and fix-up strategies and awareness of reading for understanding • Teaching important words directly and word-learning strategies • Extended reading and writing opportunities tied to Core subjects 		<ul style="list-style-type: none"> • Literary and Informational Text • Reading Street Small Group: Advanced Level lessons • Word Study (vocabulary, derivations, etc.) • Reading Street: RtI Kit Comprehension and/or Vocabulary • Reading Street: Research and Inquiry Lessons
		<p>Group 2 Accurate & Below Benchmark Rate</p> <p>Below benchmark on DORF and accurate in Fall 96%, Winter 97%, Spring 98%</p>	<p>Fluency</p> <ul style="list-style-type: none"> • Building automaticity, but do not ignore making meaning • Repeated readings • Word or phrase level automaticity in addition to passages, if necessary • Grouping words to make meaning, pacing punctuation • Read for main idea, summarizing, and/or text elements • Use <i>If-Then Guide for Fluency</i> to identify skill deficits and areas of targeted instruction 		<ul style="list-style-type: none"> • Reading Street: Decodable Readers • Reading Street: Fluency passages • Reading Street: Fresh Reads • Reading Street Small Group: On-Level lessons • Sight Words/Fry Phrases Speed Drills • Reading Street: RtI Kit Fluency
		<p>Group 3 Inaccurate & Benchmark Rate</p> <p>Met benchmark on DORF and accurate in Fall 96%, Winter 97%, Spring 98%</p>	<p>Digging Deeper into Needs</p> <ul style="list-style-type: none"> • Explicit modeling of accurate reading • Self-monitoring—table tap when student makes an error. This will help the student slow down and read more accurately. • Challenge student to read a portion of the text with 2 or fewer errors • Teach student to adjust rate of reading to type of text and purpose for reading 		<ul style="list-style-type: none"> • Reading Street: Decodable Readers • Reading Street: Phonics and Word Analysis • Reading Street Small Group: Strategic Intervention lessons (SI) • Reading Street: Fresh Reads
<p>Group 4 Inaccurate & Below Benchmark Rate</p> <p>Below benchmark on on DORF and less than Fall 96%, Winter 97%, Spring 98% accuracy</p>	<p>Phonics and/or Phonological Awareness</p> <ul style="list-style-type: none"> • Missing phonemic awareness skills • Missing decoding skills • Missing sight words skills • Missing multi-syllabic decoding skills • Applying skills to connected text at instructional level • Building fluency at independent level • Substantial practice applying phonics to new text and writing • Use <i>If-Then Guide for Phonemic Awareness and/or Phonics and Decoding</i> to identify skill deficits and areas of targeted instruction 		<ul style="list-style-type: none"> • Reading Street Decodable Readers • Reading Street Phonics and Word Analysis • Reading Street Small Group: Strategic Intervention lessons (SI) • Florida Center on Reading Research (FCRR)—Phonemic Awareness and Phonics Activities • Reading Street: RtI Kit Phonemic Awareness and/or Phonics and Decoding • Sight Words/Fry Phrases Speed Drills 		
<p>Content Integration</p> <ul style="list-style-type: none"> • Science core • Social Studies core • English Language Development 	20-30 minutes	Whole Group Content Reading Groups	<p>Research and Inquiry</p> <ul style="list-style-type: none"> • Accessing informational and literary text in content areas • Writing in the content areas (application of reading) • Making meaning in the content areas (comprehension of concepts) 		

Grade 4: Five-Day Plan for *Reading Street*

Literacy Block Component		Day 1	Day 2	Day 3	Day 4	Day 5
45-60 minutes	Get Ready to Read Content Knowledge	Content Knowledge <ul style="list-style-type: none"> Street Rhymes! Concept Talk Question of the Week Build Oral Language Concept Map 15 min.	Content Knowledge <ul style="list-style-type: none"> Expand the Concept Question of the Week Build Oral Language 5 min.	Content Knowledge <ul style="list-style-type: none"> Expand the Concept Question of the Week Build Oral Language 5 min.	Content Knowledge <ul style="list-style-type: none"> Expand the Concept Question of the Week Build Oral Language 5 min.	Content Knowledge <ul style="list-style-type: none"> Review Concept Question of the Week Build Oral Language Review Amazing Words & Concept Map 5-10 min.
		Build Oral Vocabulary <ul style="list-style-type: none"> Amazing Words Vocab Routine Teacher Read Aloud 10 min.	Build Oral Vocabulary <ul style="list-style-type: none"> Amazing Words Vocab Routine Add to Concept Map 5 min.	Build Oral Vocabulary <ul style="list-style-type: none"> Amazing Words Vocab Routine Add to Concept Map 5 min.	Build Oral Vocabulary <ul style="list-style-type: none"> Amazing Words Vocab Routine Add to Concept Map 5 min.	Build Oral Vocabulary <ul style="list-style-type: none"> Write About It (question of week or four square) 15 min.
		Word Analysis <ul style="list-style-type: none"> Teach Model Guide Practice On their own 10 min.	Text-Based Comprehension <ul style="list-style-type: none"> Check Understanding Retell 10 min.	Science in Reading or Social Studies in Reading or 21st Century Skills 10 min.		
	Read and Comprehend Text-Based Comprehension	Text-Based Comprehension <ul style="list-style-type: none"> Target Skill & Strategy Model A Close Read Model Fluent Reading 20 min.	Vocabulary Skill Reread for Fluency 15 min.	Main Selection <ul style="list-style-type: none"> Access the Main Selection Close Read the Main Selection 25 min.	Read (paired selection) Access Text Close Reading Fluency Vocabulary Listening and Speaking 30 min.	Review: Text-based Comprehension Vocabulary Word Analysis 20 min.
		Selection Vocabulary <ul style="list-style-type: none"> Vocabulary Routine 15 min.	Text-Based Comprehension <ul style="list-style-type: none"> Introduce Main Selection Main Selection <ul style="list-style-type: none"> Access the Main Selection Close Read the Main Selection 20 min.	Think Critically <ul style="list-style-type: none"> Choose 1-3 questions to discuss and write Retell 5-10 min.	5-10 min.	Assessment Menu: Weekly test Writing to Sources Four Square Teacher created tests Unit tests
				Fluency Reread for Fluency Research and Study Skills 5-10 min.		

Grade 4: Five-Day Plan for *Reading Street*

Literacy Block Component		Day 1	Day 2	Day 3	Day 4	Day 5			
30-45 minutes	Language Arts	<p>Conventions/Grammar</p> <ul style="list-style-type: none"> Conventions lesson Daily Fix-It <p>Research and Inquiry</p> <ul style="list-style-type: none"> Identify Question <p><i>15 min.</i></p>	<p>Conventions/ Grammar</p> <ul style="list-style-type: none"> Conventions lesson Daily Fix-It Grammar Jammer <p>Research and Inquiry</p> <ul style="list-style-type: none"> Navigate Search <p><i>15 min.</i></p>	<p>Conventions/ Grammar embedded into Authentic Writing Instruction</p>					
		<p>Spelling/Word Study</p> <ul style="list-style-type: none"> Introduce Spelling on Day 2 with Day1 lesson <p><i>15-20 min.</i></p>	<p>Spelling/Word Study</p> <ul style="list-style-type: none"> 5-7 word check on Spelling Patterns with Routine Card #7 from Rtl Kit Handwriting—<i>Model, Practice, and Monitor within Word Study</i> <p><i>15 min.</i></p>	<p>Spelling/Word Study</p> <ul style="list-style-type: none"> 5-7 word check on Spelling Patterns with Routine Card #7 from Rtl Kit Handwriting—<i>Model, Practice, and Monitor within Word Study</i> <p><i>15 min.</i></p>	<p>Spelling/Word Study</p> <ul style="list-style-type: none"> Teacher-Created Word Sort Student Generated Word Sort based on the Spelling pattern (Practice Station) <p><i>10 min.</i></p>	<p>Spelling/Word Study</p> <p>Spelling Post-Test of 10-12 words use words from teacher and student generated lists with targeted spelling pattern</p> <p><i>10 min.</i></p>	<p>Research and Inquiry</p> <ul style="list-style-type: none"> Analyze (Practice Station) 	<p>Research and Inquiry</p> <ul style="list-style-type: none"> Synthesize (Practice Station) 	<p>Research and Inquiry</p> <ul style="list-style-type: none"> Communicate
		<p>Writing</p> <ul style="list-style-type: none"> Focus on writing to learn embedded in instruction Begin product writing on Day 3 	<p>Writing</p> <ul style="list-style-type: none"> Focus on writing to learn embedded in instruction Begin product writing on Day 3 	<p>Writing</p> <ul style="list-style-type: none"> Writing to Sources Lesson Embedded Conventions Lesson Include Four-Square Writing Strategy <p><i>25 min.</i></p>	<p>Writing</p> <ul style="list-style-type: none"> Writing to Sources Lesson Embedded Conventions Lesson Include Four-Square Writing Strategy <p><i>30 min.</i></p>	<p>Writing</p> <ul style="list-style-type: none"> Writing to Sources Lesson Embedded Conventions Lesson Include Four-Square Writing Strategy <p><i>30 min.</i></p>			

Grade 4: Five-Day Plan for *Reading Street*

Literacy Block Component	Day 1	Day 2	Day 3	Day 4	Day 5
<p>Skill-Based Practice Stations Small Group</p> <p>45-60 minutes</p> <p><i>Suggestions for what the other students are doing</i></p>	<p>Practice Stations</p> <ul style="list-style-type: none"> • Social Studies and/or Science Connections • <i>Extended Learning Opportunities</i> • Practice Station Flipcharts • Writing Assignments • Project-Based Learning Projects • Research and Inquiry Activities • Keyboarding Practice • Targeted Reading with Aligned Purposes and Tasks • Imagine Learning • Reflex Math • Technology Supports—Apps, Websites, etc. 				
	<p>Practice Station Ideas Correlated with the Day's Instruction</p>				
	<ul style="list-style-type: none"> • Handwriting Practice • Daily Fix It 	<ul style="list-style-type: none"> • RWN Vocabulary 	<ul style="list-style-type: none"> • Let's Practice It! (Grammar/Conventions) • Think Critically Questions (SE) • <i>Research and Inquiry</i> 	<ul style="list-style-type: none"> • Teacher-Created Word Sorts • Handwriting Practice Sheet • <i>Research and Inquiry</i> • <i>Student Generated Word Sorts</i> 	<ul style="list-style-type: none"> • Fluency Check with a Buddy using Fresh Reads/Assessment Handbook Fluency Passages

Literacy Block Component	Description	Resources
--------------------------	-------------	-----------

Grade 4: Five-Day Plan for *Reading Street*

<p>Content Integration Small Group Whole Group</p> <p>20-30 minutes</p>	<p>Content integration time in the ELA Block deals with integration of science and social studies content to understand key concepts, principles, generalizations, and theories through the integration of the English Language Arts Standards.</p> <p>The Utah Core states: "By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students can only gain this foundation when the curriculum is intentionally and coherently structured to develop rich content knowledge within and across grades. Students also acquire the habits of reading independently and closely, which are essential to their future success."</p> <p>Optimally, this portion of the day involves students reading, writing, listening and speaking about the topics they are learning about in science and social studies instruction time. Teachers can use this time to provide background knowledge and learning activities to prepare their students for their Science/Social Studies instruction. Ideas and resources for integration can be found in your Content Integration Map.</p>	<p>Reinforce/Expand/Extend the Concept</p> <ul style="list-style-type: none">• Content Leveled Readers (SE)• eReaders (digital) <p>Research and Inquiry</p> <ul style="list-style-type: none">• Identify and Focus Topic <p>Science/Social Studies</p> <ul style="list-style-type: none">• Set the stage for Lab or Learning Task
--	---	--

Intensified Routines

Purpose:

The following routines increase instructional intensity in key academic skills: background knowledge, vocabulary, fluency, and comprehension. In addition to the key areas identified in the Intensified Plan, scaffolding considerations should be made throughout the general 5-Day Plan to provide students with more robust core instruction that support **all** learners. These routines can also be used as scaffolds to increase intensity for students with low language or language acquisition. The routines on the following pages should be used to supplement both the Intensified Plan and the general 5-Day Plan.

Areas of Academic Skills

Concept Talk Intensified Routine: *Think, Discuss, Write, Read, & Share*

The following routine is an enhancement to the instruction provided in Reading Street related to concept talk, which includes the ELL poster, the concept talk video and the concept map.

Example Reading Street pre-made sentence frames can be found at:

http://www.californiareading.com/languagecentralk6/sentence_frames.html Although these sentence frames are for the Reading Street 2009 edition, many of them will still apply.

Think, Discuss, Write, Read, Share

	Instructional Plan	Resources
Think	Present the big idea and question of the week and introduce the new concept. Then, ask students to brainstorm and/or complete a quick sketch or write of their ideas related to the question posed.	ELL Poster Concept Board Concept Talk Video
Discuss	Have students partner share their ideas using an intentional structure.	Partner Routines
Write	Next, have students complete a teacher provided sentence frame related to the question with a written response, include a word bank as needed.	Teacher prepared sentence frame (and word bank)
Read	Ask students to read sentence to their partner.	Partner Routine
Share	Cold call or nominate a few students to share their ideas and encourages use of the academic language scripts .	Targeted Academic Language Script

Academic Vocabulary

Academic vocabulary is composed of words and phrases found in all academic texts, such as *analysis, attribute, contrast, discussion, however, and in particular*, and is the cornerstone of academic discussions leading to higher levels of language. Academic vocabulary should be used with speaking, listening, reading and writing of text. Academic vocabulary should be the regular language of the classroom; used by both teachers and students. More information regarding academic vocabulary may be found in the introductory pages of the curriculum map.

Vocabulary

Following the 5-day intensified plan explicitly teach 3-4 of the weekly lesson tested vocabulary words using the [lesson vocabulary template](#) included in this map. The template explicitly provides students with opportunities to hear, speak, see, sketch, and use the words in context. This gives struggling students the multiple exposures they may require to master the new vocabulary.

Tested Vocabulary Review

The intensified plan includes a short vocabulary review on Day 5. For this review, use the questions or sentences from the weeks tested vocabulary instruction as a short, cumulative review of the words to provide additional exposure. Students can refer to the concept board for the vocabulary words.

ELL Poster

Use the ELL poster to build lesson-tested vocabulary and provide opportunities to access academic language with language learners.

	Instructional Plan	Scaffolding Opportunities
Day 1 <i>Done with Concept Talk</i>	Poster Talk Through —use the lesson vocabulary and use the talk through script to demonstrate and show the pictorial representations of the lesson vocabulary.	Check prior knowledge by asking questions directed to language and differentiated levels. Develop concepts and oral vocabulary by rereading Poster Talk Through
Day 2	Teach Lesson Vocabulary — intentionally teach lesson vocabulary. Have students orally practice saying and using the lesson words.	<ul style="list-style-type: none"> • Sentence Frames • Precision Partnering • Sketching of concept with oral language • Word Banks • Picture Banks
Day 3 <i>ELL poster day 4</i>	Produce Oral Language — intentional and deliberate oral practice of lesson vocabulary. Reinforce correct usage of the lesson vocabulary words.	<ul style="list-style-type: none"> • Sentence Frames • Precision Partnering • Sketching of concept with oral language • Word Banks • Picture Banks

Build Background

	Instructional Plan	Teacher Talk Example
Step 1	Introduce the story and the main topic.	"Today, we are going to read a story about a man who collects rocks."
Step 2	Use audiovisual supports e.g., short video obtained from the web, realia, podcast, or song.(5 minutes or less)	"Let's first watch a video about rock collecting to learn more about the process."
Step 3	Have students answer the questions outlined in the Teacher's Edition (under Build Background) using response frames related to the question prompts.	Teacher provides a related response frame such as: An example of a special talent is _____. Teacher asks: What is an example of a special talent?"
Step 4	Have students listen to the Background Building Audio CD selection and provide them with a purpose for listening.	"As you listen, be sure to listen for how the rock collector selects and organizes his rocks." Follow up with a short discussion related to the purpose.

Prereading Strategies

Use the instruction in your teacher's manual to introduce the genre, set the purpose, make predictions, and align to the week's comprehension strategy or skill. Additionally, include the strategy response log as a before and during reading tool to help students monitor their comprehension. Before reading, provide students with a summary overview of the text. This will support them in comprehending the selection at higher levels.

Decodable Reader Intensified Routine

In preparation for reading the decodable reader, the teacher previews the text by summarizing the main events or information in the text prior to students reading the text.

After reading the decodable the 1st time aloud as a class, provide students with additional opportunities to reread the text to increase student automaticity. This can be done during practice stations, ELD time or small group work with partners matched precisely using the Tell, Ask, Start Again Routine.

Tell, Ask, Start Again Routine

1. Tell: "That word is _____"
2. Ask: "What word?"
3. Start Again: "Start the sentence again."

Upon finishing 2nd/3rd read, have partners retell the story to each other. Below are possible questions for expository and narrative texts.

Expository	Narrative
<ul style="list-style-type: none">• What was the story mostly about?• What is one thing I learned?• What else did I learn?	<ul style="list-style-type: none">• Who are the characters?• Where did the story happen?• What happened first?• What happened next?• What happened last?

Read Aloud routine		
Teacher Roles	Students' Role	Examples <i>(3rd grade Gallagher's Picnic)</i>
Teach Amazing Words <ul style="list-style-type: none"> • Provide examples, images, gestures and sentence frames 	Say, see, write, hear amazing words <ul style="list-style-type: none"> • Act out, write or say amazing words in sentences using sentence frames 	Amazing word: cringed Act out the word When I see a _____ it makes me want to cringe.
Read Story Aloud <ul style="list-style-type: none"> • Model appropriate expression • Demonstrate a lively, fluent reader 	Be an active listener <ul style="list-style-type: none"> • Eyes on the teacher • KYHFOOTY • Do actions for punctuation 	"Come join our picnic!" Students put one arm up and a fist for a dot to represent an exclamation point
Pause to think aloud <ul style="list-style-type: none"> • Use a think aloud voice, gesture or clue 	Identify think aloud <ul style="list-style-type: none"> • Gesture when you hear the teacher think aloud 	Point to your head to demonstrate thinking
Comprehensible input <ul style="list-style-type: none"> • Use actions and gestures to portray meaning • Display an image representing the big idea of the story 	Non verbal student feedback to teacher <ul style="list-style-type: none"> • Gesture or raise your hand when very confused 	"He cringed to see Gallagher eat such awful food." Act out what cringing looks like
Point out amazing words <ul style="list-style-type: none"> • Use amazing word voice, gesture or clue 	Listen for amazing words <ul style="list-style-type: none"> • Gesture or speak when you hear an amazing word 	Stand up when you hear an amazing words Say "amazing" and then the word when you hear an amazing word
Comprehension Check <ul style="list-style-type: none"> • Ask clarifying questions • Ask for predictions • Make connections • Use sentence frames 	Partner Share <ul style="list-style-type: none"> • Look, lean, lower, listen • Say or write complete sentences using sentence frames 	"What could Rafferty's plan be to help Gallagher kick his bad habit" Sometimes I eat _____ and it makes me feel _____

Fluency Reading Routine

Build Fluency Reading with appropriate rate, accuracy, pronunciation, and expression/prosody	
Cloze Reading Preparation: Before class teacher prepares a selection	<ul style="list-style-type: none"> • Chunk text into manageable segments (i.e., use digital projection, text book) • Number the text segments—Students can number using sticky notes/flags • Select 3-5 words per segment (approximately 1 per sentence) to omit as you read aloud. Select words you have pre-taught or words that are meaningful to the content.
1st Read: Oral Cloze— • Shared Reading • Teacher Models (I do)	Use the prepared text excerpt to model fluent reading that sounds like natural speech, at an appropriate pace, pronouncing words accurately, pausing at the end of phrases, interpreting punctuation, and using expression. If text is relatively brief, read the entire text. If it is fairly long and complex, break it into manageable chunks and only read one major chunk at a time. Students track.
2nd Read: Echo Reading with Phrasing (we do)	Read one chunk at a time. Practice appropriate phrasing using choral reading . Break a sentence into logical phrases and read one phrase at a time, before connecting the phrases. Have students echo read each phrase then connect it, following your lead.
3rd Read: Partner Read (ya'll do)	Strategically partner students for fluency practice . Students should be prepared to discuss the main idea after finishing reading the text. Provide a response frame with appropriate standards-based reading comprehension language (e.g., The information in this passage is about _____. This biography focuses on _____.)
4th Read: Independent Silent Reading (you do)	Before students begin to independently silent read, assign a comprehension task for the same passage (e.g., "Identify two important details the author emphasizes about _____.") <i>verbal or written</i>

Adapted from Kate Kinsella, Ed. D. 2011, Instructional Routine; building Fluency Before Text Comprehension.

FLUENCY EXPRESSION RUBRIC

	1	2	3	4
Expression and Volume	Reads in a quiet voice as if to get words out. The reading does not sound natural like talking to a friend.	Reads in a quiet voice. The reading sounds natural in part of the text, but the reader does not always sound like they are talking to a friend.	Reads with volume and expression. However, sometimes the reader slips into expressionless reading and does not sound like they are talking to a friend.	Reads with varied volume and expression. The reader sounds like they are talking to a friend with their voice matching the interpretation of the passage.
Phrasing	Reads word-by-word in a monotone voice.	Reads in two or three word phrases, not adhering to punctuation, stress and intonation.	Reads with a mixture of run-ons, mid sentence pauses for breath, and some choppiness. There is reasonable stress and intonation.	Reads with good phrasing; adhering to punctuation, stress and intonation.
Smoothness	Frequently hesitates while reading, sounds out words, and repeats words or phrases. The reader makes multiple attempts to read the same passage.	Reads with extended pauses or hesitations. The reader has many "rough spots."	Reads with occasional breaks in rhythm. The reader has difficulty with specific words and/or sentence structures.	Reads smoothly with some breaks, but self-corrects with difficult words and/or sentence structures.
Pace	Reads slowly and laboriously.	Reads moderately slowly.	Reads fast and slow throughout reading.	Reads at a conversational pace throughout the reading.

The purpose of the Fluency Expression Rubric is to provide feedback to students on the pillars of fluency: expression (*prosody*), phrasing, smoothness, and pace.

Scores of 10 or more indicate that the student is making good progress in fluency.

Score _____

Scores below 10 indicate that the student needs additional instruction in fluency.

Rubric modified from Tim Rasinski – [Creating Fluent Readers](#)

Response Frames

A Response frame is:

- different from a sentence stem or frame
- structured topic related scaffold
- carefully and explicitly targets language forms
- provides the opportunity to learn language form in context

Response Frame:	<i>A partner demonstrates active listening when she/he <u>verb+s</u> and <u>verb+s</u></i>													
Model Response:	<i>A partner demonstrates active listening when she restates my idea and asks clarifying questions.</i>	<table border="1"> <thead> <tr> <th><u>Casual Verbs</u></th> <th><u>Precise Verbs</u></th> </tr> </thead> <tbody> <tr> <td>says</td> <td>replies</td> </tr> <tr> <td>likes</td> <td>responds</td> </tr> <tr> <td>lets</td> <td>appreciates</td> </tr> <tr> <td>helps</td> <td>complements</td> </tr> <tr> <td></td> <td>permits</td> </tr> </tbody> </table>	<u>Casual Verbs</u>	<u>Precise Verbs</u>	says	replies	likes	responds	lets	appreciates	helps	complements		permits
<u>Casual Verbs</u>	<u>Precise Verbs</u>													
says	replies													
likes	responds													
lets	appreciates													
helps	complements													
	permits													

Adapted from Kate Kinsella, Ed. D. 2011, *Instructional Routine: building Fluency Before Text Comprehension*.

Multisyllabic Word Routine

1. When we come to a word we do not know we read word parts. We have to use what we know about sound spellings to help us read the word
2. First, let's underline the vowels
fantastic
3. How many syllables does this word have? (*vowel for every syllable*)
4. Let's read the syllables

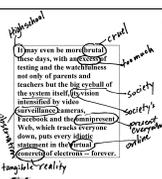


5. What are the vowel sounds?
 - The vowel is short because it is a closed syllable (fantastic)
 - The vowel is long because . . .
 - it is a vowel pair (steamboat)
 - it is a VCE (milestone)
 - it is an open syllable (silo)
 - The vowel is r-controlled because it is followed by an r (barnyard)
 - The e is silent because it is final syllable after a consonant. (stumble)
6. Let's blend and read the whole word
fantastic

CLOSE READING ROUTINE

Teacher selects short robust passage from the main selection and plans ahead by reading, annotating and preparing text-dependent questions See *Close Reading in Elementary Schools* (Fisher & Frey, 2012)

- Purposefully plan a close read:
- Pick a text excerpt that is short, has some element of complexity (language, structure or task) and is worthy of multiple readings
- Plan the purpose for close reading the text selection (e.g., vocabulary, understanding main ideas, record similarities and differences between . . .)
- Grades K-2, teacher reads aloud initially, annotates wholly or guides student annotation. Students may or may not eventually read independently, depending on text difficulty (e.g., Wizard of Oz in Kindergarten.)
- Grades 3-12, students read independently beginning with first reading, and annotate with increased independence. Readers who cannot initially read independently may be read to, or may encounter the text previously during scaffolded small group reading instruction.

Student Roles	Teacher Roles
 <p>Step 1: First READ Students read annotate</p> <p>Step 2: Strategic Partnered Academic Discussion</p> <p>Step 3: Quick Write or Share Out-- What are the Key Ideas and Details about the text? What did you learn?</p> <p>Step 4: Second READ Students track and following along with the teacher think aloud, annotating as appropriate</p> <p>Step 5: Third READ Reread text to find answers to questions and cite and annotate text evidence.</p> <p>Step 6: Strategic Partnered Academic Discussion</p> <p>Step 7: Write about it! Students write responses to a teacher provided prompt.</p>	<p>Step 1: Teacher provides a purpose and a structure, for note-taking and/or annotating text.</p> <ul style="list-style-type: none"> • Teacher observes where students struggle. <p>Step 2: Teacher provides question stem(s) or sentence frame(s) to guide partner interaction.</p> <p>Step 3: Teacher provides question(s) that address key ideas and details of the text, confusing words, general understanding. Students share out or quick write their responses.</p> <ul style="list-style-type: none"> • Narrative—characters, setting, plot sequence or summary • Expository—Main idea and details or summary <p>Step 4: Teacher led shared reading with think aloud incorporating reading strategies for student engagement. Stop reading periodically to explain your thinking as you resolve difficult words using structural or context clues.</p> <ul style="list-style-type: none"> • Model • Choral • Cloze • Echo <p>Teacher focuses craft and structure text dependent questions with the think aloud model.</p> <ul style="list-style-type: none"> • Word or phrase meanings e.g., academic, literal, nonliteral • Point of view <p>Step 5: Teacher uses purposeful, planned text dependent questions to:</p> <ul style="list-style-type: none"> • Prompt rereading • Encourage the use of textual evidence in supporting answers <p>Teacher focuses on integration of knowledge and ideas for students to describe and explain logical connections, reasons with evidence, mood or themes, opinions, intertextual connections, inferences and point of view.</p> <p>Step 6: Teacher provides question stem(s) or sentence frame(s) to guide partner interaction.</p> <p>Step 7: Teacher provides format for final response and facilitates students with scaffolds as necessary for success. (e.g., a summary in a foursquare, short constructed response, and/or paragraph frame.)</p>

K-5 Retelling/Summarizing: Nonfiction

	Instructional Plan	Teacher Talk Example
Explain	Explain why we summarize/retell.	<i>“To summarize a text means telling what it was about. A summary only includes the main ideas and key details, NOT all details. You want to re-create the text using your own words. This will help you understand the text better.”</i>
Build Background	Review nonfiction text to deepen understanding of important concepts.	<i>“Let’s quickly review our concept map to activate our prior knowledge. “When I summarize, I ask myself, what is this text mainly about? This text is mainly about _____.”</i>
Model	Present retell cards in sequence. Summarize/retell key events (where appropriate emphasize comprehension targeted skill).	<i>“Listen carefully as I summarize, I will tell what happened but will not include every detail we read.”</i>
Think	Offer additional processing time before oral practice.	<i>“As I show each retelling card, think about the key details represented.”</i>
Guided Partner Interaction	Present retell cards in sequence. Scaffold with response starters, graphic organizers, word banks, etc.	<i>“As I present each card this time, explain to your partner the key detail(s) from the text that each card represents.”</i> Teachers can use response frames to target specific skills (sequence, key detail) and structure academic discourse. A: First the author mentioned _____. B: Then, _____. A: Next, _____. B: Finally, _____. <i>“The key detail(s) this card represents from the text is/are _____.”</i>
Corrective Feedback	If students have difficulty telling the important parts, model how to find them by pointing to the pictures and talking about what you see.	

K-2 Retelling/Summarizing: NARRATIVE

	Instructional Plan	Teacher Talk Example
Explain	Explain why we retell/summarize.	"To retell means we tell the story in our own words. Before we can retell a story, we need to know the elements of the story and what happened first, next and last."
Build Background	Review text to deepen understanding of important theme concepts.	"This text relates to our unit theme _____. Let's quickly review our concept map to understand how it relates."
Plot	Model how to identify plot. Explain that fiction has a beginning, middle and end.	As I present the retell cards, let's decide what happens in the beginning, middle, and end. "Goldilocks was walking in the forest when she saw an empty house." Was this in the beginning, middle or end? "What happens in the middle? What happens in the end?"
Model	Present retell cards in sequence. Summarize/retell key events (where appropriate emphasize comprehension targeted skill). Use sequence words help to describe the beginning, middle and end.	"When I retell a story, I think about the plot. The plot is what happens in the story. A plot has a beginning, middle and end. Certain words like first, next and last are used to tell when things happen. I will model retelling using my the retell cards." "First, Goldilocks was walking in the forest when she saw an empty house. Next.... Finally....."
Think	Offer additional processing time before oral practice.	"As I show each card, think about the important event it represents."
Guide Interaction	Structure partner interactions. Provide support with response frames.	"Now I want you to retell the story to your partner using the pictures of the retell cards in your text book." A: First, _____. B: Then, _____. A: Next, _____. B: Finally, _____.
Corrective Feedback	If students have difficulty identifying story elements, model how to find them by pointing to the pictures and talking about what you see.	

3-5 Retelling/Summarizing: NARRATIVE

	Instructional Plan	Teacher Talk Example
Explain	Explain why we retell/summarize.	"To retell means we tell the story in our own words. Before we can retell a story, we need to know the elements of the story and what happened first, next and last."
Build Background	Review text to deepen understanding of important theme concepts.	"This text relates to our unit theme _____. Let's quickly review our concept map to understand how it relates."
Character and Setting	Model how to identify and describe setting and character.	"The setting is where and when the story takes place. The characters are the people and animals in the story. In this story, there is a little girl named Goldilocks and three bears. The three bears live in the forest." "The three bears live in the forest. What is the setting? The three bears are characters. Who is another character?"
Plot	Model how to identify plot. Explain that fiction has a beginning, middle and end.	As I present the retell cards, let's decide what happens in the beginning, middle, and end. "Goldilocks was walking in the forest when she saw an empty house." Was this in the beginning, middle or end? "What happens in the middle? What happens in the end?"
Model	Present retell cards in sequence. Summarize/retell key events (where appropriate emphasize comprehension targeted skill). Use sequence words help to describe the beginning, middle and end.	"When I retell a story, I think about the plot. The plot is what happens in the story. A plot has a beginning, middle and end. Certain words like first, next and last are used to tell when things happen. I will model retelling using my the retell cards." "First, Goldilocks was walking in the forest when she saw an empty house. Next.... Finally....."
Think	Offer additional processing time before oral practice.	"As I show each card, think about the important event it represents."
Guide Interaction	Structure partner interactions. Provide support with response frames.	"Now I want you to retell the story to your partner using the pictures of the retell cards in your text book." A: First, _____. B: Then, _____. A: Next, _____. B: Finally, _____.
Corrective Feedback	If students have difficulty identifying story elements, model how to find them by pointing to the pictures and talking about what you see.	

Form and Function Writing Routine

Purposes:

1. Review and practice of language forms, functions and vocabulary taught during Reading Street lessons
2. Identify further language forms students may need to be a successful writer.

Routine Terms:

- **Task:** Writing outcome or product aligned to functions identified in standards.
- **Function:** the language purpose for writing (describe, justify, explain, summarize)
- **Form:** vocabulary and language structures needed to successfully complete a writing task
 - **Vocabulary:** Precise vocabulary students need to successfully write about the target language function. (i.e. Content/prompt related, academic vocabulary – because, similar, different, opinion)
 - **Tools for elaboration:** Words, phrases, or forms students need to connect sentences, expand on ideas, and form complete and linked sentences. (however, rather, finally, In addition, “__ and __ are similar in several ways.”)
 - **Conventions:** Grammar, usage, capitalization and punctuation students need. (i.e. past tense verbs, comma usage, capitalize titles, pronoun usage, etc.)

Steps	Instruction	Example
Step 1: Establish Purpose & Task	<ul style="list-style-type: none"> • Establish lesson and language objectives <ul style="list-style-type: none"> ○ How will students <i>practice and demonstrate</i> understanding of language during this lesson? • Define the lesson task. 	<p>Objective: I can write an opinion using a present-tense verb.</p> <p><i>Yesterday, we discussed your ideas about..... Today we will practice writing a topic sentence that clearly states your opinion.</i></p>
Step 2: Identify and Model Function	<ul style="list-style-type: none"> • Identify and explain the language function associated with the objective. • Analyze written examples that illustrate the identified function. <ul style="list-style-type: none"> ○ Possible sources: student work samples, exemplars, sections of Reading Street texts, teacher created models, multimedia resources ○ <i>Here is my model, “I believe _____.” This is a more academic way of saying, “I think we should_____.”</i> • Have students practice with model. <ul style="list-style-type: none"> ○ <i>To get used to writing this way let’s practice saying it. Repeat after me and try to use the same expression.....</i> ○ <i>Partner A, please turn to Partner B and repeat my model to Partner B.</i> • Repeat with additional written models as necessary. 	<p>(Language Function = Justify, Argue,)</p> <p><i>Writers need to justify personal opinions with evidence and reasons. In other words, you have to state your opinion and then support it with details from things you read.</i></p>
Step 3: Identify and model Forms	<ul style="list-style-type: none"> • Direct attention to targeted form in your model. <ul style="list-style-type: none"> ○ <i>I used the present-tense verb ‘believe’ in my opinion sentence. Some other verbs I could have used are think and feel.</i> • Practice using the forms orally. <ul style="list-style-type: none"> ○ <i>Let’s repeat my sentence replacing ‘believe’ with these other verbs. Repeat after me....</i> • Provide additional written examples and language practice opportunities as necessary. • Using frames (sentence, paragraph) that include the forms, ask student to write their own sentences. <ul style="list-style-type: none"> ○ I _____ (present tense verb – believe, think, feel) _____ should _____. • Practice the sentences students write verbally with a partner. <ul style="list-style-type: none"> ○ Partner A: Read your sentence to your partner. Partner B: Restate your partner’s response or idea. 	<p>Target Form - Present Tense Verbs</p> <p><i>Writers use present-tense verbs when stating an opinion. As we have learned, sometimes we have to add an -s, -es, or -ed but today you are stating your personal opinion using the pronoun ‘I’, so we will just use the base form of a verb.</i></p> <p><i>I also wanted to point out that I used the word ‘should’ to show I think this needs to happen.</i></p>
Step 4: Check for Understanding	<ul style="list-style-type: none"> • Use a strategy to verify students understand the process and expected outcomes. <ul style="list-style-type: none"> ○ Preselect students to share responses, partner nominations, name cards, etc. 	



Language for Academic Discussions

1. Stating Opinions

In my opinion, ___.
I (firmly, strongly) believe that ___.
I think ___ because ___.
From my perspective, ___.
From my point of view, ___.
My opinion on this (issue, topic) is ___.

4. Comparing Ideas

My idea is similar to (Name's).
My response is similar to (Name's).
My stance is comparable to (Name's).
My response is different from (Name's).
My approach is different from (Name's).

2. Drawing Conclusions

Drawing from experience, I know that ___.
My experience with ___ indicates that ___.
The data suggests that ___.
Based on ___, I assume that ___.
After reading ___, I conclude that ___.
My analysis of ___ leads me to believe that ___.

5. Agreeing

I agree with (Name) that ___.
I completely agree with (Name) that ___.
I share your perspective.
I can see your point of view.
My idea builds upon (Name's).

3. Elaborating on Ideas

For (example/instance), ___.
A relevant example I heard/read was ___.
I have observed that ___.
One convincing reason is that ___.
A compelling reason is that ___.
I experienced this when ___.

6. Disagreeing

I don't quite agree.
I disagree completely.
I disagree somewhat.
I have a different perspective.
I don't share your point of view.

© Kate Kinsella, Ed.D 2014. All Rights Reserved.



Language for Collaboration

1. Requesting Ideas

What should we write?
What do you think makes sense?
What's your idea/opinion?
Do you have a suggestion?
Do you have anything to add?

2. Suggesting Ideas

We could write ___.
What if we put ___.
I think ___ would work well.
We could consider writing ___.
I think we should add ___.

3. Validating Ideas

That would work.
That makes sense.
That's a great (idea/suggestion).
That's an interesting example.
I share your point of view.

4. Deciding On Ideas

Let's write ___.
I'd like to put ___.
Let's (use/write/put/add) ___.
I think ___ is the best ___.
Let's combine ideas and put ___.

5. Clarifying Ideas

I don't quite understand your ___.
In other words, you are saying that ___.
What do you mean by ___?
So, you think we should ___?
Are you suggesting ___?

6. Restating Ideas

So, you said that ___.
So, you think that ___.
So, your idea is that ___.
So, your opinion is that ___.
So, you're saying that ___.

7. Reporting Ideas

We decided (upon/that) ___ because ___.
One (fact, reason) we considered is ___.
Based on ___, we determined that ___.
After reviewing ___, we concluded that ___.
Our (response/conclusion/solution) is ___.

© Kate Kinsella, Ed.D 2014. All Rights Reserved.

Vocabulary Note-taking Guide

A vocabulary note-taking guide, such as the example below, is a scaffold to enhance explicit vocabulary instruction. A note-taking scaffold provides an advanced organizer for the most essential terms, accountability for active engagement, and a reference for later use (Feldman & Kinsella, 2005). This guide helps students understand how words work by including the parts of speech, word meanings, examples, and pictures related to sample sentences. Key words (other than target vocabulary words) are left blank, so that students can focus on comprehending the examples and word meanings. More examples can be found on the CSD website.

Word	Meaning	Examples
<p style="text-align: center;">aquarium a•quar•i•um noun</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <hr style="width: 150px; border: 0.5px solid black;"/> </div>	<p>1. Building used for showing collections of live _____, water animals, and water plants</p> <div style="text-align: center; margin-top: 10px;">  </div>	<p>My daughter loves to watch the _____ at the aquarium.</p> <p>My favorite creature to see at the aquarium is _____.</p> <div style="text-align: center; margin-top: 10px;">  </div>
<p style="text-align: center;">dolphins dol•phins noun</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <hr style="width: 150px; border: 0.5px solid black;"/> </div>	<p>1. A small, usually gray sea mammal related to whales with a rounded _____.</p> <div style="text-align: center; margin-top: 10px;">  </div>	<p>Dolphins have beaklike _____.</p> <p>She got to _____ with dolphins at Sea World.</p> <div style="text-align: center; margin-top: 10px;">  </div>

Adapted from Kate Kinsella, Ed. D. 2011, Instructional Routine: High Utility Word Routine and Note-taking Guide

Fourth Grade Speaking and Listening Rubric

Standard	Acquiring	Building Automaticity	Application (Standard Met)
<p>SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i>, building on others' ideas and expressing their own clearly. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. Follow agreed-upon rules for discussions and carry out assigned roles. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.</p>	<ul style="list-style-type: none"> • Student comes to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Student follows agreed-upon rules for discussions and carry out assigned roles. 	<ul style="list-style-type: none"> • Student comes to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Student follows agreed-upon rules for discussions and carry out assigned roles. • Students pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. 	<ul style="list-style-type: none"> • Student comes to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Student follows agreed-upon rules for discussions and carry out assigned roles. • Student poses and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others. • Student reviews the key ideas expressed and explain their own ideas and understanding in light of the discussion.
<p>SL.4.2 Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p>	<ul style="list-style-type: none"> • Student paraphrases information presented in diverse media and formats, including visually, quantitatively, and orally. 	<ul style="list-style-type: none"> • Student paraphrases portions of a text read aloud or information presented in diverse media and formats, including visually, and orally. 	<ul style="list-style-type: none"> • Students paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
<p>SL.4.3 Identify the reasons and evidence a speaker provides to support particular points.</p>	<ul style="list-style-type: none"> • Student identifies the reasons and evidence a speaker provides. 	<ul style="list-style-type: none"> • Student sometimes identifies the reasons and evidence a speaker provides to support particular points. 	<ul style="list-style-type: none"> • Student consistently identifies the reasons and evidence a speaker provides to support particular points.

<p>SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.</p>	<ul style="list-style-type: none"> • Student reports on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details; speak clearly at an understandable pace. 	<ul style="list-style-type: none"> • Student sometime reports on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace. 	<ul style="list-style-type: none"> • Student consistently reports on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
<p>SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.</p>	<ul style="list-style-type: none"> • Student adds visual displays to presentations. 	<ul style="list-style-type: none"> • Student adds audio recordings and visual displays to presentations when appropriate. 	<ul style="list-style-type: none"> • Student adds audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
<p>SL.4.6 Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.</p>	<ul style="list-style-type: none"> • Student sometimes differentiates between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion). 	<ul style="list-style-type: none"> • Student consistently differentiates between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion). 	<ul style="list-style-type: none"> • Student differentiates between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); uses formal English when appropriate to task and situation.

The Concept Talk Four Square serves as a scaffold for organizing ideas and building sentences around the Question of the Week and discussions during Content Knowledge instruction using Reading Street. This scaffold helps students work through the stages of language. Students begin with listening and speaking, while working towards reading and writing. This could be a tool for culminating ideas throughout the week that lead up to a possible product writing at the end of the week or unit.

<p>We can observe _____ .</p> <p>We can interact with nature by _____.</p> <p>The patterns in nature help us because _____ .</p>	<p>We can learn about _____.</p> <p>Knowing about _____ helps us to be able to _____.</p> <p>We can conserve _____.</p> <p>Conserving _____ is important because _____.</p>
<p>What is the value of looking at patterns in nature? (Question of the Week)</p>	
<p>We can predict / hypothesize _____.</p> <p>Predicting/hypothesize _____ helps us to _____.</p>	<p>Patterns in nature are important because _____.</p>

Text Complexity

A critical component of the Utah Core Standards for Reading is the requirement that all students must be able to comprehend texts of steadily increasing complexity as they progress through school. Being able to read complex text independently and proficiently is essential for high achievement in college and the workplace and important in numerous life tasks. Moreover, current trends suggest that if students cannot read challenging texts with understanding—if they have not developed the skill, concentration, and stamina to read such texts—they will read less in general. To grow, our students must read a lot, more specifically they must read a lot of complex texts that offer them new language, new knowledge, and new modes of thought.

In kindergarten and first grade, text complexity comes through the read-aloud experiences students engage in with their teacher. The aim in kindergarten and first grade is for students to build fluency within decodable text as the preparation for reading complex texts beginning in 2nd grade. The table below indicates the Lexile complexity bands for each grade level for which students are to demonstrate a level of proficiency and independence as described in Reading Standard 10.

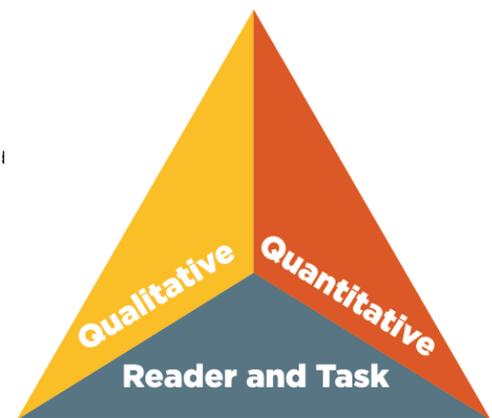
Grade Band in the Standards	Utah Core Standards Lexile Bands
K-1	NA
2-3	450-790
4-5	770-980

The Utah Core Standards define a three-part model for determining how easy or difficult a particular text is to read as well as grade-by-grade specifications for increasing text complexity in successive years of schooling (Reading standard 10). These are to be used together with grade-specific standards that require increasing sophistication in students' reading comprehension abilities (Reading standards 1–9). In this way, the Standards approach the intertwined issues of what and how students read.

The Three-Part Model Text Complexity Triangle

(1) **Qualitative Features** refer to those aspects of text complexity best measured or only measurable by an attentive human reader, such as levels of meaning or purpose; structure; language conventionality and clarity; and knowledge demands.

(2) **Quantitative Factors** refer to those aspects of text complexity, such as word length or frequency, sentence length, and text cohesion that are typically measured by computer software for efficiency.



(3) Reader and Task Considerations focuses on variables specific to the reader, such as: motivation, background knowledge, experience; and to the particular tasks involved including the purpose and the complexity of the task assigned and the questions posed. Teachers employing their professional judgment, experience, and knowledge of their students and the subject to best make such determinations.

Revisiting How We Match Readers and Texts

“For decades, teachers have been told that quality instruction requires a careful matching of materials to students. The goal has been to select materials that are neither too difficult nor too easy for student. Typically, students are assessed on their ability to orally read and comprehend text. Then, instructional materials are selected to match the students’ current performance” (Fisher, Frey, & Lapp, 2012). The main issue with this approach is it limits what students can read with instruction and creates a divide between what the Standards are calling for and what students’ access. “There is evidence that students learn, and perhaps more, when they are taught from challenging texts”(Morgan, Wilcox, & Eldredge, 2000; O’Connor, Swanson, & Geraghty, 2010).

“Teachers know that when students are asked to read complex texts by themselves, they struggle and often do not succeed because they do not have the appropriate bank of related language, knowledge, skills, or metacognition to be able to comprehend the information (Fisher, Frey, & Lapp, 2012). This challenge can be conquered when teachers provide the needed instructional scaffolds, or supports, to ensure students have greater access to reading materials that would have been initially identified as being too challenging. With the right instruction, a student can learn to read texts that are beyond his or her instructional level and hopefully learn how to support his or her own reading of difficult text when the teacher is no longer at the reader’s side.

In order to prepare our students to meet the expectations of the Utah Core Standards, it is essential that students read a wide range of complex texts. One way to accomplish this is through the reading selections provided in Reading Street, the leveled readers, and the online texts available in Realize. For every Reading Street main selection, a text complexity summary description, like the one on the following page, has been provided on the ELA website. These documents provide the qualitative features, quantitative factors and suggestions for reader and task considerations for each text. Teachers can use them for ideas for the types of support that may be necessary for that text based on its text complexity qualities. Each Reading Street text varies in its text complexity factors and features meaning different supports may be needed depending on the time of year, student background, and prior knowledge.

4th Grade 10-day Instructional Plan for Unit 6

Literacy Block Component		Day 1	Day 2	Day 3	Day 4	Day 5
30-45 minutes	Language Arts	Conventions/Grammar <ul style="list-style-type: none"> Conventions lesson 	Conventions/Grammar <ul style="list-style-type: none"> Conventions lesson 	Conventions/Grammar <ul style="list-style-type: none"> Conventions lesson Grammar Jammer 	Conventions/Grammar <ul style="list-style-type: none"> Conventions lesson 	Writing <ul style="list-style-type: none"> Writing to Sources Lesson Include Four-Square Writing Strategy Embedded Conventions Lesson
		Spelling/Word Study <ul style="list-style-type: none"> Pretest 5-7 words Spelling Patterns with Routine Card #7 from Rtl Kit Handwriting—<i>Model, Practice, and Monitor within Word Study</i> 	Writing <ul style="list-style-type: none"> Focus on writing to learn embedded in instruction 	Spelling/Word Study <ul style="list-style-type: none"> 5-7 word check on Spelling Patterns with Routine Card #7 from Rtl Kit Handwriting—<i>Model, Practice, and Monitor within Word Study</i> 	Spelling/Word Study <ul style="list-style-type: none"> 5-7 word check on Spelling Patterns with Routine Card #7 from Rtl Kit Handwriting—<i>Model, Practice, and Monitor within Word Study</i> 	
Literacy Block Component		Day 1	Day 2	Day 3	Day 4	Day 5
	Writing <ul style="list-style-type: none"> Writing to Sources Lesson Include Four-Square Writing Strategy Embedded Conventions Lesson	Writing <ul style="list-style-type: none"> Writing to Sources Lesson Include Four-Square Writing Strategy Embedded Conventions Lesson	Writing <ul style="list-style-type: none"> Writing to Sources Lesson Include Four-Square Writing Strategy Embedded Conventions Lesson	Writing <ul style="list-style-type: none"> Writing to Sources Lesson Include Four-Square Writing Strategy Embedded Conventions Lesson	Writing <ul style="list-style-type: none"> Writing to Sources Lesson Include Four-Square Writing Strategy Embedded Conventions Lesson	
	Spelling/Word Study <ul style="list-style-type: none"> 5-7 word check on Spelling Patterns with Routine Card #7 from Rtl Kit Handwriting—<i>Model, Practice, and Monitor within Word Study</i> 	Spelling/Word Study <ul style="list-style-type: none"> Teacher-Created Word Sort 	Spelling/Word Study <ul style="list-style-type: none"> Teacher-Created Word Sort 	Spelling/Word Study <ul style="list-style-type: none"> Spelling Post-Test of 10-12 words 	Spelling/Word Study <ul style="list-style-type: none"> Spelling Post-Test of 10-12 words 	

4th Grade 10-day Instructional Plan for Unit 6

Literacy Block Component	Day 1	Day 2	Day 3	Day 4	Day 5
<p>Skill-Based Practice Stations Small Group</p> <p>45-60 minutes</p> <p><i>Suggestions for what the other students are doing</i></p>	<p>Practice Stations</p> <ul style="list-style-type: none"> • Social Studies and/or Science Connections • Practice Station Flipcharts • Writing Assignments • Project-Based Learning Projects • Research and Inquiry Activities • Keyboarding Practice • Targeted Reading with Aligned Purposes and Tasks • Imagine Learning ELL 1 or 2 (60-75 minutes) • Reflex Math • Technology Supports—Apps, Websites, etc. • Lexia or Reading Plus or MyON 				
	<p>Practice Station Ideas Correlated with the Day's Instruction</p>				
	<ul style="list-style-type: none"> • Handwriting Practice • Daily Fix It 	<ul style="list-style-type: none"> • RWN Vocabulary 	<ul style="list-style-type: none"> • RWN (Grammar/Conventions) • Think Critically Questions (SE) 	<ul style="list-style-type: none"> • Teacher-Created Word Sorts • Handwriting Practice Sheet 	<ul style="list-style-type: none"> • Fluency Check with a Buddy using Fresh Reads/Assessment Handbook Fluency Passages

Literacy Block Component	Description	Resources
<p>Content Integration Small Group Whole Group</p> <p>20-30 minutes</p>	<p>Content integration time in the ELA Block deals with integration of science and social studies content to understand key concepts, principles, generalizations, and theories through the integration of the English Language Arts Standards.</p> <p>The Utah Core states: "By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students can only gain this foundation when the curriculum is intentionally and coherently structured to develop rich content knowledge within and across grades. Students also acquire the habits of reading independently and closely, which are essential to their future success."</p> <p>Optimally, this portion of the day involves students reading, writing, listening and speaking about the topics they are learning about in science and social studies instruction time. Teachers can use this time to provide background knowledge and learning activities to prepare their students for their Science/Social Studies instruction. Ideas and resources for integration can be found in your Content Integration Map.</p>	<p>Reinforce/Expand/Extend the Concept</p> <ul style="list-style-type: none"> • Content Leveled Readers (SE) • eReaders (digital) <p>Research and Inquiry</p> <ul style="list-style-type: none"> • Identify and Focus Topic <p>Science/Social Studies</p> <ul style="list-style-type: none"> • Set the stage for Lab or Learning Task

SALTA Fourth Grade
English Language Arts
Scope and Sequence At-A-Glance
2016-17

Dates	AUG 24– OCT 7	OCT 10 – DEC 2	DEC 5 – FEB 3	FEB 6 – MAR 17	MAR 20 – MAY 5	MAY 8 – JUNE 7
Instructional Days	30 days	34 days	35 days	27 days	30 days	21 days
Unit	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Big Question	What can we discover from new places and people?	What is the value of teamwork?	What are some patterns in nature?	Is there an explanation for everything?	What makes an adventure?	What does it take to achieve our goals and dreams?
JGB	<ul style="list-style-type: none"> Shelter Dogs (NF) One Day in the Prairie (NF) One Day in the Desert (NF) Than You M'am (F) Beauty and the Beast (F) Ali Baba and the Forty Thieves (F) 	<ul style="list-style-type: none"> Teammates (NF) George Washington (NF) Just a Few Words (NF) Common Ground (NF) Chin Yu Min and the Ginger Cat (F) Fresh (F) Tuesday of the Other une (F) Shrewd Todie and Lyzer the Miser (F) 	<ul style="list-style-type: none"> The Cloud Book (NF) Hurricanes (NF) George Washington Carver (NF) Elanor (NF) Trail of Tears (NF) 3 Jean Fritz Books (NF) If You Books (NF) Thunder, Elephant, and Dorobo (F) The Goldfish (F) 	<ul style="list-style-type: none"> Ice Mummy (NF) The Snake Scientist (NF) The Respiratory System (NF) How to be a Pirate (NF) Knights and Castles (NF) Prot and Krot (F) The Elephant's Child (F) The Hemulen Who Loved Silence (F) 	<ul style="list-style-type: none"> The Top of the World (NF) Do Stars Have Points (NF) Earthquakes (NF) All Summer in a Day (F) The Great Blackberry Pick (F) The Enchanted Sticks (F) The Little Humpbacked Horse (F) 	<ul style="list-style-type: none"> Through My Eyes (NF) Space Magic Tree House (NF) Shakespeare and the Globe (NF) A Gift from the Heart (NF) My Librarian is a Camel (NF) The Nightingale (F) The Gold Coin (F) Mr. Singer's Nicknames (F) The Story of Wang Li (F)
Extended Learning	Teacher's Choice	Teacher's Choice	Teacher's Choice	Debate	Debate	Debate
Research and Inquiry Skill for Content Integration	<ul style="list-style-type: none"> Map/ Globe/ Atlas Skim and Scan Alphabetical Order Illustrations, Captions, Label Print Sources 	<ul style="list-style-type: none"> Chart/Table Newspaper/News-letter Advertisement Graph Timeline 	<ul style="list-style-type: none"> Almanac Reader's Guide to Periodical Literature Textbook/Trade Book Online Phone Directory 	<ul style="list-style-type: none"> Procedures and Instructions/Manual Poster/Announceme nt Follow/Clarify Directions Thesaurus 	<ul style="list-style-type: none"> Parts of a book Outline Diagram/Scale Drawing SPQ3R (Survey, Predict, Question, Read, Recite, 	<ul style="list-style-type: none"> Note-taking, Paraphrase, Synthesize, Record Findings Magazine, Periodical Dictionary,

			<ul style="list-style-type: none"> Schedule 	<ul style="list-style-type: none"> Card Catalog/Online Database 	<ul style="list-style-type: none"> Review) Order Form/ Application 	<ul style="list-style-type: none"> Glossary Online Manual Encyclopedia
Target Skills & Strategies	<ul style="list-style-type: none"> Plot, Sequence, & Characters Author's Purpose Main Idea & Details 	<ul style="list-style-type: none"> Draw Conclusions Main Idea and Details Fact/Opinion 	<ul style="list-style-type: none"> Graphic Sources Main Idea and Details 	<ul style="list-style-type: none"> Compare & Contrast Plot, Sequence, & Characters 	<ul style="list-style-type: none"> Author's Purpose Plot, Sequence, and Characters 	<ul style="list-style-type: none"> Fact and Opinion Draw Conclusions Graphic Sources
Word Analysis	-ed, -or, -er, -ing, Compound words, Related words	un-, in- , Word Origins, Latin Prefixes: dis-, re- non-, Compound Words, -ly	Word Origins: Latin, Greek Roots: bio-, phon, graph Related Words, Latin Roots: struct, scrib, script	-ian, -ist, -ism, aqua-, dict-, im-, in-, trans-, tele-, amphi-, anti-	Word Origins: French, Suffixes: -ous, -able, -ible, Related Words, Suffix: -ion, Word Origins: German	Latin Roots: gener, port, dur, ject, Word Origins: French, Related Words, Prefix: astro-, Greek and Latin Roots
Writing Focus	Narrative	Opinion	Informative/ Explanatory	Narrative	Opinion	Informative/ Explanatory

2016-17 Year At A Glance 4th Grade
Reading Street Schedule

Unit 1	Week 1	August 24-Sept 2	8 days
	Week 2	September 6-9	4 days
	Week 3	September 12-16	5 days
	Week 4	September 19-22	4 days
	Week 5	September 26-29	4 days
	Unit 1 Review	October 3-7	5 days
Unit 2	Week 1	October 10-14	5 days
	Week 2	October 17-28	8 days
	Week 3	October 31- Nov. 3	4 days
	#1 District-Wide Standards Based Benchmark Nov. 7-Dec2		
	Week 4	November 7-11	5 days
	Week 5	November 14-18	5 days
	Unit 2 Review	Nov. 21- Dec. 2	7 days
Unit 3	Week 1	December 5-9	5 days
	Week 2	December 12-16	5 days
	Week 3	Dec 19- Jan. 6	7 days
	Week 4	January 9-13	5 days
	#2 District-Wide Standards Based Benchmark Jan. 17-Feb 9		
	Week 5	January 17-27	8 days
	Unit 3 Review	January 30-Feb. 3	5 days
Unit 4	Week 1	February 6-9	4 days
	Week 2	February 13-16	4 days
	Week 3	February 21-24	4 days
	Week 4	February 27-Mar. 3	5 days
	Week 5	March 6-10	5 days
	#3 District-Wide Standards Based Benchmark March 13-31		
	Unit 4 Review	March 13-17	5 days
Unit 5	Week 1	March 20-24	5 days
	Week 2	March 27-31	5 days
	Week 3	April 10-14	5 days
	Week 4	April 17-21	5 days
	Week 5	April 24-28	5 days
	Unit 5 Review	May 1-5	5 days
Unit 6	Week 1	May 8-12	5 days
	Week 3	May 15-26	10 days
	Week 4	May 30-June 7	6 days

SALTA Fourth Grade Scope and Sequence

Unit 1: August 24-October 7

Flexible Pacing: 30 instructional days

Unit 1 Theme: Turning Points

Big Question	Targeted Comprehension Skill/Strategy	Writing from <u>Writing to Sources</u>	Report Card Learning Targets		
			I can...		
What can we discover from new places and people?	<ul style="list-style-type: none"> Character & Plot Author's Purpose Main Idea & Details Sequence 	NARRATIVE	<ul style="list-style-type: none"> Engage effectively in conversations by coming prepared, following discussion rules, building upon other's ideas, asking for clarification, and summarize key ideas Ask and answer questions to demonstrate understanding referring to the text and drawing inferences Identify and summarize the main idea and key details Recognize the structure (e.g., sequence, dialogue, charts) Compare and contrast point of view Write narrative text to develop real or imagined experiences with a well-developed conclusion Use grammar skills when writing or speaking Recognize and apply grade-level phonics in multisyllable words 		
Extended Learning Teacher's Choice	Research & Inquiry Skill for Content Integration <ul style="list-style-type: none"> Maps/Globe/Atlas Skim and Scan Alphabetical Order Illustrations, Captions, Label Print Sources 		JGB <ul style="list-style-type: none"> Shelter Dogs (NF) One Day in the Prairie (NF) One Day in the Desert (NF) Than You M'am (F) Beauty and the Beast (F) Ali Baba and the Forty Thieves (F) 		
Targeted ELA Standards: SPEAKING & LISTENING	Targeted ELA Standards: READING		Targeted ELA Standards: WRITING	Targeted ELA Standards: LANGUAGE	Targeted ELA Standards: FOUNDATIONAL SKILLS
SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i> , building on others' ideas and expressing their own clearly. a) Come to discussions	RL. & R.1.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. RI.4.2 Determine the main idea of a text or story and explain how it is supported by key details; summarize the text. RI.4.3 Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions). RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including		W.4.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a) Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.	L.4.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. h) Produce complete sentences, recognizing and correcting	RF.4.3 Know and apply grade-level phonics and word analysis skills in decoding words. a) Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to

<p>prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</p> <p>b) Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).</p>	<p>what happened and why, based on specific information in the text.</p> <p>RI.4.5 Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.</p> <p>RI.4.6 Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.</p> <p>RI.4.8 Explain how an author uses reasons and evidence to support particular points in a text.</p> <p>RI.4.9 Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.</p> <p>RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</p>	<p>b) Use dialogue and description to develop experiences and events or show the responses of characters to situations.</p> <p>c) Use a variety of transitional words and phrases to manage the sequence of events.</p> <p>d) Use concrete words and phrases and sensory details to convey experiences and events precisely.</p> <p>W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p>	<p>inappropriate fragments and run-ons.</p>	<p>read accurately unfamiliar multisyllabic words in context and out of context.</p>
--	---	---	---	--

	Question of the Week	Main Selection	Target Phonics/Word Analysis
Week 1	What experiences bring diverse people together?	Because of Winn-Dixie	-ed
Week 2	What opportunities can be found in new places?	Lewis and Clark and Me	-or, -er
Week 3	Why do we want to explore new places?	On the Banks of Plum Creek	-ing
Week 4	What can we discover in the landscape of the Southwest?	The Horned Toad Prince	Compound Words
Week 5	How does Yosemite reflect the unique qualities of the West?	Letters Home From Yosemite	Related Words
Week 6	Interactive Review (Flexible Pacing)		Review

Targeted Technology Standard

ISTE #6 Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems, and operations.

- a. Understand and use technology systems
- b. Select and use applications effectively and productively
- c. Troubleshoot systems and applications
- d. Transfer current knowledge to learning of new technologies

Content Integration
(additional resources found in Content Integration Map)

Social Studies Connections	Science Connections
----------------------------	---------------------

N/A	N/A
-----	-----

Fourth Grade Scope and Sequence

Unit 2: October 10-December 2

Flexible Pacing: 34 instructional days

Unit 2 Theme: Teamwork			
Big Question	Targeted Comprehension Skill/Strategy	Writing <small>from <u>Writing to Sources</u></small>	Report Card Learning Targets
<p style="text-align: center;">What is the value of teamwork?</p>	<ul style="list-style-type: none"> Draw Conclusions Fact/Opinion Main Idea and Supporting Details 	<p>OPINION</p>	<p>I can...</p> <ul style="list-style-type: none"> Engage effectively in conversations by coming prepared, following discussion rules, building upon other’s ideas, asking for clarification, and summarize key ideas Ask and answer questions to demonstrate understanding referring to the text and drawing inferences Identify and summarize the main idea and key details Recognize the structure (e.g., sequence, dialogue, charts) Write opinion pieces using organized reasons supported by facts and details Use technology to produce and publish writing Use context clues, affixes, & roots to determine the meaning of vocabulary words & phrases Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension
<p>Extended Learning <small>Teacher’s Choice</small></p>	<p>Research & Inquiry Skill for Content Integration</p> <ul style="list-style-type: none"> Chart/Table Newspaper/Newsletter Advertisement Graph Timeline 	<p>JGB</p> <ul style="list-style-type: none"> Teammates (NF) George Washington (NF) Just a Few Words (NF) Common Ground (NF) Chin Yu Min and the Ginger Cat (F) Fresh (F) Tuesday of the Other une (F) Shrewd Todie and Lyzer the Miser (F) 	

Targeted ELA Standards: SPEAKING & LISTENING	Targeted ELA Standards: READING	Targeted ELA Standards: WRITING	Targeted ELA Standards: LANGUAGE	Targeted ELA Standards: FOUNDATIONAL SKILLS
---	--	--	---	--

<p>SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i>, building on others' ideas and expressing their own clearly.</p> <p>d) Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.</p> <p>SL.4.3 Identify the reasons and evidence a speaker provides to support particular points.</p>	<p>RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.4.2 Determine a theme of a story, drama, or poem from details in the text; summarize the text.</p> <p>RI.4.2 Determine the main idea of a text or story and explain how it is supported by key details; summarize the text.</p> <p>RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p> <p>RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</p>	<p>W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.</p> <p>a) Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.</p> <p>b) Provide reasons that are supported by facts and details.</p> <p>c) Link opinion and reasons using words and phrases (e.g., <i>for instance, in order to, in addition</i>).</p> <p>d) Provide a concluding statement or section related to the opinion presented.</p> <p>W.4.6 With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.</p> <p>W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.</p>	<p>L.4.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on <i>grade 4 reading and content</i>, choosing flexibly from a range of strategies.</p> <p>b) Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., <i>telegraph, photograph, autograph</i>).</p>	<p>RF.4.4 Read with sufficient accuracy and fluency to support comprehension.</p> <p>a. Read grade-level text with purpose and understanding.</p> <p>b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.</p> <p>c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</p>
--	---	---	---	--

	Question of the Week	Main Selection	Target Phonics/Word Analysis
Week 1	How can we learn to appreciate the talent of others?	What Joe Did	un- and in-
Week 2	How can we work together to achieve a goal?	Coyote School News	Word Origins
Week 3	What can teams accomplish?	Scene Two	Latin Prefixes: dis-, re-, non-
Week 4	How can people and animals work as a team?	Horse Heroes: True stories of Amazing Horses	Compound Words

Week 5	What is the job of the President of the United States?	So You Want to be President	- ly
Week 6	Interactive Review		Review
Targeted Technology Standard			
<p>ISTE #4 Critical Thinking, Problem Solving, and Decision Making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.</p> <ul style="list-style-type: none"> a. Identify and define authentic problems and significant questions for investigation b. Plan and manage activities to develop a solution or complete a project c. Collect and analyze data to identify solutions and/or make informed decisions d. Use multiple processes and diverse perspectives to explore alternative solutions 			
Content Integration			
(additional resources found in Content Integration Map)			
Social Studies Connections		Science Connections	
Week 5: <u>So You Want to be President?</u>			

Fourth Grade Scope and Sequence

Unit 3: December 5—February 3

Flexible Pacing: 35 instructional days

Unit 3 Theme: Patterns in Nature				
Big Question	Targeted Comprehension Skill/Strategy	Writing <small>from <u>Writing to Sources</u></small>	Report Card Learning Targets	
<p style="text-align: center;">What are some patterns in nature?</p>	<ul style="list-style-type: none"> Cause and Effect Generalize Fact and Opinion 	<p>INFORMATIVE/ EXPLANATORY</p>	<p>I can...</p> <ul style="list-style-type: none"> Engage effectively in conversations by coming prepared, following discussion rules, building upon other’s ideas, asking for clarification, and summarize key ideas Ask and answer questions to demonstrate understanding referring to the text and drawing inferences Identify and summarize the main idea and key details Recognize the structure (e.g., sequence, dialogue, charts) Write informational texts to convey ideas with supporting details, quotations, and specific vocabulary Use grammar skills when writing or speaking Recognize and apply grade-level phonics in multisyllable words 	
<p>Extended Learning <small>Teacher’s Choice</small></p>	<p>Research & Inquiry Skill for Content Integration</p> <ul style="list-style-type: none"> Almanac Reader’s Guide to Periodical Literature Textbook/Trade Book Online Phone Directory Schedule 	<p>JGB</p> <ul style="list-style-type: none"> The Cloud Book (NF) Hurricanes (NF) George Washington Carver (NF) Elanor (NF) Trail of Tears (NF) 3 Jean Fritz Books (NF) If You Books (NF) Thunder, Elephant, and Dorobo (F) The Goldfish (F) 		
Targeted ELA Standards: SPEAKING & LISTENING	Targeted ELA Standards: READING	Targeted ELA Standards: WRITING	Targeted ELA Standards: LANGUAGE	Targeted ELA Standards: FOUNDATIONAL SKILLS
<p>SL.4.1 Engage effectively in a range of collaborative discussions (one-on-</p>	<p>RL & RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing</p>	<p>W.4.2 Write informative/ explanatory texts to examine a topic and convey ideas and information clearly. a) Introduce a topic clearly and</p>	<p>L.4.1 Demonstrate command of the conventions of standard English</p>	<p>RF.4.3 Know and apply grade-level phonics and word analysis skills in</p>

<p>one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i>, building on others' ideas and expressing their own clearly.</p> <p>c) Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.</p> <p>SL.4.2 Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.</p>	<p>inferences from the text.</p> <p>RI.4.2 Determine a theme of a story, drama, or poem from details in the text; summarize the text.</p> <p>RI.4.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text.</p> <p>RI.4.3 Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).</p> <p>RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p> <p>RI.4.5 Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.</p>	<p>group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.</p> <p>c) Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.</p> <p>d) Link ideas within categories of information using words and phrases (e.g., <i>another, for example, also, because</i>).</p> <p>e) Use precise language and domain-specific vocabulary to inform about or explain the topic.</p> <p>f) Provide a concluding statement or section related to the information or explanation presented.</p> <p>W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p>	<p>grammar and usage when writing or speaking.</p> <p>a) Fluently, independently, and legibly write all upper and lower case cursive letters.</p> <p>b) Produce grade appropriate text using legible cursive writing.</p> <p>d) Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses.</p> <p>e) Use modal auxiliaries (e.g., can, may must) to convey various conditions.</p>	<p>decoding words.</p> <p>c) Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.</p>
--	--	--	--	--

	Question of the Week	Main Selection	Target Phonics/ Word Analysis
Week 1	What is the value of looking at patterns in nature?	The Man Who Named the Clouds	Word Origins: Latin
Week 2	What patterns in nature guide the lives of animals?	Adelina's Whales	Greek Roots: bio-, phon, and graph
Week 3	How have people explained the pattern of day and night?	How Night Came from the Sea	Related Words
Week 4	How do weather patterns affect our lives?	Eye of the Storm	Latin Roots: struct, scribe, script
Week 5	What causes changes in nature?	Paul Bunyan	Related Words

Week 6	Interactive Review		Review
Targeted Technology Standard			
<p>ISTE #3 Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.</p> <ul style="list-style-type: none"> a. Plan strategies to guide inquiry b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks d. Process data and report results 			
Content Integration (additional resources found in Content Integration Map)			
Social Studies Connections		Science Connections	
		<p>Week 1: <u>The Man Who Named the Clouds & My Weather Journal</u></p> <p>Week 4: <u>Eye of the Storm & Severe Weather Safety</u></p>	

Fourth Grade Scope and Sequence

Unit 4: February 6-March 17

Flexible Pacing: 27 instructional days

Unit 4 Theme: Puzzles and Mysteries				
Big Question	Targeted Comprehension Skill/Strategy	Writing from <u>Writing to Sources</u>	Report Card Learning Targets	
Is there an explanation for everything?	<ul style="list-style-type: none"> Compare & Contrast Plot, Sequence, & Characters Cause and Effect 	NARRATIVE	I can... <ul style="list-style-type: none"> Recognize the structure (e.g., sequence, dialogue, charts) Compare and contrast point of view Write narrative text to develop real or imagined experiences with a well-developed conclusion Use grammar skills when writing or speaking Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension 	
Extended Learning Debate	Research & Inquiry Skill for Content Integration <ul style="list-style-type: none"> Procedures and Instructions/Manual Poster/Announcement Follow/Clarify Directions Thesaurus Card Catalog/Online Database 	JGB <ul style="list-style-type: none"> Ice Mummy (NF) The Snake Scientist (NF) The Respiratory System (NF) How to be a Pirate (NF) Knights and Castles (NF) Prot and Krot (F) The Elephant's Child (F) The Hemulen Who Loved Silence (F) 		
Targeted ELA Standards: SPEAKING & LISTENING	Targeted ELA Standards: READING	Targeted ELA Standards: WRITING	Targeted ELA Standards: LANGUAGE	Targeted ELA Standards: FOUNDATIONAL SKILLS
SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main	RL & RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. RI.4.3 Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions). RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical	W.4.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. a) Orient the reader by establishing a situation and introducing a narrator	**Replace the Language instruction in this unit with the standards listed below. L.4.1 Demonstrate command of the	RF.4.4 Read with sufficient accuracy and fluency to support comprehension. a) Read grade-level text with purpose and understanding.

<p>ideas or themes; speak clearly at an understandable pace.</p>	<p>text, including what happened and why, based on specific information in the text. RI.4.5 Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text. RI.4.5 Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text. RI.4.6 Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations. RI.4.6 Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided. RI.4.9 Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.</p>	<p>and/or characters; organize an event sequence that unfolds naturally. b) Use dialogue and description to develop experiences and events or show the responses of characters to situations. c) Use a variety of transitional words and phrases to manage the sequence of events. d) Use concrete words and phrases and sensory details to convey experiences and events precisely. W.4.5 With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (</p>	<p>conventions of standard English grammar and usage when writing or speaking. c) Use relative pronouns (<i>who, whose, whom, which, that</i>) and relative adverbs (<i>where, when, why</i>). Suggested Resources: <ul style="list-style-type: none"> • http://gotkidsgames.com/hom/relPronounGame.html • http://languageartsreading.dadeschools.net/pdf/Writing/WritingSampleLessons/Conventions/Grammar%20Lesson/PronounsLesson_Relative.pdf </p>	<p>b) Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c) Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</p>
--	---	--	--	---

	Question of the Week	Main Selection	Target Phonics/Word Analysis
Week 1	Why can't you always believe what you think you see?	The Case of the Gasping Garbage	-ian, -ist, -ism
Week 2	Why do animals behave the way they do?	Encantado: Pink Dolphin of the Amazon	aqua-, dict-
Week 3	Why are secret codes necessary?	Navajo Code Talkers	im-, in-
Week 4	How can knowing another language create understanding?	Seeker of Knowledge	trans-, tele-
Week 5	How can attention to detail help solve a problem?	Encyclopedia Brown	amphi-, anti-
Week 6	Interactive Review		Review

Targeted Technology Standard

ISTE #1 Creativity and Innovation: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

- a. Apply existing knowledge to generate new ideas, products, or processes
- b. Create original works as a means of personal or group expression
- c. Use models and simulations to explore complex systems and issues
- d. Identify trends and forecast possibilities

Content Integration

(additional resources found in Content Integration Map)

Social Studies Connections

Science Connections

Week 3: Navajo Code Talkers

Fourth Grade Scope and Sequence

Unit 5: March 20-May 5

Flexible Pacing: 30 instructional days

Unit 5 Theme: Adventures by Land, Air, and Water				
Big Question	Targeted Comprehension Skill/Strategy	Writing <small>from <u>Writing to Sources</u></small>	Report Card Learning Targets	
What makes an adventure?	<ul style="list-style-type: none"> Author’s Purpose Characters Plot, Theme Sequence 	OPINION	I can... <ul style="list-style-type: none"> Ask and answer questions to demonstrate understanding referring to the text and drawing inferences Recognize the structure (e.g., sequence, dialogue, charts) Compare and contrast point of view Write opinion pieces using organized reasons supported by facts and details Use grammar skills when writing or speaking Recognize and apply grade-level phonics in multisyllable words 	
Extended Learning Debate	Research & Inquiry Skill for Content Integration <ul style="list-style-type: none"> Parts of a Book Outline Diagram/Scale Diagram SPQ3R (Survey, Predict, Question, Read, Recite, Review) Order Form/Application 	JGB <ul style="list-style-type: none"> The Top of the World (NF) Do Stars Have Points (NF) Earthquakes (NF) All Summer in a Day (F) The Great Blackberry Pick (F) The Enchanted Sticks (F) The Little Humpbacked Horse (F) 		
Targeted ELA Standards: SPEAKING & LISTENING	Targeted ELA Standards: READING	Targeted ELA Standards: WRITING	Targeted ELA Standards: LANGUAGE	Targeted ELA Standards: FOUNDATIONAL SKILLS
SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i> , building on others’ ideas and expressing their own clearly. d) Review the key ideas expressed and explain their own	RL & RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. RL.4.2 Determine a theme of a story, drama, or poem from details in the text; summarize the text. RI.4.2 Determine the main idea of a text and explain how it is supported by key details; summarize the text. RI.4.3 Describe in depth a character,	W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. a) Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer’s purpose. b) Provide reasons that are supported by facts and details. c) Link opinion and reasons using words and phrases (e.g., <i>for</i>	L.4.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. f) Order adjectives within sentences according to conventional patterns (e.g., <i>a</i>	RF.4.3 Know and apply grade-level phonics and word analysis skills in decoding words. a) Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to

<p>ideas and understanding in light of the discussion.</p> <p>SL.4.3 Identify the reasons and evidence a speaker provides to support particular points.</p>	<p>setting, or event in a story or drama, drawing on specific details in the text (e.g., a character’s thoughts, words, or actions).</p> <p>RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p> <p>RI.4.6 Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.</p> <p>RI.4.6 Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.</p> <p>RI.4.8 Explain how an author uses reasons and evidence to support particular points in a text.</p>	<p><i>instance, in order to, in addition).</i></p> <p>d) Provide a concluding statement or section related to the opinion presented.</p> <p>W.4.4 Produce clear and coherent writing in which development and organization or appropriate to task, purpose and audience.</p> <p>W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.</p>	<p><i>small red bag</i> rather than <i>a red small bag</i>).</p> <p>f) Form and use prepositional phrases.</p>	<p>read accurately unfamiliar multisyllabic words in context and out of context.</p>
--	--	--	---	--

	Question of the Week	Main Selection	Target Phonics/ Word Analysis
Week 1	How can we prepare for emergencies?	Smokejumpers	Word Origins: French
Week 2	What surprises can happen on an expedition?	Lost City	Suffixes: -ous, -able, -ible
Week 3	What does it take to be a hero?	Cliff Hanger	Related Words
Week 4	What does a person sacrifice to explore the unknown?	Antarctic Journal	Suffix: -ion
Week 5	What are the risks when walking on the moon?	Moonwalk	Word Origins: German
Week 6	Interactive Review		Review

Targeted Technology Standard

ISTE #5 Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

a. Advocate and practice safe, legal, and responsible use of information and technology

- b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
- c. Demonstrate personal responsibility for lifelong learning
- d. Exhibit leadership for digital citizenship

Content Integration

(additional resources found in Content Integration Map)

Social Studies Connections

Science Connections

Week 1: Smokejumpers & Camp with Care

Week 2: Lost City & Riding the Rails to Machu Picchu

Fourth Grade Scope and Sequence

Unit 6: May 8-June 7

Flexible Pacing: 21 instructional days

Unit 6 Theme: Reaching for Goals				
Big Question	Targeted Comprehension Skill/Strategy	Writing from <i>Writing to Sources</i>	Report Card Learning Targets	
What does it take to achieve our goals and dreams?	<ul style="list-style-type: none"> Fact and Opinion Draw Conclusions Graphic Sources 	INFORMATIVE/ EXPLANATORY	I can... <ul style="list-style-type: none"> Ask and answer questions to demonstrate understanding referring to the text and drawing inferences Recognize the structure (e.g., sequence, dialogue, charts) Write informational texts to convey ideas with supporting details, quotations, and specific vocabulary Use technology to produce and publish writing Use grammar skills when writing or speaking Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension 	
			Extended Learning Debate	Research & Inquiry Skill for Content Integration <ul style="list-style-type: none"> Note-taking, Paraphrase, Synthesize, Record Findings Magazine, Periodical Dictionary, Glossary Online Manual Encyclopedia
Targeted ELA Standards: SPEAKING & LISTENING	Targeted ELA Standards: READING	Targeted ELA Standards: WRITING	Targeted ELA Standards: LANGUAGE	Targeted ELA Standards: FOUNDATIONAL SKILLS
SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an	RL & RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. RL.4.7 Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version	W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a) Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.	L.4.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. a) Use correct capitalization.	RF.4.4 Read with sufficient accuracy and fluency to support comprehension. a) Read grade-level text with purpose and understanding. b) Read grade-level prose and poetry

<p>understandable pace. SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes. SL.4.6: Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small group discussion); use formal English when appropriate to task and situation.</p>	<p>reflects specific descriptions and directions in the text. RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. RI.4.8 Explain how an author uses reasons and evidence to support particular points in a text.</p>	<p>b) Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c) Link ideas within categories of information using words and phrases (e.g., <i>another, for example, also, because</i>). d) Use precise language and domain-specific vocabulary to inform about or explain the topic. e) Provide a concluding statement or section related to the information or explanation presented. W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p>	<p>b) Use commas and quotation marks to mark direct speech and quotations from a text. c) Use a comma before a coordinating conjunction in a compound sentence.</p>	<p>orally with accuracy, appropriate rate, and expression on successive readings. c) Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</p>
--	--	---	--	---

	Question of the Week	Main Selection	Target Phonics/ Word Analysis
Week 1 10 Days	How can words change people’s lives?	My Brother Martin	Latin Roots: gener, port
Week 2 9 Days	How can our abilities influence our dreams and goals?	Jim Thorpe’s Bright Path	Latin Roots: dur, ject
Week 3	How can one person’s view of the world affect others?	How Tia Lola Came to Stay	Word Origins: French
Week 4	When do people choose to make sacrifices?	A Gift from the Heart	Related Words
Week 5 9 Days	How do the achievements of others influence our dreams?	The Man Who Went to the Far Side of the Moon	Prefix: astro- Greek and Latin Roots
Week 6	Interactive Review		Review

Pacing suggestions for Unit 6: Due to shortened instructional time during the SAGE testing window, it is suggested to teach Weeks 1, 2, & 5 only. Weeks 1, 2, & 5 will be the instruction for Unit 6. Skills in Weeks 3 & 4 are spiraled in grade 5. CFA for Unit 6 is not required.

Targeted Technology Standard

ISTE #2 Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

- a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
- b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats
- c. Develop cultural understanding and global awareness by engaging with learners of other cultures
- d. Contribute to project teams to produce original works or solve problems

Content Integration

(additional resources found in Content Integration Map)

Social Studies Connections

Science Connections

N/A

N/A

Skill-Based Instruction Implementation Considerations

When planning for skill-based instruction, it is important to consider the unique needs of students who qualify for specialized services such as English Language Development (ELD) and special education. When grouping students, it may be necessary to provide additional groupings for English Language Learners who are classified as WIDA Levels 1-4 or students who have an IEP. Additional groupings support the responsibilities educators have in ensuring that all students receive the support needed to be successful. The graphic below shows the possible groupings for all students. Additional information about the focus of instruction can be viewed on following pages of this map and in the DIBELS Pathways of Progress Report.

Once students are grouped, for ELD, Special Education, and Groups 2-4, it is critical to provide explicit, systematic instruction with ample practice opportunities and specific feedback to fill in skill gaps. Finally, progress should be monitored more frequently for these groups to ensure that instruction is supporting students' growth towards mastery of identified outcomes.

ELD (30+ minutes)		Special Education	
Language Central Curriculum and applicable group instruction OR Reading Street ELL Handbook and applicable group instruction using Lesson Plans for ELD Small Group (Fluency & Frontload)		<ul style="list-style-type: none"> • Reading Mastery • Reading Mastery Core Lesson Connections • Corrective Reading • 6 Minute Solution 	
Additional ELD Instruction (15+ minutes)			
<ul style="list-style-type: none"> • ELL Pages in the Reading Street Teacher Edition or ELL Handbook • RTI Kit 			
Group 1 – Benchmark Rate & Accurate	Group 2 – Below Benchmark Rate & Accurate	Group 3 – Benchmark Rate & Inaccurate	Group 4 - Below Benchmark & Inaccurate
Focus of Instruction: • Comprehension and Vocabulary	Focus of Instruction: • Fluency	Focus of Instruction: • Self Monitoring for Accuracy	Focus of Instruction: • PA and Phonics
Resources	Resources	Resources	Resources
<ul style="list-style-type: none"> • RTI Kit • Group 1 Lesson Plan(s) 	<ul style="list-style-type: none"> • RTI Kit • Group 2 Lesson Plan(s) 	<ul style="list-style-type: none"> • RTI Kit • Group 3 Lesson Plan(s) 	<ul style="list-style-type: none"> • RTI Kit • Group 4 Lesson Plan(s)

INSTRUCTIONAL SORT

4th Grade

Refer to the SRI reports and the DIBELSnet Pathways of Progress Report. Use this information to establish four groups. Select criterion report based on DIBELSnext benchmarks. Using the criteria outlined in the table below, begin to group students accordingly. An additional, blank sort is provided at the back of this section to record groups.

<p>Group 1: Accurate & Benchmark Rate FALL: Advanced / Proficient on SRI OR Met benchmark on DORF with at least 96% accuracy WINTER: Advanced / Proficient on SRI OR Met benchmark on DORF with at least 97% accuracy SPRING: Advanced / Proficient on SRI OR Met benchmark on DORF with at least 98% accuracy</p>	<p>Group 2: Accurate & Below Benchmark Rate FALL: Below benchmark on DORF with at least 96% accuracy WINTER: Below benchmark on DORF with at least 97% accuracy SPRING: FALL: Below benchmark on DORF with at least 98% accuracy</p>
<p>Group 3: Inaccurate & Benchmark Rate FALL: Below benchmark on DORF with less than 96% accuracy WINTER: Below benchmark on DORF with less than 97% accuracy SPRING: Below benchmark on DORF with less than 98% accuracy</p>	<p>Group 4: Inaccurate & Below Benchmark Rate FALL: Met benchmark on DORF with less than 96% accuracy WINTER: Met benchmark on DORF with less than 97% accuracy SPRING: Met benchmark on DORF with less than 98% accuracy</p>

4th Grade Focus of Instruction & Materials

<p>Group 1: Advanced or Proficient or Accurate & Benchmark Rate</p> <p>Focus of Instruction: Comprehension</p> <ul style="list-style-type: none"> Monitoring for meaning Identifying, summarizing, and extending main ideas Self-monitoring and fix-up strategies and awareness of reading for understanding Teaching important words directly and word-learning strategies Extended reading and writing opportunities tied to Core subjects <p>Instructional Materials:</p> <ul style="list-style-type: none"> Literary and Informational Text Reading Street Small Group: Advanced Level lessons Word Study (vocabulary, derivations, etc.) Reading Street: Rtl Kit Comprehension and/or Vocabulary Reading Street: Research and Inquiry Lessons 	<p>Group 2: Accurate & Below Benchmark Rate</p> <p>Focus of Instruction: Fluency</p> <ul style="list-style-type: none"> Building automaticity, and do not ignore making meaning Repeated readings Word or phrase level automaticity in addition to passages, if necessary Grouping words to make meaning, pacing punctuation Read for main idea, summarizing, and/or text elements Teach accuracy, rate and prosody after identifying need <p>Instructional Materials:</p> <ul style="list-style-type: none"> Reading Street: Decodable Readers (Grades 2-3) Reading Street: Fluency passages Reading Street: Fresh Reads Reading Street Small Group: On-Level lessons (OL) Sight Words/Fry Phrases Speed Drills Reading Street: Rtl Kit Fluency
<p>Group 3: Inaccurate & Benchmark Rate</p> <p>Focus of Instruction: Self Monitoring for Accuracy (Digging Deeper into Needs)</p> <ul style="list-style-type: none"> Explicit modeling of accurate reading Self-monitoring—table tap when student makes an error. This will help the student slow down and read more accurately. Challenge student to read a portion of the text with 2 or fewer errors Teach student to adjust rate of reading to type of text and purpose for reading <p>Instructional Materials:</p> <ul style="list-style-type: none"> Reading Street: Decodable Readers (Grades 2-3) Reading Street: Phonics and Word Analysis Reading Street Small Group: Strategic Intervention lessons (SI) Reading Street: Fresh Reads 	<p>Group 4: Inaccurate & Below Benchmark Rate</p> <p>Focus of Instruction: Phonics and/or Phonological Awareness</p> <ul style="list-style-type: none"> Missing phonemic awareness skills Missing decoding skills Missing sight words skills Missing multi-syllabic decoding skills Applying skills to connected text at instructional level Building fluency at independent level Substantial practice applying phonics to new text and writing <i>Use Core Phonics Screener Alignment Guide</i> to identify skill deficits and areas of targeted instruction <p>Instructional Materials:</p> <ul style="list-style-type: none"> Reading Street Decodable Readers (Grades 2-3) CSD Decodable Database Reading Street Phonics and Word Analysis Reading Street Small Group Strategic Intervention lessons (SI) Florida Center on reading Research (FCRR)—Phonemic Awareness and Phonics Activities Reading Street Rtl Kit Phonemic Awareness and /or Phonics and Decoding Sight Words/Fry Phrases Speed Drills



DIBELS® Next Initial Instructional Grouping Suggestions

© Dynamic Measurement Group, Inc. / April, 2011

Initial Grouping Suggestions

The groupings provided by these worksheets are considered *initial suggestions* because the teacher must further revise these groupings based on other information about students' skill levels, available resources, and magnitude of student need.

Three Levels of Instructional Support

The following three levels of instructional support are identified for individual DIBELS scores as well as the overall DIBELS Composite Score:

- *At or Above Benchmark: Likely to Need Core Support* – Student's scores are at or above the benchmark for their grade and time of year; students performing at this level are likely to need effective core instruction to reach subsequent goals.
 - Generally **80%–90%** probability of reaching subsequent important reading goals.
 - Provide generally effective core curriculum and instruction focused on the core components of early literacy and reading.
- *Below Benchmark: Likely to Need Strategic Support* – Student's scores are below the benchmark for their grade and time of year; students performing at this level are likely to need additional targeted intervention and support to reach subsequent goals.
 - Generally **40%–60%** probability of reaching subsequent important reading goals.
 - Provide extra practice; adaptations of core curriculum; small group instruction with supplementary program.
- *Well Below Benchmark: Likely to Need Intensive Support* – Student's scores are well below the benchmark for their grade and time of year; students performing at this level are likely to need substantial additional intervention and support to reach subsequent goals.
 - Generally **10%–20%** probability of reaching subsequent important reading goals.
 - Provide focused, explicit instruction with supplementary intensive curriculum; small group/individual instruction.

Validating Need for Support

Within the Outcomes Driven Model, an important step is validating need for support. At this step, ask, "Are we confident that the identified students need support?" If there is any doubt in making the decision regarding whether a student is on track or not with respect to a core component, additional information should be obtained. The goal is to be reasonably confident in the decision that the student is on track or not. Additional information may be obtained by retesting with alternate forms of the corresponding DIBELS measure, by administering a brief diagnostic assessment, or by considering other assessment and performance information available on the student.

Building Accuracy and Fluency

The goal in each core component area is for the student to demonstrate proficiency with the skill by being highly accurate as well as fluent and confident in their answers. Build accuracy with a focus on accurate and fluent word reading and decoding, advanced phonics, and word attack skills. Incorporate fluency building activities on mastery-level material where the student is highly accurate. Consider using survey-level assessment to identify the appropriate progress monitoring level, instructional level, and mastery level.

Core Components of Early Literacy

It is important to analyze and use all of the information available on a student's skills. These initial instructional grouping worksheets provide an initial focus on the two most salient core components at each assessment time. Vocabulary and oral language skills are another core component of early literacy that should be considered when planning instructional groups.

School-Wide, Systems-Level Considerations

If a large number of students fall in any of the instructional grouping recommendations other than Group 1, consider supplementing the system of core instruction to address the corresponding skill areas.

4 Grade 4 Beginning of Year Initial Instructional Grouping Suggestions

© Dynamic Measurement Group, Inc. / April, 2011

Group 1: Likely to Need Core Support			
Reading Comprehension	At or Above Benchmark (Put a check mark in the Retell column if score is 27+)		
Accurate and Fluent Reading of Connected Text	At or Above Benchmark (DORF–Words Correct is 90 or higher <i>and</i> DORF–Accuracy is 96% or higher)		
Name	DORF–Words Correct 90+	<i>and</i> DORF–Accuracy 96%+	Retell 27+

Group 2: Additional support on reading fluency skills			
Fluent Reading of Connected Text	Below or Well Below Benchmark (DORF–Words Correct is below 90)		
Accurate Reading of Connected Text	At or Above Benchmark (DORF–Accuracy is 96% or higher)		
Name	DORF–Words Correct 0–89	<i>and</i> DORF–Accuracy 96%+	

Group 3: Additional support on the accurate reading of connected text skills			
Fluent Reading of Connected Text	At or Above Benchmark (DORF–Words Correct is 90 or higher)		
Accurate Reading of Connected Text	Below or Well Below Benchmark (DORF–Accuracy is below 96%)		
Name	DORF–Words Correct 90+	<i>and</i> DORF–Accuracy 0–95%	

Group 4: Additional support on the accurate and fluent reading of connected text skills			
Fluent Reading of Connected Text	Below or Well Below Benchmark (DORF–Words Correct is below 90)		
Accurate Reading of Connected Text	Below or Well Below Benchmark (DORF–Accuracy is below 96%)		
Name	DORF–Words Correct 0–89	<i>and</i> DORF–Accuracy 0–95%	

Note. If a large number of students fall in any of the instructional grouping recommendations other than Group 1, consider supplementing core instruction addressing the corresponding skill areas.

4 Grade 4 Middle of Year Initial Instructional Grouping Suggestions

© Dynamic Measurement Group, Inc. / April, 2011

Group 1: Likely to Need Core Support			
Reading Comprehension	At or Above Benchmark (Put a check mark in the Retell column if score is 30+)		
Accurate and Fluent Reading of Connected Text	At or Above Benchmark (DORF–Words Correct is 103 or higher <i>and</i> DORF–Accuracy is 97% or higher)		
Name	DORF–Words Correct 103+	<i>and</i> DORF–Accuracy 97%+	Retell 30+

Group 2: Additional support on reading fluency skills			
Fluent Reading of Connected Text	Below or Well Below Benchmark (DORF–Words Correct is below 103)		
Accurate Reading of Connected Text	At or Above Benchmark (DORF–Accuracy is 97% or higher)		
Name	DORF–Words Correct 0–102	<i>and</i> DORF–Accuracy 97%+	

Group 3: Additional support on the accurate reading of connected text skills			
Fluent Reading of Connected Text	At or Above Benchmark (DORF–Words Correct is 103 or higher)		
Accurate Reading of Connected Text	Below or Well Below Benchmark (DORF–Accuracy is below 97%)		
Name	DORF–Words Correct 103+	<i>and</i> DORF–Accuracy 0–96%	

Group 4: Additional support on the accurate and fluent reading of connected text skills			
Fluent Reading of Connected Text	Below or Well Below Benchmark (DORF–Words Correct is below 103)		
Accurate Reading of Connected Text	Below or Well Below Benchmark (DORF–Accuracy is below 97%)		
Name	DORF–Words Correct 0–102	<i>and</i> DORF–Accuracy 0–96%	

Note. If a large number of students fall in any of the instructional grouping recommendations other than Group 1, consider supplementing core instruction addressing the corresponding skill areas.

4 Grade 4 End of Year Initial Instructional Grouping Suggestions

© Dynamic Measurement Group, Inc. / April, 2011

Group 1: Likely to Need Core Support			
Reading Comprehension	At or Above Benchmark (Put a check mark in the Retell column if score is 33+)		
Accurate and Fluent Reading of Connected Text	At or Above Benchmark (DORF–Words Correct is 115 or higher <i>and</i> DORF–Accuracy is 98% or higher)		
Name	DORF–Words Correct 115+	<i>and</i> DORF–Accuracy 98%+	Retell 33+

Group 2: Additional support on reading fluency skills			
Fluent Reading of Connected Text	Below or Well Below Benchmark (DORF–Words Correct is below 115)		
Accurate Reading of Connected Text	At or Above Benchmark (DORF–Accuracy is 98% or higher)		
Name	DORF–Words Correct 0–114	<i>and</i> DORF–Accuracy 98%+	

Group 3: Additional support on the accurate reading of connected text skills			
Fluent Reading of Connected Text	At or Above Benchmark (DORF–Words Correct is 115 or higher)		
Accurate Reading of Connected Text	Below or Well Below Benchmark (DORF–Accuracy is below 98%)		
Name	DORF–Words Correct 115+	<i>and</i> DORF–Accuracy 0–97%	

Group 4: Additional support on the accurate and fluent reading of connected text skills			
Fluent Reading of Connected Text	Below or Well Below Benchmark (DORF–Words Correct is below 115)		
Accurate Reading of Connected Text	Below or Well Below Benchmark (DORF–Accuracy is below 98%)		
Name	DORF–Words Correct 0–114	<i>and</i> DORF–Accuracy 0–97%	

Note. If a large number of students fall in any of the instructional grouping recommendations other than Group 1, consider supplementing core instruction addressing the corresponding skill areas.

Small Group Time Planner

This planner is a recommended sequence for establishing expectations and routines for implementing the skill-based small-group instruction component of the CSD literacy block. If the class is having a hard time following the expectations and routines, it may be necessary to reteach the specific expectations and/or routines with which the students are struggling. An additional consideration may be to decrease the daily minutes spent on small-group time until students can maintain independence at a satisfactory level. The unique needs of each classroom will dictate whether or not this scope and sequence takes 16 days. Please adjust accordingly.

DAY	TIME (min.) (flexible)	Instruction Goal	What is the TEACHER doing?	What are the STUDENTS doing?
Phase I of Skill-Based Small Group Instruction Time: Teacher Monitors				
1	15	Introduce small-group time expectations and routines	<ul style="list-style-type: none"> ➤ Teacher explains each of the expectation and routines and routines for small-group time using a poster that will be hung up in the classroom for reference. ➤ Teacher chooses students to model each expectation and routine while the whole class watches. 	<ul style="list-style-type: none"> ➤ Students learn about expectations and routines and discuss the importance of each expectation and routine with the whole group. ➤ Individual students model for others what the expectations look and sound like.
2	15	Practice small-group time expectations and routines	<ul style="list-style-type: none"> ➤ Same as Day 1 above 	<ul style="list-style-type: none"> ➤ Same as Day 1 above
3	25	Practice small-group time expectations and routines	<ul style="list-style-type: none"> ➤ Teacher quickly reviews each of the expectations and routines for small-group time. ➤ Teacher chooses students to model some expectations and routines while the whole class watches. ➤ Teacher gives students a task (that needs little explanation) to do independently at their seats. ➤ Teacher monitors room; but does not engage 	<ul style="list-style-type: none"> ➤ Students listen while teacher reviews expectations and routines. ➤ Individual students model for others what the expectations and routines look and sound like. ➤ All students work independently at their seats. ➤ Students actively participate in a

Adapted from: Consortium on Reading Excellence Small Group Implementation Small Group Time Planner (2008)

			with students. ➤ Teacher ends small-group time with a debriefing session with whole class.	debriefing session.
4	25		➤ Same as Day 3 above	➤ Same as Day 3 above
5	25		➤ Same as Day 3 above	➤ Same as Day 3 above
6	25	Introduce Practice Station #1	<ul style="list-style-type: none"> ➤ Teacher introduces and explains each of the expectations and routines for a Practice Station #1 (e.g. Fluency Station with Fresh Reads) that will be consistently utilized. ➤ Teacher chooses students to model each expectation and routine while the whole class watches. 	<ul style="list-style-type: none"> ➤ Students learn about the selected Practice Station #1 expectations and routines and discuss the importance of each with the whole group. ➤ Individual students model for others what the expectations and routines look and sound like.
7	25	Review expectations and routines for the Practice Station #1	<ul style="list-style-type: none"> ➤ Teacher reviews expectations and routines for small group time and the Practice Station #1 from Day 7. ➤ Teacher chooses students to model some expectations and routines while the whole class watches. ➤ Teacher has whole class practice performing that Practice Station #1. ➤ Teacher monitors room; but does not engage with students. ➤ Teacher ends small-group time with a debriefing session with whole class. 	<ul style="list-style-type: none"> ➤ Students learn about the selected Practice Station #1 expectation and routines and discuss the importance of each with the whole group. ➤ Individual students model for others what the expectation and routines look and sound like. ➤ All students actively work on Practice Station #1. ➤ Students actively participate in a debriefing session.
Phase II: Introduction: Multiple Tasks—Teacher Monitors				
8	45	Practice with Independent Work and Practice Station #1	<ul style="list-style-type: none"> ➤ Teacher quickly reviews each of the expectations and routines for small-group time and the Practice Station #1. ➤ Teacher chooses students to model some expectations and routines while the whole class watches. ➤ Teacher introduces 2-3 independent seatwork tasks and the practice station activity. 	<ul style="list-style-type: none"> ➤ Students listen while teacher reviews expectations and routines. ➤ Individual students are asked to model for others what some of the expectation and routines

Adapted from: Consortium on Reading Excellence Small Group Implementation Small Group Time Planner (2008)

			<ul style="list-style-type: none"> ➤ Teacher lets a group of students move into the Practice Station #1 area to work on the activity while other students remain at their seats. ➤ After a set amount of time, teacher assigns a new group to Practice Station #1. ➤ Teacher monitors room, but does not engage with students. ➤ Teacher ends small-group time with a debriefing session with whole class. 	<ul style="list-style-type: none"> look and sound like. ➤ Two groups of students (more groups if length of small-group time is increased) work at Practice Station #1 independently. ➤ The remainder of the class works on the independent seatwork tasks. ➤ Students actively participate in a debriefing session.
9	45-60	Practice with Independent Work and Practice Station #1	<ul style="list-style-type: none"> ➤ (Same as Day 8 above) 	<ul style="list-style-type: none"> ➤ (Same as Day 8 above)
10	45-60	Introduce Practice Station #2	<ul style="list-style-type: none"> ➤ Teacher introduces and explains each of the expectations and routines for Practice Station #2. ➤ Teacher chooses students to model each expectation and routine while the whole class watches. ➤ Teacher lets a group of students go to the Practice Station #1 and lets a group go to Practice Station #2. ➤ Teacher gives the remainder of class 2-3 tasks (that need little explanation) to do independently. ➤ Teacher monitors the room, but does not engage with students. ➤ Teacher ends small-group time with a debriefing session with whole class. 	<ul style="list-style-type: none"> ➤ Students learn about Practice Station #2 and discuss the importance of each with the whole group. ➤ Individual students model for others what the expectations and routines look and sound like. ➤ One group of students works at Practice Station #1. ➤ One group of students works at Practice Station #2. ➤ The remainder of the class works on independent

Adapted from: Consortium on Reading Excellence Small Group Implementation Small Group Time Planner (2008)

				<p>tasks at their seats.</p> <ul style="list-style-type: none"> ➤ Students actively participate in a debriefing session.
11	45-60	Practice with Independent Work and Two Practice Stations	<ul style="list-style-type: none"> ➤ Teacher quickly reviews each of the expectations and routines for small-group time and Practice Station #2. ➤ Teacher chooses students to model some expectations and routines while the whole class watches. ➤ Teacher lets a different group of students go to the Practice Station #1 and lets a different group go to Practice Station #2. ➤ Teacher gives the remainder of class 2-3 tasks (that need little explanation) to do independently. ➤ Teacher monitors the room, but does not engage with students. ➤ Teacher ends small-group time with a debriefing session with whole class. 	<ul style="list-style-type: none"> ➤ Students learn about Practice Station #2 and discuss the importance of each with the whole group. ➤ Individual students model for others what the expectations and routines look and sound like. ➤ One group of students works at Practice Station #1. ➤ One group of students works at Practice Station #2. ➤ The remainder of the class works on independent tasks at their seats. ➤ Students actively participate in a debriefing session.
12	45-60	Introduce and Practice with Practice Station #3	<ul style="list-style-type: none"> ➤ Teacher introduces and explains each of the expectations and routines for Practice Station #3. ➤ Teacher chooses students to model each expectation and routine while the whole class watches. ➤ Teacher quickly reviews each of the expectations and routines for small-group time and Practice Stations #1-2 as needed. ➤ Teacher chooses students to model some expectation and routines while the whole class watches. 	<ul style="list-style-type: none"> ➤ Students learn about Practice Station #3 expectations and routines and discuss the importance of each with the whole group. ➤ Individual students model expectations and routines for others.

Adapted from: Consortium on Reading Excellence Small Group Implementation Small Group Time Planner (2008)

			<ul style="list-style-type: none"> ➤ Teacher chooses students to go to the three areas introduced so far while the rest of the class work on 2-3 independent tasks (new groups may be rotated in as desired). ➤ Teacher monitors rooms, but does not engage with students. ➤ Teacher ends small-group time with a debriefing session with whole class. 	<ul style="list-style-type: none"> ➤ Small groups work at each Practice Station ➤ The remainder of the class works on independent tasks. ➤ Students actively participate in a debriefing session.
13	45-60	Introduce and Practice with Practice Station #4	<ul style="list-style-type: none"> ➤ Teacher introduces and explains each of the expectations and routines for Practice Station #4. ➤ Teacher chooses students to model each expectation and routine while the whole class watches. ➤ Teacher quickly reviews each of the expectation and routines for small-group time and Practice Stations #1-3 as needed. ➤ Teacher chooses students to model some expectation and routines while the whole class watches. ➤ Teacher chooses students to go to the four areas introduced so far while the rest of the class work on 2-3 independent tasks (new groups may be rotated in as desired). ➤ Teacher monitors rooms, but does not engage with students. ➤ Teacher ends small-group time with a debriefing session with whole class. 	<ul style="list-style-type: none"> ➤ Students learn about Practice Station #4 expectations and routines and discuss the importance of each with the whole group. ➤ Individual students model expectations and routines for others. ➤ Small groups work at each Practice Station ➤ The remainder of the class works on independent tasks. ➤ Students actively participate in a debriefing session.
Phase III: Multiple Tasks—Teacher Pulls One Group				
14	45-60	Introduce teacher working with small group	<ul style="list-style-type: none"> ➤ Teacher quickly reviews each of the expectations and routines for small-group time and Practice Stations as needed, emphasizing the “no interruption” concept. ➤ Teacher chooses students to model some expectations and routines while the whole class watches. 	<ul style="list-style-type: none"> ➤ Students listen while teacher reviews expectations and routines. ➤ Individual students are asked to model for others what some of the expectation and routines mean. ➤ Students choose from Practice Station options.

			<ul style="list-style-type: none"> ➤ Teacher gives the independent tasks for small-group time and the Practice Station options. ➤ Teacher pulls one group for about 10-15 minutes to work with who needs reteaching/preteaching. ➤ Teacher ends small-group time with a debriefing session with whole class. 	<ul style="list-style-type: none"> ➤ Students move freely from independent tasks and Practice Stations following the directions the teacher has given. ➤ Students actively participate in a debriefing session.
15	45-60		<ul style="list-style-type: none"> ➤ Same as Day 14 above 	<ul style="list-style-type: none"> ➤ Same as Day 16 above ➤
Phase IV: Multiple Tasks—Teacher Pulls Multiple Groups				
16	45-60	From now on, any time a new activity or Practice Station is added for small-group time, the teacher should follow a similar routine as the one established above. When ready to begin Phase IV, the teacher may begin to pull multiple groups for an extended time (10-15 min. each group) using intervention and challenge materials and activities.		

SALTA Four Day Plan for Spelling Instruction

Day 1
<ul style="list-style-type: none">• Pre-test using spelling dictation for 5-7 words with students rewriting any word they missed correctly after each word is given.• Spelling Dictation Routine Card #7 or Word Parts Strategy Routine Card #4• Lesson in Reading Street with focus on the spelling pattern, rule or generalization
Day 2
<ul style="list-style-type: none">• Teacher Created Word Sort (can be done as a practice station)<ul style="list-style-type: none">• Possible Sorts:<ul style="list-style-type: none">• Prefix/non-prefix or Suffix/no suffix• Words related to the Question of the Week• Syllable types
Day 3
<ul style="list-style-type: none">• Student Created Word Sort (can be done as a practice station)<ul style="list-style-type: none">• Possible Sorts:<ul style="list-style-type: none">• Prefix/non-prefix or Suffix/no suffix• Words related to the Question of the Week• Syllable types
Day 4
<ul style="list-style-type: none">• Spelling Dictation: 10-20 words from teacher and student generated lists with targeted spelling pattern

Best Practices for Handwriting Instruction

Handwriting (both manuscript and cursive) is an important skill for students to learn. Teaching and practicing writing allows students to write letters correctly and efficiently. Fluent writers are able to focus on generating idea, producing grammatically correct text, and considering audience. Even when a student moves to a computer or other device, that writing fluency is important to the composing process.

-Utah State Office of Education

Direct, systematic, explicit teaching of handwriting improves students' overall written composition for many years. Students who are automatic with correct letter formation, including reasonable legibility and fluency, can cognitively attend to the higher-level skills associated with written tasks. Attention to higher-level skills is compromised when students have to focus their cognitive energy on letter formation. Best practices support the integration of handwriting instruction within other written tasks. Research indicates that early handwriting instruction improves students' written work, not just its legibility, but its quantity and quality as well (Graham, 2010; Moats, 2008).

Effective and Efficient Handwriting Instruction

Step 1: Provide 2-5 minutes of direct, explicit instruction during the Language Block using your Reading Street materials.

Instruction includes:

- Providing visual models around the room
- Using lined paper with labels for top/middle/bottom
- Connecting sound/spelling card, name and sound of letter (K-3)
- Using language to describe the strokes
- Writing letters in the air using whole arm and pointing with index and middle fingers to trace the letter
- Monitoring student posture and grip as necessary
- Focusing on accuracy, then fluency

Step 2: Embed additional practice in spelling/word study, writing, or conventions instruction

Step 3: Practice Stations can be used for additional, brief practice opportunities

Handwriting Standards from the Utah Core: *Language Standard 1*

Kindergarten

- a) With guidance and support, identify and write many upper - and lowercase letters, including those in the student's name.

1st Grade

- a) Independently identify and legibly write all upper-and lowercase letters (legibility is defined as the letter being recognizable to readers in isolation from other letters in a word).
- b) Produce grade-appropriate text using legible writing.

2nd Grade

- a) Fluently, independently, and legibly write all upper- and lowercase letters.
- b) Produce grade-appropriate text using legible writing.
- c) Understand that cursive is different from manuscript.

3rd Grade

- a) Independently and legibly write all upper- and lowercase cursive letters.
- b) Produce grade-appropriate text using legible cursive writing.

4th Grade

- a) Fluently, independently, and legibly write all upper and lower case cursive letters.
- b) Produce grade-appropriate text using legible cursive writing.

5th Grade

- a) Maintain legible and fluent cursive writing.

Zaner-Bloser or D’Nealian? It is recommended that each school will need to adopt one manuscript type Zaner-Bloser or D’Nealian. It is essential that whatever is decided is vertically aligned so that students can build their fluency in the selected type without having to learn a different style each year. There are benefits to both types of manuscript and your Reading Street materials provide guidance for each. The table below offers considerations to inform your decision.

Zaner-Bloser	D’Nealian
<ul style="list-style-type: none">• Students often enter kindergarten already knowing how to form some letters	<ul style="list-style-type: none">• Smoother and faster transition to cursive
<ul style="list-style-type: none">• More closely matches the print students are reading	<ul style="list-style-type: none">• Reduces “b” and “d” letter confusion

Note: Difficulty in forming letters is not related to cognitive skills, but to fine motor movement. Movements using a rigid fist grip come from the muscle of the upper arm, not smaller hand movements. Strengthening the muscle of the upper arm will help handwriting development (Moats, 2008).

Handwriting Samples

Manuscript Alphabet REPRODUCIBLE

a b c d e f g
h i j k l m n
o p q r s t u
v w x y z

A B C D E F G
H I J K L M N
O P Q R S T U
V W X Y Z , ' . ?

1 2 3 4 5 6
7 8 9 10

160

Copyright © Pearson Education, Inc., or its affiliates. All Rights Reserved.

D'Nealian™ Alphabet REPRODUCIBLE

a b c d e f g h i
j k l m n o p q r s t
u v w x y z

A B C D E F G
H I J K L M N O
P Q R S T U V
W X Y Z , ' . ?

1 2 3 4 5 6
7 8 9 10

159

Copyright © Pearson Education, Inc., or its affiliates. All Rights Reserved.

D'Nealian™ Cursive REPRODUCIBLE

a b c d e f g
h i j k l m n
o p q r s t u
v w x y z

A B C D E F G
H I J K L M N
O P Q R S T U
V W X Y Z , ' . ?

1 2 3 4 5 6
7 8 9 10

158

Copyright © Pearson Education, Inc., or its affiliates. All Rights Reserved.

Writing Practices

During school day, best instructional practice emphasizes writing across content areas and integrated throughout the entire school day. There are both formal and informal practices, which include Writing to Learn and Product Writing.

The purpose of Writing to Learn:

- Develop fluency
- Practice written vocabulary and academic language
- Practice communicating ideas formally and informally
- Assess comprehension

During Writing to Learn tasks, students engage in two of the five levels of writing: 1) To get ideas down, and 2) To exhibit knowledge on a topic. (Shown as Writing on Demand within Reading Street)

The purpose of Product Writing:

- Knowledge on a topic or text
- Well developed composition with organization
- Transitions, precise language and formal language
- Refinement of writing skills
- Conventions and grammar
- Evaluation and feedback
- Publishing

During Product Writing students engage in three of the five levels of writing: 3) Writing to be read and reviewed, revised and edited. 4) Writing to be critiqued, revised and edited. 5) Writing to be published.

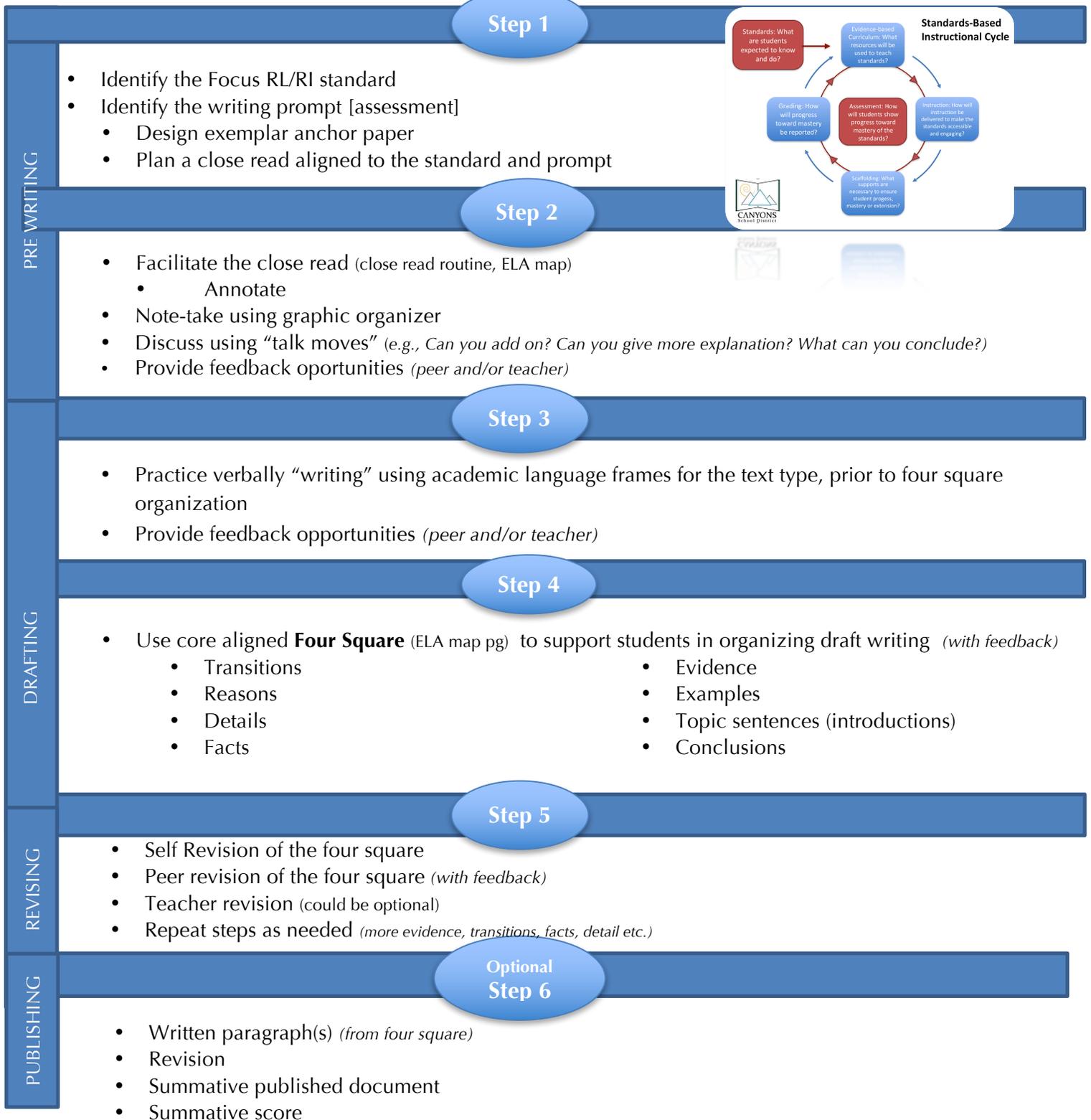
Levels	Examples
1. Writing to get ideas down	Brainstorming, listing, graphic organizer
2. Writing to exhibit knowledge on a topic	Short answers, journals, learning logs
3. Writing to be read and reviewed, revised and edited	First draft of report, essay, narrative
4. Writing to be critiqued, revised and edited	Final draft of report, essay, narrative
5. Writing to be published	Shared with a wider audience (e.g. <i>Reflections</i>)

Some of the examples in the following pages include the four square structure for both writing to learn and product writing. Included are four square templates that align to grade level core and text types. Additionally, there are examples and suggested performance tasks aligned to the Reading Street Unit and Writing to Sources Book.

Framework for Elementary Product Writing

“As we read and discuss complex text with students, we look for the organizational structures and methods writers use for presenting information. We should always be moving students ‘from conversation to composition’. In doing so, we show students how others use evidence, how they can locate evidence and how they can use evidence in verbal and written communication.”

Fisher, D. and Frey, N. 2014. *Close Reading and Writing From Sources*.

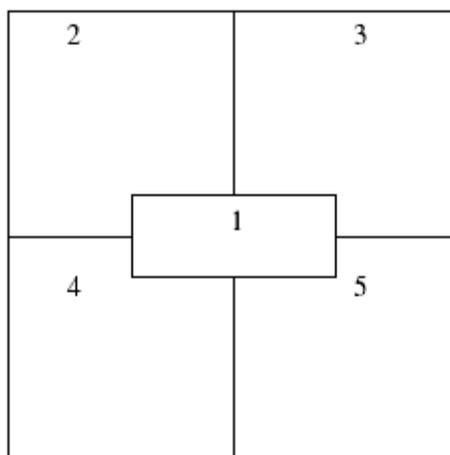


"Four Square" Writing Overview

You can easily write properly structured paragraphs with a topic sentence and conclusion using a simple graphic organizer – "the four-square." With further practice, you will learn to write well-developed compositions of five or more paragraphs, complete with introductory and concluding paragraphs.

Step 1: Write your topic sentence based on your writing prompt or topic.

Divide an entire piece of notebook paper into equal quarters, leaving a large rectangle in the center (as illustrated below.) Once you have formulated your position into a topic sentence (2-3) or thesis statement (4-5), **write your Main Idea or Topic Sentence in Box 1.**



The main idea (topic sentence) is placed in the center box of the four square (box 1). Boxes 2, 3, and 4 are used for supporting ideas. The lower right box (box 5) is used to build a summary or concluding sentence. This "wrap-up" sentence encompasses all the ideas developed in the four-square, and is the basis of developing good introductory and concluding paragraphs in the essay.

Step 2: Write three supporting ideas (reasons, details or facts)- Once you've written your topic or prompt in Box 1, BRAINSTORM three supporting ideas (Write these in Boxes 2, 3 and 4.) Now the center box will contain a complete sentence (topic sentence based on your prompt), and boxes 2, 3, and 4 will contain supporting ideas (reasons, details or facts) that prove or support box 1. These ideas must be all different from one another, real, and not simple opinions.

Step 3: 4 Square + 3E: Adding more Evidence- Now these "supporting ideas" (evidence, examples, or explanations) need further development by adding supporting evidence in boxes 2, 3, and 4. Adding examples and explanations can be difficult since you may not be accustomed to citing. You will be challenged to look for evidence and cite. At this time it is important to remember that *there may not be a repetition* anywhere on the four-square.

Step 4: 4 Square + 3E+ T: Adding Transitional words to provide transition between thoughts- By now you are developing your thesis statement (box 1) into three reasons, details or facts and supporting evidence and examples (boxes 2, 3, and 4). Transition words are now needed to provide smooth transitions and reading between what will eventually become paragraph(s).

Step 5: 4 Square + 3E+ T + P: Incorporating Precise language into writing- This step helps you develop personal writing style by using carefully chosen precise words to provide sensory details and imagery for the reader. Your goal is to *show* the reader, not to just *tell* the reader. You can list several words under each supporting idea in the organizer and later decide which ones to use. Addition of precise language furthers elaboration and enhances maturity of writing. Building these descriptions prepares the writer for longer and more complex compositions.

Step 6: Add a concluding statement- write a concluding sentence in Box #5. The concluding ties all the parts together, reminds the reader of the topic and purpose for the paragraph and reflects the topic sentence.

Step 7: Develop your ideas in sentences/paragraph(s) on a separate sheet of paper. (Your sentences/paragraph(s) ideas are now taken off the organizer and put into sentences/paragraph(s) form on a separate sheet of paper, which will give you plenty of room to add to your sentences/paragraph(s).) Begin writing sentences/paragraph(s) using what you wrote in the Four Square (one sentences/paragraph(s) for each box).

Now all that is left is to take your paragraphs and develop the 5-paragraph essay; even your introduction and conclusion ideas are taken from your original four-square organizer.

Name: _____

<p>Linking Word:</p> <p>Supporting Reason 1</p> <p>Evidence from text:</p>	<p>Linking Word:</p> <p>Supporting Reason 2</p> <p>Evidence from text:</p>
<p>Introduce topic/text and state an opinion</p>	
<p>Linking Word:</p> <p>Supporting Reason 3</p> <p>Evidence from text:</p>	<p>Linking Word:</p> <p>Conclusion</p>

**Opinion Essay
Writing Rubric (Grades 3-5)**

Score	Statement of Purpose/Focus and Organization (4-point rubric)	Evidence/Elaboration (4-point rubric)	Conventions/Editing (2-point rubric begins at scorepoint 2)
4	<p>The response is fully sustained and consistently and purposefully focused:</p> <ul style="list-style-type: none"> • opinion is clearly stated, focused, and strongly maintained • opinion is communicated clearly within the purpose, audience, and task <p>The response has a clear and effective organizational structure creating unity and completeness :</p> <ul style="list-style-type: none"> • effective, consistent use of a variety of transitional strategies to clarify the relationships between and among ideas • logical progression of ideas from beginning to end • effective introduction and conclusion for audience and purpose 	<p>The response provides thorough and convincing support/evidence for the writer’s opinion that includes the effective use of sources, facts, and details:</p> <ul style="list-style-type: none"> • use of evidence from sources is smoothly integrated, comprehensive, and relevant • effective use of a variety of elaborative techniques <p>The response clearly and effectively expresses ideas, using precise language:</p> <ul style="list-style-type: none"> • use of academic and domain-specific vocabulary is clearly appropriate for the audience and purpose 	

<p>3</p>	<p>The response is adequately sustained and generally focused:</p> <ul style="list-style-type: none"> • opinion is clear and for the most part maintained, though some loosely related material may be present • context provided for the claim is adequate within the purpose, audience, and task <p>The response has a recognizable organizational structure, though there may be minor flaws and some ideas may be loosely connected:</p> <ul style="list-style-type: none"> • adequate use of transitional strategies with some variety to clarify the relationships between and among ideas • adequate progression of ideas from beginning to end • adequate introduction and conclusion 	<p>The response provides adequate support/evidence for the writer’s opinion that includes the use of sources, facts, and details:</p> <ul style="list-style-type: none"> • some evidence from sources is integrated, though citations may be general or imprecise • adequate use of some elaborative techniques <p>The response adequately expresses ideas, employing a mix of precise with more general language:</p> <ul style="list-style-type: none"> • use of domain-specific vocabulary is generally appropriate for the audience and purpose 	
-----------------	--	--	--

<p>2</p>	<p>The response is somewhat sustained with some extraneous material or a minor drift in focus:</p> <ul style="list-style-type: none"> • may be clearly focused on the opinion but is insufficiently sustained within the purpose, audience, and task • Opinion on the issue may be somewhat unclear and unfocused <p>The response has an inconsistent organizational structure, and flaws are evident:</p> <ul style="list-style-type: none"> • inconsistent use of transitional strategies with little variety • uneven progression of ideas from beginning to end • conclusion and introduction, if present, are weak 	<p>The response provides uneven, cursory support/ evidence for the writer’s opinion that includes partial or uneven use of sources, facts, and details:</p> <ul style="list-style-type: none"> • evidence from sources is weakly integrated, and citations, if present, are uneven • weak or uneven use of elaborative techniques <p>The response expresses Ideas unevenly, using simplistic language:</p> <ul style="list-style-type: none"> • use of domain-specific vocabulary may at times be inappropriate for the audience and purpose 	<p>The response demonstrates an adequate command of conventions:</p> <ul style="list-style-type: none"> • some errors in usage and sentence formation may be present, but no systematic pattern of errors is displayed • adequate use of punctuation, capitalization, and spelling
-----------------	--	---	--

1	<p>The response may be related to the purpose but may offer little or no focus:</p> <ul style="list-style-type: none"> • may be very brief • may have a major drift • opinion may be confusing or ambiguous <p>The response has little or no discernible organizational structure:</p> <ul style="list-style-type: none"> • few or no transitional strategies are evident • frequent extraneous ideas may intrude 	<p>The response provides minimal support/evidence for the writer’s opinion that includes little or no use of sources, facts, and details:</p> <ul style="list-style-type: none"> • use of evidence from sources is minimal, absent, in error, or irrelevant <p>The response expression of ideas is vague, lacks clarity, or is confusing:</p> <ul style="list-style-type: none"> • uses limited language or domain-specific vocabulary • may have little sense of audience and purpose 	<p>The response demonstrates a partial command of conventions:</p> <ul style="list-style-type: none"> • errors in usage may obscure meaning • inconsistent use of punctuation, capitalization, and spelling
0			<p>The response demonstrates a lack of command of conventions.</p>
NS	<p>Insufficient, illegible, foreign language, incoherent, off-topic, or off-purpose writing</p>		

Name: _____

<p>Linking Words and Phrases: Fact, Definition, Detail, Quotations, Examples</p> <p>Vocabulary:</p>	<p>Linking Word and Phrases: Fact, Definition, Detail, Quotations, Examples</p> <p>Vocabulary:</p>
<p>Introduce topic</p>	
<p>Linking Words and Phrases: Fact, Definition, Detail, Quotations, Examples</p> <p>Vocabulary:</p>	<p>Linking Word and Phrases: Conclusion</p>

Name: _____

<p>Linking Words and Phrases: First Reasons/Details/Facts Characteristics Evidence/Examples/Elaborations/ Quotations</p> <ol style="list-style-type: none">1. mammal2. long, smooth body with flippers, 9 ft.3. capillaries close to skin’s surface <table border="1"><thead><tr><th>Possible Linking Words</th><th>Possible Ways to Cite</th></tr></thead><tbody><tr><td>another</td><td>the author states . . .</td></tr><tr><td>for example</td><td>paragraph 5 shows. . .</td></tr><tr><td>also because</td><td>according to the author . . .</td></tr><tr><td>first</td><td>Smith says “(quote)”</td></tr></tbody></table>	Possible Linking Words	Possible Ways to Cite	another	the author states . . .	for example	paragraph 5 shows. . .	also because	according to the author . . .	first	Smith says “(quote)”	<p>Linking Word and Phrases: Another Reasons/Details/Facts Behavior Evidence (quotations)//Examples/Elaborations/Quotations</p> <ol style="list-style-type: none">1. use pulses/vibrations to locate things2. bump on head helps them to focus their pulses3. swim slowly—don’t jump—water is shallow
Possible Linking Words	Possible Ways to Cite										
another	the author states . . .										
for example	paragraph 5 shows. . .										
also because	according to the author . . .										
first	Smith says “(quote)”										
<p>Introduce topic Have you heard of the Pink River Dolphin? It is a unique dolphin that lives in the Amazon rainforest.</p>											
<p>Linking Words and Phrases: Additionally Reasons/Details/Facts Mobility Evidence/Examples/Elaborations/Quotations</p> <ol style="list-style-type: none">1. crawl with large flippers2. bend their bodies3. can sleep upside down	<p>Linking Word and Phrases: In summary Conclusion</p> <ol style="list-style-type: none">1. unusual mammal2. lives in rivers with special adaptations to allow it to survive in these unusual conditions3. take a trip to the Amazon to catch a glimpse										

**Informative-Explanatory Short Essay
Writing Rubric (Grades 3-5)**

Score	Statement of Purpose/Focus and Organization (4-point rubric)	Evidence/Elaboration (4-point rubric)	Conventions/Editing (2-point rubric begins at scorepoint 2)
4	<p>The response is fully sustained and consistently and purposefully focused:</p> <ul style="list-style-type: none"> • controlling idea or main idea of a topic is focused, clearly stated, and strongly maintained • controlling idea or main idea of a topic is introduced and communicated clearly within the purpose, audience, and task <p>The response has a clear and effective organizational structure creating unity and completeness:</p> <ul style="list-style-type: none"> • use of a variety of transitional strategies to clarify the relationships between and among ideas • logical progression of ideas from beginning to end • effective introduction and conclusion for audience and purpose 	<p>The response provides thorough and convincing support/evidence for the controlling idea or main idea that includes the effective use of sources, facts, and details:</p> <ul style="list-style-type: none"> • use of evidence from sources is smoothly integrated, comprehensive, and relevant • effective use of a variety of elaborative techniques <p>The response clearly and effectively expresses ideas, using precise language:</p> <ul style="list-style-type: none"> • use of academic and domain-specific vocabulary is clearly appropriate for the audience and purpose 	

<p>3</p>	<p>The response is adequately sustained and generally focused:</p> <ul style="list-style-type: none"> • focus is clear and for the most part maintained, though some loosely related material may be present • some context for the controlling idea or main idea of the topic is adequate within the purpose, audience, and task <p>The response has an evident organizational structure and a sense of completeness, though there may be minor flaws and some ideas may be loosely connected:</p> <ul style="list-style-type: none"> • adequate use of transitional strategies with some variety to clarify the relationships between and among ideas • adequate progression of ideas from beginning to end • adequate introduction and conclusion 	<p>The response provides adequate support/evidence for controlling idea or main idea that includes the use of sources, facts, and details:</p> <ul style="list-style-type: none"> • some evidence from sources is integrated, though citations may be general or imprecise • adequate use of some elaborative techniques <p>The response adequately expresses ideas, employing a mix of precise with more general language</p> <ul style="list-style-type: none"> • use of domain-specific vocabulary is generally appropriate for the audience and purpose 	
-----------------	---	--	--

<p>2</p>	<p>The response is somewhat sustained and may have a minor drift in focus:</p> <ul style="list-style-type: none"> • may be clearly focused on the controlling or main idea, but is insufficiently sustained • controlling idea or main idea may be unclear and somewhat unfocused <p>The response has an inconsistent organizational structure, and flaws are evident:</p> <ul style="list-style-type: none"> • inconsistent use of transitional strategies with little variety • uneven progression of ideas from beginning to end • conclusion and introduction, if present, are weak 	<p>The response provides uneven, cursory support/evidence for the controlling idea or main idea that includes partial or uneven use of sources, facts, and details:</p> <ul style="list-style-type: none"> • evidence from sources is weakly integrated, and citations, if present, are uneven • weak or uneven use of elaborative techniques <p>The response expresses ideas unevenly, using simplistic language:</p> <ul style="list-style-type: none"> • use of domain-specific vocabulary that may at times be inappropriate for the audience and purpose 	<p>The response demonstrates an adequate command of conventions:</p> <ul style="list-style-type: none"> • some errors in usage and sentence formation are present, but no systematic pattern of errors is displayed • adequate use of punctuation, capitalization, and spelling
-----------------	--	--	---

1	<p>The response may be related to the topic but may provide little or no focus:</p> <ul style="list-style-type: none"> • may be very brief • may have a major drift • focus may be confusing or ambiguous <p>The response has little or no discernible organizational structure:</p> <ul style="list-style-type: none"> • few or no transitional strategies are evident • frequent extraneous ideas may intrude 	<p>The response provides minimal support/evidence for the controlling idea or main idea that includes little or no use of sources, facts, and details:</p> <ul style="list-style-type: none"> • use of evidence from the source material is minimal, absent, in error, or irrelevant <p>The response expression of ideas is vague, lacks clarity, or is confusing:</p> <ul style="list-style-type: none"> • uses limited language or domain-specific vocabulary • may have little sense of audience and purpose 	<p>The response demonstrates partial command of conventions:</p> <ul style="list-style-type: none"> • errors in usage may obscure meaning • inconsistent use of punctuation, capitalization, and spelling
0			<p>The response demonstrates a lack of command of conventions.</p>
NS	<p>Insufficient, illegible, foreign language, incoherent, off-topic, or off-purpose writing</p>		

Name: _____

<p>Transitional Words/Phrases:</p> <p>Dialogue and Vivid Descriptions of Events:</p>	<p>Transitional Words/Phrases:</p> <p>Dialogue and Vivid Descriptions of Events:</p>
<p>Opening Event</p>	
<p>Transitional Words/Phrases:</p> <p>Dialogue and Vivid Descriptions of Events:</p>	<p>Transitional Words/Phrases:</p> <p>Conclusion:</p>

4th Grade Narrative Writing Rubric

Score	Narrative Focus	Organization	Development of Narrative	Language and Vocabulary	Conventions
4	Narrative is clearly focused and developed throughout.	Narrative has a well-developed, logical, easy-to-follow plot.	Narrative includes thorough and effective use of details, dialogue, and description	Narrative uses precise, concrete sensory language as well as figurative language and/or domain-specific vocabulary.	Narrative has correct grammar, usage, spelling, capitalization, and punctuation.
3	Narrative is mostly focused and developed throughout.	Narrative has a plot, but here may be some lack of clarity and/or unrelated events.	Narrative includes adequate use of details, dialogue and description.	Narrative uses adequate sensory and figurative language and/or domain-specific vocabulary.	Narrative has a few errors but is completely understandable.
2	Narrative is somewhat developed but may occasionally lose focus.	Narrative’s plot is difficult to follow, and ideas are not connected well.	Narrative includes only a few details, dialogues, and description.	Language in narrative is not precise or sensory; lacks domain-specific vocabulary.	Narrative has some errors in usage, grammar, spelling and/or punctuation.
1	Narrative may be confusing, unfocused, or too short.	Narrative has little or no apparent plot.	Narrative includes few or no details, dialogue or description	Language in narrative is vague, unclear, or confusing.	Narrative is hard to follow because of frequent errors.
0	Narrative gets no credit if it does not demonstrate adequate command of narrative writing traits.				

Utah Core Standards

Writing 3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

Writing 9. Draw evidence from literary or informational texts to support analysis, reflection, and research. **Writing 9.a.** Apply grade 4 Reading standards to literature (e.g., “Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”)

4th Grade Writing Performance Task

UNIT One: Narrative

Standard: W.4.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. Use dialogue and description to develop experiences and events or show the responses of characters to situations. Use a variety of transitional words and phrases to manage the sequence of events. Use concrete words and phrases and sensory details to convey experiences and events precisely. Provide a conclusion that follows from the narrated experiences or events.

Prompt: Use what you have learned about the characters in *Because of Winn-Dixie*, *On the Banks of Plum Creek*, and *The Fox and the Tiger* to write a short story in which two or more characters from different stories meet each other. Include a clear setting and sequence of events, and develop your characters through dialogue and descriptive details. Be sure to follow the conventions of written English.

Materials: GO #13, Writing to Sources Book pg. 30-31, Speaking and Listening Rubric, Academic Language Scripts, Grade Level Four Square GO for narrative, and Utah Compose

Part I: Re-read and Take Notes (30 minutes)

- Follow the directions on **page 30** of your **Writing to Sources** book.
- Using graphic organizer **(GO) #13 Plot Structure** from the Teacher's online Resources under digital transparencies and have students take notes during re-reading.

Part II: Write and Collaborate (20-30 minutes)

- Write using the **blackline on page 35** of your *Writing to Sources* book, using the **GO #13**.
- Collaborate with a partner or small group and discuss short responses from **page 31**. Use the **Academic Language Scripts in your map Build on What Others Say**
 - I agree with what _____ said because....
 - You bring up an interesting point and I also think....
 - That's an interesting idea. I wonder...? I think...Do you think....?
 - I thought about that also and I'm wondering why...?
 - I hadn't thought of that before. You make me wonder if.... Do you think...?
 - _____ said that.... I agree and also think...
 - Based on the ideas from _____, _____, and _____, it seems like we all think that...
- While students are collaborating, use the **Speaking and Listening rubric** to assess.
- Have students add-on and adjust their thinking by adding to their short response questions.

Part III: Writing Prompt (30 minutes)

- Using the **Narrative Four-Square template** organize your thinking based on the prompt.
- Using **Utah Compose**, have students respond to the prompt. Encourage students to refer to the **Four-Square template** and their notes from the collaboration.

4th Grade Writing Performance Task
UNIT Two: Argument

Standard: W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. Provide reasons that are supported by facts and details. Link opinion and reasons using words and phrases. (e.g., *for instance, in order to, in addition*). Provide a concluding statement or section related to the opinion presented.

Prompt: *Do people do a better job when they are part of a team or when they are working alone? Us what you learned by reading about teamwork in Coyote School News, Scene Two, and Horse Heroes to write an argumentative essay in which you state your opinion about whether team work or individual work is more productive. Cite evidence supporting your opinion with details from the three texts.*

Materials: GO #17, Writing to Sources Book pgs. 62-63, Speaking and Listening Rubric, Academic Language Scripts, Four Square GO for opinion, and Utah Compose

Part I: Re-read and Take Notes (30 minutes)

- Follow the directions on **page 62** of your **Writing to Sources** book.
- Using graphic organizer (**GO**) #17 from the Teacher's online Resources under digital transparencies, take notes about details during re-reading to enable defending their choice.

Part II: Write and Collaborate (20-30 minutes)

- Write using the **blackline on page 63** of your *Writing to Sources* book, using the graphic organizer #27.
- Collaborate with a partner or small group and discuss short responses from **page 63**. Use the **Academic Language Scripts *Build on What Others Say***
 - I agree with what _____ said because....
 - You bring up an interesting point and I also think....
 - That's an interesting idea. I wonder...? I think...Do you think....?
 - I thought about that also and I'm wondering why...?
 - I hadn't thought of that before. You make me wonder if.... Do you think...?
 - _____ said that.... I agree and also think...
 - Based on the ideas from _____, _____, and _____, it seems like we all think that...
- While students are collaborating, use the **Speaking and Listening rubric** to assess.
- Have students add-on and adjust their thinking by adding on to their short response questions.

Part III: Writing Prompt (30 minutes)

- Using the **Opinion Four-Square template** organize your thinking based on the prompt.
- Using **Utah Compose**, have students respond to the prompt. Encourage students to refer to the **Four-Square template** and their notes from the collaboration.

4th Grade Writing Performance Task

UNIT Three: Informative/Explanatory

Standard: W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. Link ideas within categories of information using words and phrases (e.g., *another, for example, also, because*). Use precise language and domain-specific vocabulary to inform about or explain the topic. Provide a concluding statement or section related to the information or explanation presented.

Prompt: Use what you have learned from reading *The Man Who Named the Clouds*, *Adelina's Whales*, and *Eye of the Storm* to write a compare-contrast essay about how different features of weather affect the lives of people and animals. Use facts details, and examples from the texts to support and justify your ideas. Be sure to follow the conventions of written English.

Materials: GO #19, Writing to Sources Book pgs. 94-95, Speaking and Listening Rubric, Academic Language Scripts, Four Square GO for opinion, and Utah Compose, *Speaking and Listening Standards 1 & 4*.

Part I: Re-read and Take Notes (30 minutes)

- Follow the directions on **page 94** of your **Writing to Sources** book.
- Using graphic organizer **(GO)#19 Compare and Contrast** from the Teacher's online Resources under digital transparencies and have students take notes during re-reading to enable students to cite examples from the text.

Part II: Write and Collaborate (20-30 minutes)

- Using the **GO #19**, support students in discussions following the **Speaking and Listening standards 1 & 4**.
- Collaborate with a partner or small group and discuss how to steps of a group project. Include steps that plan for the project, assignments, timelines, revisions and final presentations. Use the **Academic Language Scripts Build on What Others Say and Inviting Others into the Dialogue**.
 - I agree with what _____ said because....
 - You bring up an interesting point and I also think....
 - That's an interesting idea. I wonder...? I think...Do you think....?
 - I thought about that also and I'm wondering why...?
 - I hadn't thought of that before. You make me wonder if.... Do you think...?
 - _____ said that.... I agree and also think...
 - Based on the ideas from _____, _____, and _____, it seems like we all think that...
 - Does anyone agree/dis agree?
 - What different conclusions do you have?
 - _____ (name), what do you think?
 - I wonder what _____ thinks?
 - We haven't heard from many people in the group. Could someone new offer an idea or question?
- While students are collaborating, use the **Speaking and Listening rubric** to assess.
- Have students add-on and adjust their thinking by adding on to their short response questions.

Part III: Writing Prompt (30 minutes)

- Using the **Informative/Explanatory Four-Square template** organize your thinking based on the prompt.
- Using **Utah Compose**, have students respond to the prompt. Encourage students to refer to the **Four-Square template** and their notes from the collaboration.

4th Grade Writing Performance Task

UNIT Four: Narrative

Standard: W.4.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. Use dialogue and description to develop experiences and events or show the responses of characters to situations. Use a variety of transitional words and phrases to manage the sequence of events. Use concrete words and phrases and sensory details to convey experiences and events precisely. Provide a conclusion that follows from the narrated experiences or events.

Prompt: Use what you have learned from reading *The Case of the Gaspin Garbage*, *Seeker of Knowledge* and *Encyclopedia Brown and the Case of the Slippery Salamander* to write a short story about solving a puzzle or mystery. Organize the events in time order from beginning to end, and except for the one place where you look back to past event. Refer to the texts you reread to help you decide how best to organize the events in your story.

Materials: GO #23, Writing to Sources Book pg. 126-127, Speaking and Listening Rubric, Academic Language Scripts, Grade Level Four Square GO for narrative, and Utah Compose

Part I: Re-read and Take Notes (30 minutes)

- Follow the directions on **page 126** of your *Writing to Sources* book.
- Using graphic organizer (**GO**) #23 **Time Line** from the Teacher's online Resources under digital transparencies and have students take notes during re-reading to enable students to cite details from the text.

Part II: Write and Collaborate (20-30 minutes)

- Write using the **blackline on page 127** of your *Writing to Sources* book, using the **GO #23**.
- Collaborate with a partner or small group and discuss short responses from **page 127**. Use the **Academic Language Scripts in your map *Build on What Others Say***
 - I agree with what _____ said because....
 - You bring up an interesting point and I also think....
 - That's an interesting idea. I wonder...? I think...Do you think....?
 - I thought about that also and I'm wondering why...?
 - I hadn't thought of that before. You make me wonder if.... Do you think...?
 - _____ said that.... I agree and also think...
 - Based on the ideas from _____, _____, and _____, it seems like we all think that...
- While students are collaborating, use the **Speaking and Listening rubric** to assess.
- Have students add-on and adjust their thinking by adding to their short response questions.

Part III: Writing Prompt (30 minutes)

- Using the **Narrative Four-Square template** organize your thinking based on the prompt.
- Using **Utah Compose**, have students respond to the prompt. Encourage students to refer to the **Four-Square template** and their notes from the collaboration.

4th Grade Writing Performance Task

UNIT Five: Argument

Standard: W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. Provide reasons that are supported by facts and details. Link opinion and reasons using words and phrases. (e.g., *for instance, in order to, in addition*). Provide a concluding statement or section related to the opinion presented.

Prompt: *The smokejumpers, professor Bingham and Axel all had adventures. What makes an outing or trip an adventure? Use what you have learned from reading *Smokejumpers, Lost City, and Cliff Hanger* to write an argumentative essay in which you state your opinion about what adventures are. Explain your reasons, supporting and justifying your opinion with details from the three texts.*

Materials: GO #26, Writing to Sources Book pgs. 158-159, Speaking and Listening Rubric, Academic Language Scripts, Four Square GO for opinion, and Utah Compose

Part I: Re-read and Take Notes (30 minutes)

- Follow the directions on **page 158** of your **Writing to Sources** book.
- Using graphic organizer (**GO**) #26 **Three Column Chart**, from the Teacher's online Resources under digital transparencies and have students take notes during re-reading to enable defending their choice.

Part II: Write and Collaborate (20-30 minutes)

- Write using the **blackline on page 159** of your *Writing to Sources* book, using the graphic organizer #26.
- Collaborate with a partner or small group and discuss short responses from **page 159**. Use the **Academic Language Scripts *Build on What Others Say***
 - I agree with what _____ said because....
 - You bring up an interesting point and I also think....
 - That's an interesting idea. I wonder...? I think...Do you think....?
 - I thought about that also and I'm wondering why...?
 - I hadn't thought of that before. You make me wonder if.... Do you think...?
 - _____ said that.... I agree and also think...
 - Based on the ideas from _____, _____, and _____, it seems like we
 - all think that...
- While students are collaborating, use the **Speaking and Listening rubric** to assess.
- Have students add-on and adjust their thinking by adding on to their short response questions.

Part III: Writing Prompt (30 minutes)

- Using the **Opinion Four-Square template** organize your thinking based on the prompt.
- Using **Utah Compose**, have students respond to the prompt. Encourage students to refer to the **Four-Square template** and their notes from the collaboration.

4th Grade Writing Performance Task

UNIT Six: Informative/Explanatory

Standard: W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. Link ideas within categories of information using words and phrases (e.g., *another, for example, also, because*). Use precise language and domain-specific vocabulary to inform about or explain the topic. Provide a concluding statement or section related to the information or explanation presented.

Prompt: *Use what you have learned from reading My Brother Martin, Jim Thorpe's Bright Path, and How Tia Lola Came to Stay to write a cause-effect essay about how our abilities, combined with others' views of the world, can influence our dreams and goals. Use examples from the selections to support and justify your ideas. Be sure to follow the conventions of written English.*

Materials: GO #20, Writing to Sources Book pgs. 190-191, Speaking and Listening Rubric, Academic Language Scripts, Four Square GO for opinion, and Utah Compose, *Speaking and Listening Standards 1 & 4*.

Part I: Re-read and Take Notes (30 minutes)

- Follow the directions on **page 190** of your **Writing to Sources** book.
- Using graphic organizer **(GO)#20 Cause and Effect** from the Teacher's online Resources under digital transparencies and have students use the headings facts, details, personal examples to take notes during re-reading to enable students to cite examples from the text.

Part II: Write and Collaborate (20-30 minutes)

- Using the **GO #20**, support students in discussions that follow the **Speaking and Listening standards 1 and 4**.
- Collaborate with a partner or small group and discuss how to steps of a group project. Include steps that plan for the project, assignments, timelines, revisions and final presentations. Use the **Academic Language Scripts *Build on What Others Say and Inviting Others into the Dialogue***.
 - I agree with what _____ said because....
 - You bring up an interesting point and I also think....
 - That's an interesting idea. I wonder...? I think...Do you think....?
 - I thought about that also and I'm wondering why...?
 - I hadn't thought of that before. You make me wonder if.... Do you think...?
 - _____ said that.... I agree and also think...
 - Based on the ideas from ____, ____, and ____, it seems like we all think that...
 - Does anyone agree/dis agree?
 - What different conclusions do you have?
 - _____ (name), what do you think?
 - I wonder what _____ thinks?
 - We haven't heard from many people in the group. Could someone new offer an idea or question?
- While students are collaborating, use the **Speaking and Listening rubric** to assess.
- Have students add-on and adjust their thinking by adding on to their short response questions.

Part III: Writing Prompt (30 minutes)

- Using the **Informative/Explanatory Four-Square template** organize your thinking based on the prompt.
- Using **Utah Compose**, have students respond to the prompt. Encourage students to refer to the **Four-Square template** and their notes from the collaboration.



Elementary Mathematics 2016-2017

4th

Grade



CANYONS
School District

Table of Contents

SECTION 1: OVERVIEW

Introduction	page 1
General Instructions	pages 2-4

SECTION 2: STANDARDS and SUPPORTS

SAGE Blueprints	page 5
SALTA Materials Math	page 6
Math Exemplars	pages 7-18
Project M ² and M ³	page 19
Problem Based Learning Routine	pages 20-21
Systematic Vocabulary Routine Math	page 22
Evidence-Based Instructional Priorities Applied to Math	page 23
Utah Core Standards Overview	page 24
Utah Core Standards for Mathematics	pages 25-31
Utah Core Standards for Mathematics Old and New	page 32-43
Utah Core Standards Mathematics Progressions	pages 41-45
Utah Core Standards for Mathematical Practice	pages 46-47
CSD Math Block	pages 48
Skill-Based Instruction	pages 49-50

SECTION 3: SCOPE & SEQUENCE

Year At-A-Glance	pages 51-52
Scope and Sequence	pages 53-107
Additional Assessment Tasks	pages 108-121

SECTION 4:

North Carolina Instructional Support Tools	pages 122-185
--	---------------

ENVISION MATH CURRICULUM MAP
CANYONS SCHOOL DISTRICT
2016-2017

Curriculum Mapping Purpose

Canyons School District’s curriculum math maps are standards-based maps driven by the Utah Core State Standards for Mathematics and implemented using Pearson enVisionMATH 2.0. Student achievement is increased when both teachers and students know where they are going, why they are going there, and what is required of them to get there. The additional instructional days were intentionally built into the map to allow teachers to go into more depth on concepts and allow flexible pacing based on student need. Supporting resources for these additional days can be found in the General Information section.

Curriculum Maps are a tool for:

- **ALIGNMENT:** Provides support and coordination between concepts, skills, standards, curriculum, and assessments
- **COMMUNICATION:** Articulates expectations and learning goals for students
- **PLANNING:** Focuses instruction and targets critical information
- **COLLABORATION:** Promotes professionalism and fosters dialogue between colleagues about best practices in both instruction and assessment.
- **SCAFFOLDED INSTRUCTION AND GROUPING STRUCTURES:** The organization of a scaffolded classroom includes whole group, small group (e.g., teacher-led skill-based, cooperative learning), partner, and independent work where students are provided support towards mastery. As students assume more responsibility for the learning, gradual support is decreased in order to shift the responsibility for learning from the teacher to the students.

Canyons School District elementary math maps are created and published by the CSD Instructional Supports Department

General Information

Pacing

This curriculum map provides guidance for intertwining the Utah Core Math Standards and the enVision 2.0 curriculum. Following the map will allow students to access all core standards by the end of the year. To support students' mastery of the standards, targeted standard clusters have been identified. Attending to these targeted standards will allow teachers to focus instruction for the given topic and better assess students' understanding of each standard.

Intentional Planning

For each domain, the map specifies both procedural checks and application tasks. These tasks represent what students should know and be able to do after instruction. Understanding these tasks will assist with designing instruction around targeted standards and critical areas.

- **Procedural Check:** The purpose of the procedural check is to identify if students have the basic procedural understanding of the mathematical concept being highlighted.
- **Application Task:** The purpose of the application task is to assess student ability to understand and apply the skill with a heightened level of depth and complexity.

Critical Areas for Conceptual Understanding

In addition to targeted standards, critical areas have been identified and are highlighted in blue within the scope and sequence of the map. Students are expected to demonstrate a conceptual understanding of these critical areas in order to be prepared for future grades. Additional instructional days have been scheduled into the scope and sequence to provide additional time for increasing conceptual understanding of the standards. Conceptual understanding requires a focus of depth and complexity which may go beyond the enVision lessons. The following resources may be useful for extending instruction to address depth of knowledge demands of the standards.

Online:

Illustrative Mathematics: Mathematical tasks aligned to the standards <https://www.illustrativemathematics.org>

Inside Mathematics: More mathematical tasks aligned to the standards

<http://www.insidemathematics.org/index.php/tools-for-teachers>

Illuminations: Lessons, interactives, and web links to support math instruction. <http://illuminations.nctm.org>

Print Resources:

Elementary and Middle School Mathematics: Teaching Developmentally by John A. Van De Walle

Assessment

Throughout the enVision 2.0 curriculum there are many opportunities to check for understanding with items such as the Quick Check, Do You Understand? Show Me, and Guided Practice. In addition, each topic ends with a Topic Assessment that can be given digitally or paper/pencil as well as a Performance Assessment.

Focused Review

It is critical to provide an ongoing review of previously taught concepts and skills. Teacher-directed, interactive reviews daily are ideal to assess student learning and inform instruction. Daily Common Core Review is provide daily within the enVisionMATH 2.0 program and may be used to provide a cumulative review. The math block allocates 5-10 minutes for a daily, focused review.

Homework

The struggle to develop new concepts should occur while the teacher is available to support and scaffold the learning and correct students' errors in thinking. Work that is sent home for students to complete should consist of concepts that have already been taught in class, been practiced, and the student can already do independently. Math homework should be used to build automaticity of skills already acquired and not for development of new skills without instruction. Practicing concepts incorrectly at home can reinforce errors in thinking and cause frustration for students and families. Practicing the skill to automaticity with homework assignments is appropriate after students have acquired the skill. *Reflex Math* is available for students in grades 2-5 and can be accessed at home as well as at school. *Reflex Math* helps students develop fluency with their basic facts in addition, subtraction multiplication and division and could be assigned as homework to support students' automaticity.

Canyons School District elementary math maps are created and published by the CSD Instructional Supports Department

Online Supports for Unpacking the Core

For additional information about teaching math standards, please visit the following websites:

USOE Curriculum Guides <http://csdmathematics.weebly.com/usoe-elementary-curriculum-guides.html>

North Carolina <http://www.ncpublicschools.org/acre/standards/common-core-tools/#unpacking>

Howard County Public Schools <https://grade4commoncoremath.wikispaces.hcpss.org> (Change grade number to match yours—
grade_commoncoremath.wikispaces.hcpss.org)

Delware—Under assessment examples http://www.doe.k12.de.us/aab/Mathematics/assessment_tools.shtml

EngageNY—Mathematics Modules--<http://www.engageny.org/mathematics>

Canyons School District elementary math maps are created and published by the CSD Instructional Supports Department

Utah SAGE Elementary Mathematics Blueprints

Grade 3		
45 Operational Items		
Domain	Min.	Max.
Operations and Algebraic Thinking (OA)	29%	38%
Number and Operations in Base Ten (NBT)	18%	22%
Number and Operations- Fractions (NF)	27%	31%
Measurement and Data and Geometry (MD/G)	18%	22%
DOK 1	18%	31%
DOK 2	38%	58%
DOK 3	9%	20%

Grade 5		
50 Operational Items		
Domain	Min.	Max.
Operations and Algebraic Thinking (OA)	16%	20%
Number and Operations in Base Ten (NBT)	30%	36%
Number and Operations- Fractions (NF)	28%	34%
Measurement and Data and Geometry (MD/G)	18%	22%
DOK 1	16%	28%
DOK 2	50%	64%
DOK 3	10%	24%

Grade 4		
50 Operational Items		
Domain	Min.	Max.
Operations and Algebraic Thinking (OA)	18%	22%
Number and Operations in Base Ten (NBT)	28%	32%
Number and Operations- Fractions (NF)	28%	32%
Measurement and Data and Geometry (MD/G)	16%	22%
DOK 1	22%	44%
DOK 2	44%	58%
DOK 3	12%	22%

Grade 6		
50 Operational Items		
Domain	Min.	Max.
Ratios and Proportional Relationships (RP)	28%	32%
The Number System (NS)	18%	22%
Expressions and Equations (EE)	28%	34%
Geometry/Statistics and Probability (G/SP)	16%	20%
DOK 1	18%	32%
DOK 2	46%	62%
DOK 3	8%	20%

Note: The percentages shown represent target aggregate values; individual student experiences will vary based on the adaptive algorithm.

Disclosure: Depth of Knowledge (DOK) and Elements of Rigor are essential components of the Utah Mathematics Core Standards. As such, DOK and Elements of Rigor are integrated into the Student Assessment of Growth and Excellence (SAGE) assessment items. All students will see a variety of DOK and Elements of Rigor on the SAGE summative assessment. For more information about DOK and Elements of Rigor please see: <http://www.schools.utah.gov/assessment/Criterion-Referenced-Tests/Math.aspx>

©Canyons School District 2016

SALTA Materials Math

CORE

All SALTA students are taught the Utah **Core** standards. Core standards are evidence-based, aligned with expectations for success in college and the workplace, and will allow students to compete internationally. The new standards stress rigor, depth, clarity, coherence, and 21st century skills, to prepare students for college and careers.

EXTEND

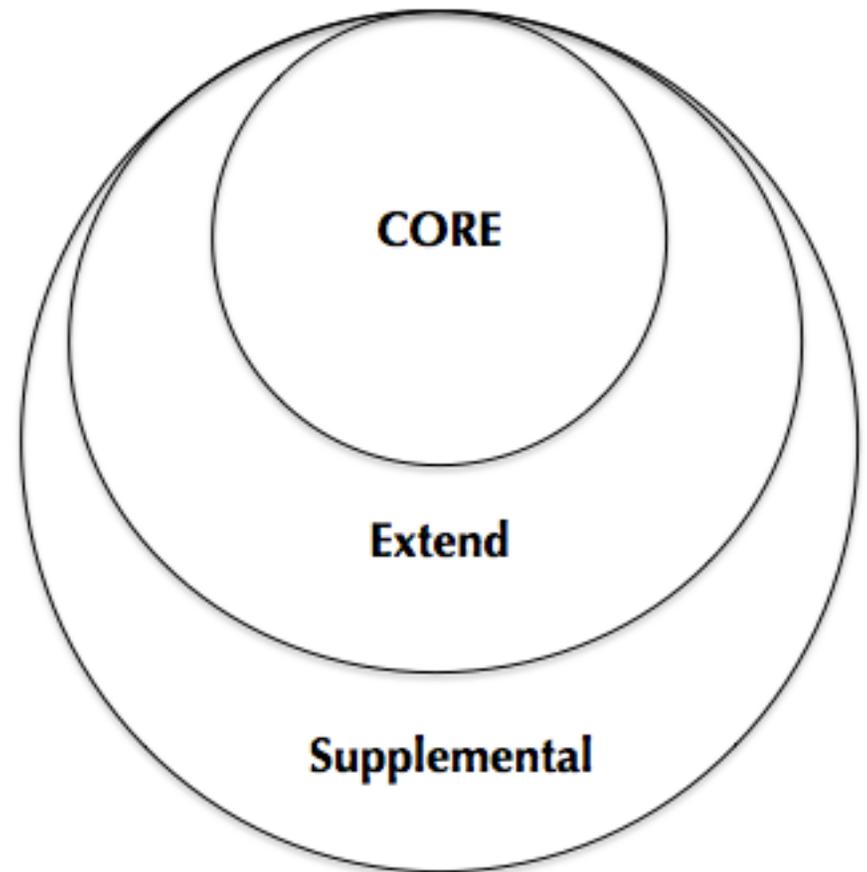
Extension of core standards provides students with activities that are added to **CORE** to enlarge or deepen understanding. Examples of **EXTEND** include:

- Math Exemplars
- Extending the Challenge (A & B), Sheffield (ExCh)
- Extended Learning Opportunities (ExLO)
- Project-Based Learning (PBL)

SUPPLEMENTAL

Supplemental resources are materials and activities in addition to ones found in **EXTEND** and **CORE**. Examples of **SUPPLEMENTAL** include:

- Math M^2 & M^3
- Mathematics Unit for High-Ability Learners



Math Exemplars

About This Material

Problem Solving for the Common Core is not a “test prep” program, but rather a supplement to existing curricula. It is based on research that shows that students who engage in challenging and interesting work will perform at higher levels than those who do not.¹ (31)

The performance tasks in this program were written according to Universal Design guidelines and developed to support teachers in implementing the Common Core State Standards for Mathematical Content and Standards for Mathematical Practice. This resource is intended to help teachers embed mathematical problem solving into classroom instruction and assessment. Both instructional tasks/formative assessments and summative assessment tasks are provided for every applicable Common Core content standard. Alignments to the Standards for Mathematical Practice are also included.

By publishing authentic problem-solving tasks, Exemplars material engages students and promotes mathematical reasoning, making mathematical connections and communication skills. Our Preliminary Planning Sheets are designed to support teachers as they reflect on the tasks they intend to use. Rubrics and student anchor papers (hallmarks of Exemplars) assist teachers in assessing student performance. Students can also use these to become thoughtful self- and peer-assessors.

1. Bryk, Anthony S., Jenny K. Nagoaka, and Fred M. Newmann, *Authentic Intellectual Work and Standardized Tests: Conflict of Coexistence?* (Chicago: Consortium on Chicago School Research, 2001).¹

The Different Task Types

The tasks found in *Problem Solving for the Common Core* have been classified as either an instructional task/formative assessment or a summative assessment.

- **Instructional Tasks/Formative Assessments**

Throughout this program, there are four (or more) instructional/formative assessment problem-solving tasks for every applicable Common Core content standard. These are viewed as opportunities for students to learn new mathematical strategies, vocabulary and notation and representations. Students can also explore mathematical connections and self-assess their solutions. These tasks may be done alone, in pairs, groups or as a whole class. Direct instruction may also be used to question and support classroom discussion around the underlying mathematical concepts in a task.

Teachers should use these problem-solving tasks to observe and support student understanding. As part of this process, conferencing and editing can occur and students can revisit their work as often as necessary. Teachers can use similar tasks throughout a unit of study to give a student multiple opportunities to use new learning in her or his solution and to gain independence in arriving at a correct answer.

- **Summative Assessment Tasks**

Throughout this program, there are summative assessment tasks for every applicable Common Core content standard. These problem-solving tasks are given at the end of a unit of study to assess students' understanding. A set of anchor papers and scoring rationales are provided with these tasks.

In order to achieve a true assessment of what the student understands and is able to do, in words of the Common Core, there should be a wait time of at least one day between the last instructional task/formative assessment and the summative assessment. A similar assessment task may also be given to students much later in the year if a teacher wants to spiral back to determine how much learning is retained.

Summative assessment tasks can be read to the students, and any non-mathematical terms may be defined. Tasks can be reread during the student's work time, and scribing may be provided for any non-writing or primary students. No coaching or directions can be given for how a task should be completed. A summative assessment **must** represent a student's totally independent solution.

Note: Embedded Standards

There are instances throughout this program where the underlying math concept in a Common Core content standard is "embedded" within a task, but the standard is not directly aligned to the task. A student *may* use the underlying math concept in an embedded standard to solve the problem but cannot be *required* to use that math concept, due to the open-ended nature of problem solving. These tasks should not be given as an assessment but rather used with students to practice a particular math concept or skill.

Content Standard Classification

In *Problem Solving for the Common Core*, each Common Core content standard has been classified in one of three ways: Aligned, Embedded or Not Applicable. Descriptions for each are found below.

- **Aligned**

This classification refers to problem-solving tasks (instructional/formative and summative) that are directly "aligned" to a specific content standard. These tasks can be used for practice and/or assessment. Summative assessment tasks include anchor papers and scoring rationales.

- **Embedded**

This classification refers to instances where the underlying math concept in the content standard is "embedded" within a task, but the standard is not directly aligned to that task. A student *may* use the underlying math concept in the standard to solve the problem but cannot be *required* to use that math concept, due to the open-ended nature of problem solving. These tasks should not be given as an assessment but rather used with students to practice a particular math concept or skill.

- **Not Applicable**

Content standards that have been classified as "not applicable" cannot be assessed through problem solving. For this reason, tasks have not been included for these particular standards. For example, the Kindergarten Counting and Cardinality Standard, K.CC.B.4a states, "When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object." This standard specifically describes a principle of counting (one-to-one correspondence) that does not elicit DOK3 tasks.

Math Exemplars

Student Portfolios

Throughout the school year, Exemplars encourages teachers to keep two student portfolios. The first could be either a pocket folder or binder that contains a student’s instructional tasks/formative assessments. These “working portfolios” should be placed in the classroom where students can access them on a regular basis. The second should be a file that the teacher keeps to store each summative assessment problem-solving task that a student completes.

The working portfolio allows teachers to assess what the student knows using four guiding lenses.

- What do I know this student knows?
- What does this student need to practice?
- What does this student need to relearn?
- What is this student ready to learn (do next)?

Instructional tasks/formative assessments are viewed as opportunities for students to learn new mathematical strategies, vocabulary and notation and representations. Students can also explore mathematical connections and self-assess their solutions. These tasks may be done alone, in pairs, in groups or as a whole class. Direct instruction may also be used to question and support classroom discussion around the underlying mathematical concepts in a problem.

Teachers should use formative assessment tasks to observe and support student understanding. As part of this process, conferencing and editing can occur and students can revisit their work as often as necessary. Teachers can use similar tasks throughout a unit of study to give a student multiple opportunities to use new learning in her/his solution and to gain independence in arriving at a correct answer.

In contrast, summative assessment tasks are given at the end of a unit of study. Summative assessment tasks are identified throughout *Problem Solving for the Common*. These tasks include a set of anchor papers and scoring rationales.

In order to achieve a true assessment of what the student understands and is able to do, in words of the Common Core, there should be a wait time of at least one day between the last formative assessment and the summative assessment. A similar assessment task may also be given to students much later in the year if a teacher wants to spiral back to determine how much learning is retained.

Summative assessment tasks can be read to the students, and any non-mathematical terms may be defined. Tasks can be reread during the student’s work time, and scribing may be provided for any non-writing or primary students. (For more information on scribing, refer to the section “Scribing at the Primary Level.”) No coaching or directions can be given for how a task should be completed. A summative assessment must represent a student’s totally independent solution.

Portfolio Components

A student’s working portfolio should include:

- Class pieces
- Scaffold pieces
- Homework pieces
- Edited pieces done after class instruction in the mathematics/problem-solving strategy of the task
- Conferenced pieces with directed editing
- Pieces used as a class to learn strategies, vocabulary and representations
- Pieces used to help students learn to organize and write their solutions
- Tasks used as direct instruction to learn the criteria of the scoring guide
- Tasks for independent student practice

A summative assessment portfolio should include:

- a student’s independent problem-solving work that demonstrates what he or she knows and is able to do

Math Exemplars

Using the Preliminary Planning Sheets

The Preliminary Planning Sheet (PPS) serves as the teacher’s “blueprint” for each performance task and is a useful tool in lesson preparation. This resource enables teachers to foresee what instruction should be done before the task is used for assessment. It may also be used to anticipate which math concepts and skills students might be required to use.

Each PPS includes the following information:

- the *Underlying Mathematical Concepts* related to the task
- some *Possible Problem-Solving Strategies* that students might use
- some *Possible Mathematical Vocabulary/Symbolic Representation* that students might use
- the *Possible Solutions* that students might find
- some *Possible Connections* that students could make

PPSs are provided with every task. In the summative assessment setting, PPSs are meant to support teachers in assessing student work with the Exemplars rubric. A student may use mathematical vocabulary/strategies/connections/representations that are not evident in any of the anchor papers but are noted on the PPS for the teacher to reference. (Students may also use additional mathematical vocabulary/strategies/connections/representations that are not noted on the PPS or anchor papers, but are mathematically relevant.)

Accessing Preliminary Planning Sheets

The PPS for any problem may be accessed and printed from the “Plan” section of a task. The information contained in the PPS is also visible in the task overview. Blank PPSs may be found under the “Classroom Resources” section and accessed through your dashboard.

Preliminary Planning Sheet

Task Name: _____

Domain:

Standard:

Math Practices:

Major Underlying Mathematical Concepts

Possible Problem-Solving Strategies

Possible Mathematical Vocabulary/Symbolic Representation

Possible Solution(s)

Possible Connections

Math Exemplars

Understanding Differentiated Tasks

The instructional tasks/formative assessments in *Problem Solving for the Common Core* have been differentiated to include a “more accessible” and a “more challenging” version of the original problem. This feature allows teachers to meet the needs of students at various levels as they explore and practice new math concepts. The summative assessment tasks in this resource are not differentiated. In order to meet the standard, students need to successfully complete a summative assessment without differentiation.

Individual PDFs of the task overheads may be printed for students at each of the three levels. Once printed, teachers may refer to the symbols in the header to identify the various levels.

Symbol Key:

- - Represents the “original” version of the task.
- △ - Represents the “more accessible” version of the task.
- - Represents the “more challenging” version of the task.

Student work and anchor papers are provided only for the original version of the task.

Teachers can make additional alterations as well. For example, under the Common Core Domain Number and Operations, a task could be altered to meet the developmental needs of an individual student. If a kindergarten student only has number sense to 10, a blue block/red block patterning task asking the student to note the color of the 15th block could be edited to the 10th block. Teachers, however, should be careful not to alter the underlying concept(s) of the problem-solving tasks.

Using Anchor Papers and Scoring Rationales

Anchor papers provide examples of student work that meets or does not meet a Common Core standard. Each scoring rationale explains why.

The summative assessment tasks in this program include student anchor papers at four levels of performance: Novice, Apprentice, Practitioner (meets the standard) and Expert. Exemplars anchor papers are accompanied by a set of scoring rationales that describe why each piece of student work is assessed at a specific performance level. Rationales are given for each of the five criteria in Exemplars assessment rubric (Problem Solving, Reasoning and Proof, Communication, Connections, Representations). The anchor paper is then given an “overall” assessment score or achievement level.

Anchor papers and scoring rationales are designed to provide guidelines and support for teachers as they assess their own students’ performance in problem solving. They can also be shared with students as examples of what work meets the standard and why or as a basis for self- and peer-assessment.

In many cases, there is more than one anchor paper associated with a level of performance. These are intended to demonstrate different strategies a student might use or different misconceptions a student might have.

Guiding Questions

Many students enjoy making connections once they learn how to reflect and question effectively. Below are a series of questions that students might consider as they are trying to identify connections:

- What could happen next if I add another ...?
- Are there other mathematical terms I can use?
- Is there another way I can state my thinking? (5 pennies is a nickel, 100 centimeters is one meter, two eyes is a pair, a square is a rectangle, a trapezoid can look different from the red pattern block)
- Is the solution (all the work including the answer) reasonable?
- How is this problem like another problem I did, and what is the mathematical similarity?
- How is this mathematically like something that is in “real life” and how can I explain the mathematics?
- How can I verify that my answer is correct?
- Is there a general rule?
- Is there a mathematical phenomenon in my solution?
- Can I test and accept or reject a hypothesis or conjecture about my solution?

Math Exemplars

About Exemplars Rubrics

Exemplars math rubrics may be downloaded from your dashboard.

Exemplars Assessment Rubric

An important component of this program is the Exemplars Assessment Rubric. Our scoring rubric allows teachers to examine student work against a set of analytic assessment criteria to determine where the student is performing in relationship to each of these criteria.

This assessment tool is designed to identify what is important, define what meets the standard and distinguish between different levels of student performance. The Exemplars rubric consists of four performance levels — Novice, Apprentice, Practitioner (meets the standard) and Expert— and five assessment categories (Problem Solving, Reasoning and Proof, Communication, Connections and Representation). Our rubric criteria reflect the Common Core Standards for Mathematical Practice and parallel the NCTM Process Standards.

Exemplars Student Rubrics

Rubrics can provide students with valuable information about what is expected and what kind of work meets the standard. They can also be used as a basis for self- and peer-assessment. In addition to our assessment rubric, Exemplars has also created one for students called the Jigsaw Rubric.

A excellent description of how to introduce rubrics to your students resides on Exemplars web site:

<http://www.exemplars.com/resources/rubrics/introducing-rubrics-to-students>.

Using the Assessment Rubric

The student work in *Problem Solving for the Common Core* is assessed analytically. That is, each criterion of the Exemplars Assessment Rubric — Problem Solving, Reasoning and Proof, Communication, Connections and Representations — is taken into consideration individually when assessing the work. For each criterion, the work is assessed as Novice, Apprentice, Practitioner (meets the standard), or Expert.

The work is then given an Achievement Level Score. In coming to the overall assessment (achievement level), a paper cannot receive a score higher than the lowest score on any of the five criteria. Thus, if a student does not have any representation on her or his work, the “Representation” score would be Novice and the achievement level would be assessed at Novice. If a student has an Apprentice score in “Communication” and all other scores are Practitioner, the student’s achievement level would be assessed at Apprentice. In order to meet the standard, a student has to achieve the Practitioner level or above for each of the five criteria. Because the Exemplars rubric is performance based, it is not possible to take a mode or mean “grade” from the assessed criteria.

While many schools and districts require an overall achievement level for a task, others do not. What is important is to know where the student stands on each criterion and what the next steps are for that student.

Below are sample scoring boxes used to assess a student’s work. (Throughout *Problem Solving for the Common Core*, we have included completed assessment boxes at the top of each piece of student work.) Each box addresses the criteria found in the Exemplars rubric and the corresponding scoring rationales. The sample scoring boxes featured below show scores that would merit the following achievement levels (respectively): Novice, Apprentice, Practitioner, Apprentice, Novice, Apprentice and Expert.

Key:

Assessment Rubric Criteria		Achievement Level	
P/S	Problem Solving	N	Novice
R/P	Reasoning and Proof	A	Apprentice
Com	Communication	P	Practitioner
Con	Connections	E	Expert
Rep	Representation		
ACLV	Achievement Level		

Sample Scoring Boxes:

P/S	R/P	Com	Con	Rep	ACLV
P	P	N	P	A	N

P/S	R/P	Com	Con	Rep	ACLV
P	P	A	P	P	A

P/S	R/P	Com	Con	Rep	ACLV
P	P	E	P	P	P

P/S	R/P	Com	Con	Rep	ACLV
E	E	E	E	A	A

P/S	R/P	Com	Con	Rep	ACLV
P	P	A	N	N	N

P/S	R/P	Com	Con	Rep	ACLV
A	P	P	P	P	A

P/S	R/P	Com	Con	Rep	ACLV
E	E	E	E	E	E

***Exception to the Rule**

The National Council for the Teachers of Mathematics has suggested that the “Connections” criterion can be demanding for students because it requires more cognitive thinking and reflection. (For more information and tips on this subject refer to the section “Understanding Mathematical Connections.”) Therefore, there is one exception to the Achievement Level Score. If a student has all Apprentice scores or above but a Novice in “Connections,” the student may receive an achievement level score of Apprentice. The student cannot be a Practitioner (or Expert) because not all of the criteria scores meet the standard.

An example of this can be seen below:

P/S	R/P	Com	Con	Rep	ACLV
P	P	P	N	P	A

P/S	R/P	Com	Con	Rep	ACLV
P	P	A	N	P	A

The rationale behind this decision is that if a student has correct problem solving and reasoning as well as communication and a correct representation but did not make a mathematical connection, it would be very difficult to assign the student an achievement level of Novice, because the thinking and the solution are correct. This “exception” to the rule is well received by many schools that are looking for a way to give an overall assessment score to a student’s problem-solving piece.

Exemplars[®] Standards-Based Math Rubric

	Problem Solving	Reasoning and Proof	Communication	Connections	Representation
Novice	<p>No strategy is chosen, or a strategy is chosen that will not lead to a solution.</p> <p>Little or no evidence of engagement in the task present.</p>	<p>Arguments are made with no mathematical basis.</p> <p>No correct reasoning nor justification for reasoning is present.</p>	<p>No awareness of audience or purpose is communicated.</p> <p>No formal mathematical terms or symbolic notations are evident.</p>	<p>No connections are made or connections are mathematically or contextually irrelevant.</p>	<p>No attempt is made to construct a mathematical representation.</p>
Apprentice	<p>A partially correct strategy is chosen, or a correct strategy for only solving part of the task is chosen.</p> <p>Evidence of drawing on some relevant previous knowledge is present, showing some relevant engagement in the task.</p>	<p>Arguments are made with some mathematical basis.</p> <p>Some correct reasoning or justification for reasoning is present.</p>	<p>Some awareness of audience or purpose is communicated.</p> <p>Some communication of an approach is evident through verbal/written accounts and explanations.</p> <p>An attempt is made to use formal math language. One formal math term or symbolic notation is evident.</p>	<p>A mathematical connection is attempted but is partially incorrect or lacks contextual relevance.</p>	<p>An attempt is made to construct a mathematical representation to record and communicate problem solving but is not accurate.</p>

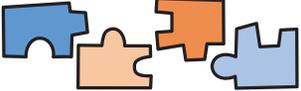
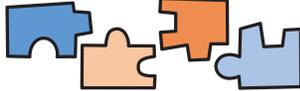
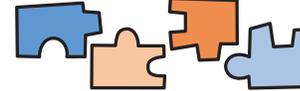
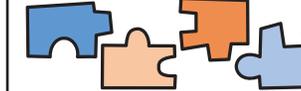
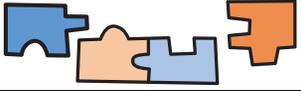
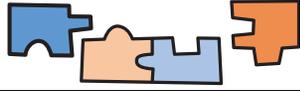
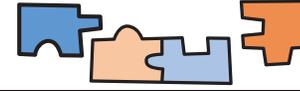
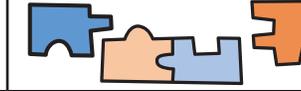
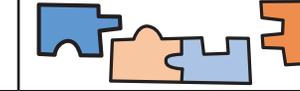
Copyright ©2001, revised 2014 by Exemplars, Inc. All rights reserved.

Exemplars[®] Standards-Based Math Rubric (cont.)

	Problem Solving	Reasoning and Proof	Communication	Connections	Representation
Practitioner	<p>A correct strategy is chosen based on the mathematical situation in the task.</p> <p>Planning or monitoring of strategy is evident.</p> <p>Evidence of solidifying prior knowledge and applying it to the problem-solving situation is present.</p> <p><i>Note: The Practitioner must achieve a correct answer.</i></p>	<p>Arguments are constructed with adequate mathematical basis.</p> <p>A systematic approach and/or justification of correct reasoning is present.</p>	<p>A sense of audience or purpose is communicated.</p> <p>Communication of an approach is evident through a methodical, organized, coherent, sequenced and labeled response.</p> <p>Formal math language is used to share and clarify ideas. At least two formal math terms or symbolic notations are evident, in any combination.</p>	<p>A mathematical connection is made. Proper contexts are identified that link both the mathematics and the situation in the task.</p> <p>Some examples may include one or more of the following:</p> <ul style="list-style-type: none"> • clarification of the mathematical or situational context of the task • exploration of mathematical phenomenon in the context of the broader topic in which the task is situated • noting patterns, structures and regularities 	<p>An appropriate and accurate mathematical representation is constructed and refined to solve problems or portray solutions.</p>
Expert	<p>An efficient strategy is chosen and progress towards a solution is evaluated.</p> <p>Adjustments in strategy, if necessary, are made along the way, and/or alternative strategies are considered.</p> <p>Evidence of analyzing the situation in mathematical terms and extending prior knowledge is present.</p> <p><i>Note: The Expert must achieve a correct answer.</i></p>	<p>Deductive arguments are used to justify decisions and may result in formal proofs.</p> <p>Evidence is used to justify and support decisions made and conclusions reached.</p>	<p>A sense of audience and purpose is communicated.</p> <p>Communication at the Practitioner level is achieved, and communication of argument is supported by mathematical properties.</p> <p>Formal math language and symbolic notation is used to consolidate math thinking and to communicate ideas. At least one of the math terms or symbolic notations is beyond grade level.</p>	<p>Mathematical connections are used to extend the solution to other mathematics or to a deeper understanding of the mathematics in the task.</p> <p>Some examples may include one or more of the following:</p> <ul style="list-style-type: none"> • testing and accepting or rejecting of a hypothesis or conjecture • explanation of phenomenon • generalizing and extending the solution to other cases 	<p>An appropriate mathematical representation is constructed to analyze relationships, extend thinking and clarify or interpret phenomenon.</p>

Copyright ©2001, revised 2014 by Exemplars, Inc. All rights reserved.

Exemplars® Jigsaw Student Rubric

Level	Problem Solving	Reasoning and Proof	Communication	Connections	Representation
Novice Makes an effort No or little understanding	I did not understand the problem. 	My math thinking is not correct. 	I used no math language and/or math notation. 	I did not notice anything about the problem or the numbers in my work. 	I did not use a math representation to help solve the problem and explain my work. 
Apprentice Okay, good try Unclear if student understands	I only understand part of the problem. My strategy works for part of the problem. 	Some of my math thinking is correct. 	I used some math language and/or math notation. 	I tried to notice something, but it is not about the math in the problem. 	I tried to use math representation to help solve the problem and explain my work, but it has mistakes in it. 
Practitioner Excellent Clear Strong understanding Meets the standard	I understand the problem and my strategy works. My answer is correct. 	All of my math thinking is correct. 	I used math language and/or math notation accurately throughout my work. 	I noticed something about my math work. 	I made a math representation to help solve the problem and explain my work, and it is labeled and correct. 
Expert Wow, awesome! Exceptional understanding!	I understand the problem. My answer is correct. I used a rule, and/or verified that my strategy is correct. 	I showed that I knew more about a math idea that I used in my plan. Or, I explained my rule. 	I used a lot of specific math language and/or notation accurately throughout my work. 	I noticed something in my work, and used that to extend my answer and/or I showed how this problem is like another problem. 	I used another math representation to help solve the problem and explain my work in another way. 

Math Exemplars

Using Student Portfolios

Throughout the school year, Exemplars encourages teachers to keep two student portfolios. The first could be either a pocket folder or binder that contains a student’s instructional tasks/formative assessments. These “working portfolios” should be placed in the classroom where students can access them on a regular basis. The second should be a file that the teacher keeps to store each summative assessment problem-solving task that a student completes. The working portfolio allows teachers to assess what the student knows using four guiding lenses.

- What do I know this student knows?
- What does this student need to practice?
- What does this student need to relearn?
- What is this student ready to learn (do next)?

Instructional tasks/formative assessments are viewed as opportunities for students to learn new mathematical strategies, vocabulary and notation and representations. Students can also explore mathematical connections and self-assess their solutions. These tasks may be done alone, in pairs, in groups or as a whole class. Direct instruction may also be used to question and support classroom discussion around the underlying mathematical concepts in a problem.

Teachers should use formative assessment tasks to observe and support student understanding. As part of this process, conferencing and editing can occur and students can revisit their work as often as necessary. Teachers can use similar tasks throughout a unit of study to give a student multiple opportunities to use new learning in her/his solution and to gain independence in arriving at a correct answer.

In contrast, summative assessment tasks are given at the end of a unit of study. Summative assessment tasks are identified throughout *Problem Solving for the Common*. These tasks include a set of anchor papers and scoring rationales.

In order to achieve a true assessment of what the student understands and is able to do, in words of the Common Core, there should be a wait time of at least one day between the last formative assessment and the summative assessment. A similar assessment task may also be given to students much later in the year if a teacher wants to spiral back to determine how much learning is retained.

Summative assessment tasks can be read to the students, and any non-mathematical terms may be defined. Tasks can be reread during the student’s work time, and scribing may be provided for any non-writing or primary students. (For more information on scribing, refer to the section “Scribing at the Primary Level.”) No coaching or directions can be given for how a task should be completed. A summative assessment must represent a student’s totally independent solution.

Portfolio Components

A student’s working portfolio should include:

- Class pieces
- Scaffold pieces
- Homework pieces
- Edited pieces done after class instruction in the mathematics/problem-solving strategy of the task
- Conferenced pieces with directed editing
- Pieces used as a class to learn strategies, vocabulary and representations
- Pieces used to help students learn to organize and write their solutions
- Tasks used as direct instruction to learn the criteria of the scoring guide
- Tasks for independent student practice

A summative assessment portfolio should include:

- a student’s independent problem-solving work that demonstrates what he or she knows and is able to do

Projects M^2 and M^3

Projects M^2 and M^3 lessons are based on 50-minute class times. The Canyons School District math block is 90 minutes and pacing for M^2 in the map correlates with the 90-minute time. For example, M^2 pacing suggests that most Units take approximately 30 days to teach, based on a 50-minute period. Please use the Pacing Guide to plan M^2 lessons accordingly.

Projects M^2 and M^3 are each a series of six curriculum units designed for grades K-2 (M^2) and 3-5 (M^3) to foster inquiry and engage students in critical thinking, problem solving, and communication activities. **Projects M^2 and M^3** deliver even more ways for teachers to motivate and challenge advanced students in grades 1-5 and support the Common Core Standards and NAGC exemplary practices.

The program provides simulated or real-life problems so students can actively solve them in the same ways that practicing mathematicians do. Rich verbal and written mathematical communication is a key component of **Project M^2 and M^3** .

Each Unit includes Teacher's Guide, Teacher Resource Pack: Hint and Think Beyond Cards, Word Wall Cards, Student Mathematician's Journal and Manipulatives

Website: k12.kendallhunt.com

Problem Based Interactive Learning Routine

(from enVision)

Best Practice

Explicit Planning:

- Objective
- Vocabulary
- Manipulatives
- Partnering, roles and tasks
- Plan for OTRs
- Plan for predictable failures

Lesson Objective:

- Stated and written down
- Needs to be repeated by students
- Teacher needs to refer to throughout the lesson

Connecting to Prior Knowledge:

- What do students already know
 - "Remember yesterday when. . ."
 - "We talked about tenths, and hundredths on Monday. . ."

Lively Discussion:

- How did you arrive at your answer?
- What was your process or strategy?
- Defend your answer

Manipulatives:

- Accessible and organized
- Model their use
- An expectation of use

Strategic Student Sharing:

- Teacher monitors room to find a target example
- 2 minute quick share with a task for the listeners

Teacher Moves:

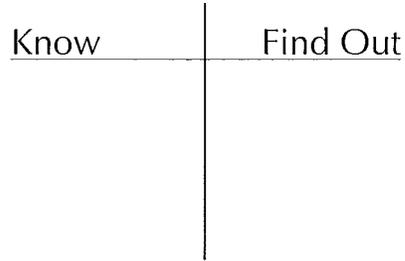
- Teacher uses the student demonstration to build on the strategy
- Teacher explicitly reinforces the important mathematics embedded in the task
- Teach thinking and scaffold toward efficient problem solving strategies with problems connected to the objective

Math-20

Math Problem-Solving Steps

(from Math Exemplars)

1. Read the problem
2. Highlight the important information
3. What do you know? What do you need to find out?



4. Plan how to solve the problem

- a. What skills are needed?
- b. What strategies can you use?
- c. What ideas will help you?

5. Solve the problem

- a. Draw and write about your solution and how you solved the problem

6. Check your answer

7. Share a connection or observation about this problem

Systematic Vocabulary Routine- Math

Acquisition	<p>Introduction Phase</p> <ol style="list-style-type: none"> 1. Teacher writes/says the word. 2. Students repeat the word. 3. Multisyllabic breakdown 4. Teacher gives a student friendly definition, incorporating synonyms as appropriate. 5. Students restate definition with teacher guidance. 6. Teacher identifies any prefixes, suffixes, base/root words, origin, etc. 	<p>Teacher/Student Responsibilities</p> <p>T: The word is polygon. What word? S: polygon T: Let's clap/tap "polygon" into syllables. T & S: "pol" "y" "gon". T: How many syllables? S: 3 syllables T: A closed plane figure with three or more sides that is made up of line segments that do not cross.</p> <p>T & S: A closed plane figure with three or more sides that is made up of line segments that do not cross is called a _____.</p> <p>T: The prefix "poly" means much or many. So a polygon has not just one side, but many sides.</p>
Building Automaticity	<p>Demonstration Phase</p> <ol style="list-style-type: none"> 7. Illustrate with examples/non-examples <ol style="list-style-type: none"> a) Concrete examples (<i>realia</i>) b) Visual representations—video, pictures, diagrams, etc. c) Physical gesture d) Verbal Examples e) Sentence Frames (ex. If I had to survive cold weather, I would need _____). 8. Check for students' understanding by discerning between examples and non-examples (repeat as necessary) 	<p>T: Look at the figures on this picture. This figure is a polygon because it is closed figure, it is made of line segments that do not cross. These figures are not polygons because they have curved lines, they are open, and some have crossed lines.</p> <p>T: (Example) Draw a polygon on the board? Ones tell your partner if this is a polygon and explain why or why not. S1: The figure is a polygon because it has line segments that are closed and they do not cross. T: (Non-example) Draw a figure that is not a polygon on the board. Twos tell your partner if this is a polygon and explain why or why not. S2: The figure is not a polygon because it is made of curved lines and it is also not closed.</p>
Application	<p>Application Phase</p> <ol style="list-style-type: none"> 9. Deepen students' understanding by applying the word in a new context <ol style="list-style-type: none"> a) Teacher asks a deep processing question b) Students respond via a quick write and/or orally with a partner or in a small group or whole group setting. 	<ul style="list-style-type: none"> • Students use the word in a sentence. The sentence must be at least five words long. • Number 2's will say the sentence while number 1's count the words in the sentence and makes sure the sentence is a true statement. They switch and follow the same procedure.

Evidence-Based Instructional Priorities
Applied to Math Instruction

Explicit Instruction I Do - We Do - Y'all Do - You Do Model - Guide Practice – Partner - Independent			
Systematic <input type="checkbox"/> Focused on critical content <input type="checkbox"/> Skills, strategies, and concepts are sequenced logically <input type="checkbox"/> Break down complex skills <input type="checkbox"/> Lessons are organized and focused <input type="checkbox"/> Instructional routines are used <input type="checkbox"/> Examples and non-examples <input type="checkbox"/> Step-by-step demonstrations <input type="checkbox"/> C-R-A Model	Relentless <input type="checkbox"/> Adequate initial practice NOTE: Students who struggle may require 10-30 more times as many practice opportunities than their peers. <input type="checkbox"/> Distributed practice--frequent exposure to content/skill over time <input type="checkbox"/> Daily review <input type="checkbox"/> Daily focus on number sense and problem solving <input type="checkbox"/> Teach to mastery <input type="checkbox"/> Cumulative review periodically	Engaging <input type="checkbox"/> Increasing Opportunities to Respond <input type="checkbox"/> Explicit Vocabulary Instruction <input type="checkbox"/> Feedback <input type="checkbox"/> Instructional Grouping <input type="checkbox"/> Acquire – Auto – Apply <input type="checkbox"/> Classroom PBIS <input type="checkbox"/> Create various contexts for problem solving that students can relate to <input type="checkbox"/> Pacing	
Increasing Opportunities to Respond <i>Saying, Writing, Doing</i>		Explicit Vocabulary Instruction	
<input type="checkbox"/> Choral Responses: give think time, use a signal for response, repeat if all students don't respond <input type="checkbox"/> Partner Sharing: Look-Lean-Whisper; Think-Pair-Share; Study-Tell-Help-Check <input type="checkbox"/> Individual Responses: give wait time, individual shares after partner discussion, Cold Call, random calling pattern <input type="checkbox"/> Math Journals: Quick Writes, vocabulary practice, draw visuals of math concepts <input type="checkbox"/> Individual White Boards: use a signal for displaying, establish a routine, provide feedback <input type="checkbox"/> Manipulatives: establish a routine, explain expectations, all students interact with materials, provide visual bridge to concept <input type="checkbox"/> Response Cards: yes/no; odd/even; +/-; $</>=$; etc. <input type="checkbox"/> Action Responses: thumbs up/down; modeling operations, angles, or other math concepts, act it out, hand signals		<input type="checkbox"/> Introduce the word <ul style="list-style-type: none"> Teacher says the word and posts the word All students repeat the word Teacher gives a child-friendly definition All students repeat the definition (with teacher guidance) Repeat above steps as necessary <input type="checkbox"/> Demonstrate <ul style="list-style-type: none"> Provide an example Provide a non-example Repeat above steps as necessary <input type="checkbox"/> Apply <ul style="list-style-type: none"> Students turn to a partner and use the word in a sentence Teacher shares a sentence using the word <input type="checkbox"/> Vocabulary Cards: Grade-level vocabulary cards available on the math website; posted on Word Wall	
Feedback <input type="checkbox"/> Corrective and Affirmative <input type="checkbox"/> Timely and Frequent <input type="checkbox"/> Specific and Reinforcing	Instructional Grouping <input type="checkbox"/> Whole group, Small groups, Partners <input type="checkbox"/> Fluid and flexible <input type="checkbox"/> Skill-Based Small Group Instruction for identified skill gaps or extension	Acquire – Auto – Apply <input type="checkbox"/> Learn (acquire) the skill <input type="checkbox"/> Build the skill to automaticity <input type="checkbox"/> Attend to fluency standards in the core <input type="checkbox"/> Apply the skill	Classroom PBIS <input type="checkbox"/> Forming clear behavior expectations <input type="checkbox"/> Explicitly teaching expectations to students <input type="checkbox"/> Reinforcing expectations with students <input type="checkbox"/> Correcting of problem behaviors in a systematic manner

Fourth Grade Utah Core Math Standards Overview

Fourth Grade Overview

Mathematical Practices (4.MP)

The eight mathematical habits of mind that teachers seek to develop in their students.

Operations and Algebraic Thinking (4.OA)

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.

Number and Operations in Base Ten (4.NBT)

- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations—Fractions (4.NF)

- Extend understanding of fraction equivalence and ordering.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- Understand decimal notation for fractions, and compare decimal fractions.

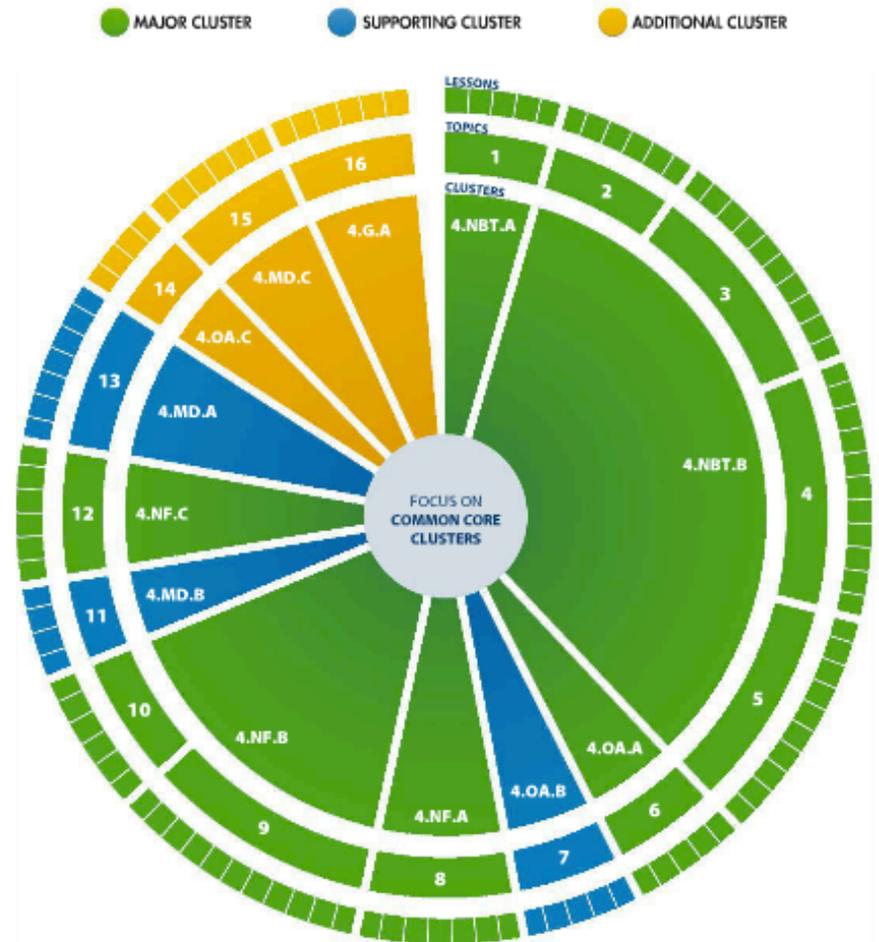
Measurement and Data (4.MD)

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.
- Geometric measurement: understand concepts of angle and measure angles.

Geometry (4.G)

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

©Canyons School District 2016



Mathematics | Grade 4

In Grade 4, instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; and (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

(1) Students will generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They will apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they will select and accurately apply appropriate methods to estimate or mentally calculate products. They will develop fluency with efficient procedures for multiplying whole numbers, understand and explain why the procedures work based on place value and properties of operations, and use them to solve problems. Students will apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They will select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

(2) Students will develop understanding of fraction equivalence and operations with fractions. They will recognize that two different fractions can be equal (*for example, $15/9 = 5/3$*), and they will develop methods for generating and recognizing equivalent fractions. Students will extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

(3) Students will describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students will deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Mathematical PRACTICES (4.MP)

The Standards for Mathematical Practice in Fourth Grade describe mathematical habits of mind that teachers should seek to develop in their students. Students become mathematically proficient in engaging with mathematical content and concepts as they learn, experience, and apply these skills and attitudes (**Standards 4.MP.1–8**).

- **Standard 4.MP.1 Make sense of problems and persevere in solving them.** Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Explain connections between various solution strategies and representations. Upon finding a solution, look back at the problem to determine whether the solution is reasonable and accurate, often checking answers to problems using a different method or approach.
- **Standard 4.MP.2 Reason abstractly and quantitatively.** Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects.
- **Standard 4.MP.3 Construct viable arguments and critique the reasoning of others.** Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments.
- **Standard 4.MP.4 Model with mathematics.** Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical.
- **Standard 4.MP.5 Use appropriate tools strategically.** Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand, such as drawings, diagrams, technologies, and physical objects and tools, as well as mathematical tools such as estimation or a particular strategy or algorithm.
- **Standard 4.MP.6 Attend to precision.** Communicate precisely to others by crafting careful explanations that communicate mathematical reasoning by referring specifically to each important mathematical element, describing the relationships among them, and connecting their words clearly to representations. Calculate accurately and efficiently, and use clear and concise notation to record work.

- **Standard 4.MP.7 Look for and make use of structure.** Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects.
- **Standard 4.MP.8 Look for and express regularity in repeated reasoning.** Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. Evaluate the reasonableness of intermediate results.

Strand: OPERATIONS AND ALGEBRAIC THINKING (4.OA)

Use the four operations with whole numbers (addition, subtraction, multiplication, and division) to solve problems (**Standards 4.OA.1–3**). Gain familiarity with factors and multiples (**Standard 4.OA.4**). Generate and analyze numeric and shape patterns (**Standard 4.OA.5**). Demonstrate complete fluency with products of one-digit numbers (**Standard 4.OA.6**).

- **Standard 4.OA.1** Interpret a multiplication equation as a comparison (*for example, interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5*). Represent verbal statements of multiplicative comparisons as multiplication equations.
- **Standard 4.OA.2** Multiply or divide to solve word problems involving multiplicative comparison, *for example, by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison*.
- **Standard 4.OA.3** Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.
 - a. Represent these problems using equations with a letter standing for the unknown quantity.
 - b. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.
- **Standard 4.OA.4** Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
- **Standard 4.OA.5** Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Strand: NUMBER AND OPERATIONS IN BASE TEN (4.NBT)

Generalize place value understanding for multi-digit whole numbers by analyzing patterns, writing whole numbers in a variety of ways, making comparisons, and rounding (**Standards 4.NBT.1–3**). Use place value understanding and properties of operations to perform multi-digit addition, subtraction, multiplication, and division using a one-digit divisor (**Standards 4.NBT.4–6**). Expectations in this strand are limited to whole numbers less than or equal to 1,000,000.

- **Standard 4.NBT.1** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.*
- **Standard 4.NBT.2** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
- **Standard 4.NBT.3** Use place value understanding to round multi-digit whole numbers to any place.
- **Standard 4.NBT.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- **Standard 4.NBT.5** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- **Standard 4.NBT.6** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Strand: NUMBER AND OPERATIONS—FRACTIONS (4.NF)

Extend understanding of equivalence and ordering of fractions (**Standards 4.NF.1–2**). Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers (**Standards 4.NF.3–4**). Understand decimal notation to the hundredths and compare decimal fractions with denominators of 10 and 100 (**Standards 4.NF.5–7**). Denominators for fourth grade are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.

- **Standard 4.NF.1** Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
- **Standard 4.NF.2** Compare two fractions with different numerators and different denominators, *for example, by creating common denominators or numerators, or by comparing to a*

benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, *for example, by using a visual fraction model.*

- **Standard 4.NF.3** Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. In other words, any fraction is a sum of unit fractions.

 - a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
 - b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, *for example, by using a visual fraction model. For example, $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2\ 1/8 = 1 + 1 + 1/8$; $2\ 1/8 = 8/8 + 8/8 + 1/8$.*
 - c. Add and subtract mixed numbers with like denominators, *for example, by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. For example, $3\ 1/4 + 2\ 1/4 = 13/4 + 9/4 = 22/4$; $3\ 1/4 + 2\ 1/4 = (3 + 2) + (1/4 + 1/4) = 5 + 2/4 = 5\ 2/4$, which is equivalent to $22/4$.*
 - d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, *for example, by using visual fraction models and equations to represent the problem.*
- **Standard 4.NF.4** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

 - a. Understand a fraction a/b as a multiple of $1/b$. *For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.*
 - b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$).*
 - c. Solve word problems involving multiplication of a fraction by a whole number (*for example, by using visual fraction models and equations to represent the problem*). *For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be five people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*
- **Standard 4.NF.5** Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.*
- **Standard 4.NF.6** Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as $62/100$, describe a length as 0.62 meters; locate 0.62 on a number line diagram.*

- **Standard 4.NF.7** Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, *for example, by using a visual model.*

Strand: MEASUREMENT AND DATA (4.MD)

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit (**Standards 4.MD.1–2**). Apply knowledge of area and perimeter to solve real-world and mathematical problems (**Standard 4.MD.3**). Represent and interpret data through the use of a line plot (**Standard 4.MD.4**). Understand various concepts of angles and angle measurement (**Standard 4.MD.5–7**).

- **Standard 4.MD.1** Know relative sizes of measurement units within each system of units (standard and metric), including kilometers, meters, and centimeters; liters and milliliters; kilograms and grams; pounds and ounces; hours, minutes, and seconds. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that one foot is 12 times as long as one inch. Express the length of a four-foot snake as 48 inches. Know that one meter is 100 times as long as one centimeter. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36)...*
- **Standard 4.MD.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.
 - a. Include problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
 - b. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
- **Standard 4.MD.3** Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*
- **Standard 4.MD.4** Make a line plot to display a data set of measurements in fractions of a unit (halves, quarters, and eighths). Solve problems involving addition and subtraction with like denominators of fractions by using information presented in line plots. *For example, use a line plot to find and interpret the difference in length between the longest and shortest pencils in a classroom.*
- **Standard 4.MD.5** Recognize angles as geometric figures that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
 - a. Understand that an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$

of a circle is called a "one-degree angle," and can be used to measure other angles.

- b. Understand that an angle that turns through n one-degree angles is said to have an angle measure of n degrees.

■ **Standard 4.MD.6** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

■ **Standard 4.MD.7** Recognize angle measure as additive.

- a. Understand that when an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.
- b. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, *for example by using an equation with a symbol for the unknown angle measure.*

Strand: GEOMETRY (4.G.)

Draw and identify lines and angles, as well as classify shapes by properties of their lines and angles (Standards 4.G.1–3)

■ **Standard 4.G.1** Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

■ **Standard 4.G.2** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

■ **Standard 4.G.3** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Utah Core State Standards for Mathematics

Mathematical Practices

Previous	2016/2017
<p>Mathematical Practices</p> <ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. 	<p>Strand: MATHEMATICAL PRACTICES (4.MP)</p> <p>The Standards for Mathematical Practice in Fourth Grade describe mathematical habits of mind that teachers should seek to develop in their students. Students become mathematically proficient in engaging with mathematical content and concepts as they learn, experience, and apply these skills and attitudes (Standards 4.MP.1-8).</p> <p>Standard 4.MP.1 Make sense of problems and persevere in solving them. Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Explain connections between various solution strategies and representations. Upon finding a solution, look back at the problem to determine whether the solution is reasonable and accurate, often checking answers to problems using a different method or approach.</p> <p>Standard 4.MP.2 Reason abstractly and quantitatively. Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects.</p> <p>Standard 4.MP.3 Construct viable arguments and critique the reasoning of others. Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments.</p> <p>Standard 4.MP.4 Model with mathematics. Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical.</p> <p>Standard 4.MP.5 Use appropriate tools strategically. Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand, such as drawings, diagrams, technologies, and physical objects and tools, as well as mathematical tools such as estimation or a particular strategy or algorithm.</p> <p>Standard 4.MP.6 Attend to precision. Communicate precisely to others by crafting careful explanations that communicate mathematical reasoning by referring specifically to each important mathematical element, describing the relationships among them, and connecting their words clearly to representations. Calculate</p>

accurately and efficiently, and use clear and concise notation to record work.

Standard 4.MP.7 Look for and make use of structure. Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects.

Standard 4.MP.8 Look for and express regularity in repeated reasoning. Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. Evaluate the reasonableness of intermediate results.

OPERATIONS AND ALGEBRAIC THINKING (4.OA)

Previous

2016/2017

Operations and Algebraic Thinking 4.OA

Strand: OPERATIONS AND ALGEBRAIC THINKING (4.OA)

Use the four operations with whole numbers to solve problems.

Use the four operations with whole numbers (addition, subtraction, multiplication, and division) to solve problems (**Standards 4.OA.1-3**). Gain familiarity with factors and multiples (**Standard 4.OA.4**). Generate and analyze numeric and shape patterns (**Standard 4.OA.5**). Demonstrate complete fluency with products of one-digit numbers (**Standard 4.LA.6**).

4.OA.A

1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Standard 4.OA.1 Interpret a multiplication equation as a comparison (*for example, interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5*). Represent verbal statements of multiplicative comparisons as multiplication equations.

Standard 4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, *for example, by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison*.

Standard 4.OA.3 Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

- a. Represent these problems using equations with a letter standing for the unknown quantity.

<p>Gain familiarity with factors and multiples. 4.OA.B</p> <p>4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</p> <p>Generate and analyze patterns. 4.OA.C</p> <p>5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i></p>	<p>b. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.</p> <p>Standard 4.OA.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</p> <p>Standard 4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i></p>
--	---

NUMBERS AND OPERATIONS IN BASE TEN (4.NBT)

Previous	2016/2017
<p>Generalize place value understanding for multi-digit whole numbers. 4.NBT.A</p> <ol style="list-style-type: none"> 1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i> 2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. 3. Use place value understanding to round multi-digit whole numbers to any place. 	<p>Strand: NUMBERS AND OPERATIONS IN BASE TEN (4.NBT)</p> <p>Generalize place value understanding for multi-digit whole numbers by analyzing patterns, writing whole numbers in a variety of ways, making comparisons, and rounding (Standards 4.NBT.1-3). Use place value understanding and properties of operations to perform multi-digit addition, subtraction, multiplication, and division using a one digit divisor (Standards 4.NBT.4-6). Expectations in this strand are limited to whole numbers less than or equal to 1,000,000.</p> <p>Standard 4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i></p>

Use place value understanding and properties of operations to perform multi-digit arithmetic. 4.NBT.B

4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.
5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Standard 4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.

Standard 4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.

Standard 4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.

Standard 4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Standard 4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

NUMBERS AND OPERATIONS—FRACTIONS (4.NF)

Previous

2016/2017

Number and Operations-Fractions

Strand: NUMBERS AND OPERATIONS—FRACTIONS (4.NF)

Extend understanding of fraction equivalence and ordering. 4.NF.A

Extend understanding of equivalence and ordering of fractions (**Standards 4.NF.1-2**). Build fractions from unit fractions by applying and extending previous understandings of operations on whole number (**Standards 4.NF.3-4**). Understand decimal notation to the hundredths and compare decimal fractions with denominators of 10 and 100 (**Standards 4.NF.5-7**). Denominators for fourth grade

1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$

by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. 4.NF.B

3. Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.
 - a. Understand addition and subtraction of fractions as joining and
 - i. Separating parts referring to the same whole.
 - b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples:* $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2\frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$.
 - c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
 - d. Solve word problems involving addition and

are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.

Standard 4.NF.1 Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{n \times a}{n \times b}$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Standard 4.NF.2 Compare two fractions with different numerators and different denominators, *for example, by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$* . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, *for example, by using a visual fraction model*.

Standard 4.NF.3 Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$. In other words, any fraction is a sum of unit fractions.

- a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, *for example, by using a visual fraction model. For example,* $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2\frac{1}{8} = 1 + 1 + \frac{1}{8}$; $2\frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$.
- c. Add and subtract mixed numbers with like denominators, *for example, by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. For example,* $3\frac{1}{4} + 2\frac{1}{4} = \frac{13}{4} + \frac{9}{4} = \frac{22}{4}$; $3\frac{1}{4} + 2\frac{1}{4} = (3 + 2) + (\frac{1}{4} + \frac{1}{4}) = 5 + \frac{2}{4} = 5\frac{2}{4}$, which is equivalent to $\frac{22}{4}$.
- d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, *for example, by using visual fraction models and equations to represent the problem*.

Standard 4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

subtraction

of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
 - a. Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.
 - b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)
 - c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

Understand decimal notation for fractions, and compare decimal fractions. 4.NF.C

5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with $3/10 + 4/100 = 34/100$.
6. Use decimal notation for fractions with denominators

- a. Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.
- b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)
- c. Solve word problems involving multiplication of a fraction by a whole number, (for example, by using visual fraction models and equations to represent the problem). For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be five people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

Standard 4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.

Standard 4.NF.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $62/100$, describe a length as 0.62 meters; locate 0.62 on a number line diagram.

Standard 4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, for example, by using a visual model.

10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.

7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

MEASUREMENT (4.MD)

Previous	2016/2017
----------	-----------

Measurement and Data

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 4.MD.A

1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*
2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the*

Strand: MEASUREMENT (4.MD)

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit (**Standards 4.MD.1-2**). Apply knowledge of area and perimeter to solve real-world and mathematical problems (**Standard 4.MD.3**). Represent and interpret data through the use of a line plot (**Standard 4.MD.4**). Understand various concepts of angles and angle measurement (**Standards 4.MD.5-7**).

Standard 4.MD.1 Know relative sizes of measurement units within each system of units (standard and metric) including kilometers, meters, and centimeters; liters and milliliters; kilograms and grams; pounds and ounces; hours, minutes, and seconds. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that one foot is 12 times as long as one inch. Express the length of a four foot snake as 48 inches. Know that one meter is 100 times as long as one centimeter. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36)...*

Standard 4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.

width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

Represent and interpret data. 4.MD.B

4. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection*

Geometric measurement: understand concepts of angle and measure angles. 4.MD.C

5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

- a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles.
- b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.

6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle

- a. Include problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.
- b. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Standard 4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*

Standard 4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit (halves, quarters, and eighths). Solve problems involving addition and subtraction with like denominators of fractions by using information presented in line plots. *For example, use a line plot to find and interpret the difference in length between the longest and shortest pencils in a classroom.*

Standard 4.MD.5 Recognize angles as geometric figures that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.

- a. Understand that an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles.
- b. Understand that an angle that turns through n one-degree angles is said to have an angle measure of n degrees.

Standard 4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Standard 4.MD.7 Recognize angle measure as additive.

- a. Understand that when an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.

measures	b. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, <i>for example, by using an equation with a symbol for the unknown angle measure.</i>
----------	---

GEOMETRY (4.G)

Previous	2016/2017
----------	-----------

<p>Geometry 4.G.</p> <p>Draw and identify lines and angles, and classify shapes by properties of their lines and angles. 4.G.A</p> <ol style="list-style-type: none"> 1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. 2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. 3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. 	<p>Strand: GEOMETRY (4.G)</p> <p>Draw and identify lines and angles as well as classify shapes by properties of their lines and angles (Standards 4.G.1-3).</p> <p>Standard 4.G.1 Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>Standard 4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p>Standard 4.G.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p>
--	---

Utah Core Standards for Mathematics Progressions

	Kindergarten	1 st Grade
Counting and Cardinality	<ul style="list-style-type: none"> • Count to 100 by ones and tens • Represent and write numbers for 0 - 20 • Count to tell the number of objects • Compare numbers; greater than, less than, equal • Compare written numerals between 1 and 10 	
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from <ul style="list-style-type: none"> ○ Represent addition and subtraction ○ Solve addition and subtraction word problems within 10 ○ Decompose numbers less than or equal to 10 ○ For any number from 1 to 9, find the number that makes 10 when add to the given number ○ Fluently add and subtract within 5 	<ul style="list-style-type: none"> • Represent and solve problems involving addition and subtraction within 20 • Understand and apply properties of operations and the relationship between addition and subtraction <ul style="list-style-type: none"> ○ Understand subtraction as an unknown-addend problem • Relate addition and subtraction with 20 to counting • Add and subtract within 20 • Understand the meaning of the equal sign • Work with addition and subtraction equations
Numbers and Operations in Base Ten	<ul style="list-style-type: none"> • Work with numbers 11-19 to gain foundation for place value <ul style="list-style-type: none"> ○ Compose and decompose numbers 	<ul style="list-style-type: none"> • Read, write, count and represent to 120 • Understand place value of tens and ones • Compare two-digit numbers based on tens and ones • Use place value understanding and properties of operations to add and subtract <ul style="list-style-type: none"> ○ Add within 100 ○ Mentally find 10 more or 10 less with two-digit numbers ○ Subtract multiples of 10 in the range of 10 -90 from multiples of 10 in the range of 10-90
Measurement and Data	<ul style="list-style-type: none"> • Describe and compare measureable attributes such as length and weight • Directly compare two objects with the same measurable attribute in common and describe the difference • Classify objects and count the numbers of objects in categories 	<ul style="list-style-type: none"> • Measure lengths indirectly and by iterating lengths units • Tell and write time in hours and half-hours using analog and digital clocks • Organize, represent and interpret data up to three categories • Identify and compare the values of pennies, nickels, dimes and quarters
Geometry	<ul style="list-style-type: none"> • Identify, name and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres) • Identify shapes as two-dimensional or three-dimensional • Analyze, compare, create and compose shapes 	<ul style="list-style-type: none"> • Reason with shapes and their attributes <ul style="list-style-type: none"> ○ Distinguish between defining vs. non-defining attributes ○ Compose two-dimensional or three-dimensional shapes to compose and create shapes ○ Partition circles and rectangles into two and four equal shares

Utah Core Standards for Mathematics Progressions

	2 nd Grade	3 rd Grade
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • Represent and solve one- and two-step word problems involving addition and subtraction within 100 • Fluently add and subtract within 20 using mental strategies • Work with equal groups of objects to gain foundations for multiplication • Use addition to find the total number of objects in rectangular arrays with up to 5 rows and up to 5 columns 	<ul style="list-style-type: none"> • Represent and solve problems involving multiplication and division within 100 • Understand properties of multiplication and the relationship between multiplication and division • Multiply and divide within 100 • Solve two-step word problems involving the four operations and identify and explain patterns in arithmetic
Numbers and Operations in Base Ten	<ul style="list-style-type: none"> • Use place value understanding and properties of operations to add and subtract within 100 <ul style="list-style-type: none"> ○ Count, read and write within 1000 ○ Compare three-digit numbers using symbols 	<ul style="list-style-type: none"> • Use place value understanding and properties of operations to perform multi-digit arithmetic <ul style="list-style-type: none"> ○ Round whole numbers to nearest 10 or 100 ○ Fluently add and subtract within 1000 ○ Multiply one-digit whole numbers by multiples of 10 in range 10-90
Numbers and Operations- Fractions		<ul style="list-style-type: none"> • Develop understanding of fractions as numbers with denominators 2, 3, 4, 6, 8 using number lines • Explain equivalence of fractions and compare by reasoning about their size
Measurement and Data	<ul style="list-style-type: none"> • Measure lengths of an object by selecting and using appropriate tools in standard units. • Measure and estimate lengths using units of inches, feet centimeters and meters • Measure to determine how much longer • Relate addition and subtraction to length within 100 • Represent whole numbers as distance from 0 on the number line • Work with time on digital and analog clocks to the nearest 5 minutes • Solve word problems involving money • Represent and interpret data by measuring objects and making repeated measurements of the same object • Represent and interpret data by drawing a picture graph and a bar graph to represent a data set up to four categories 	<ul style="list-style-type: none"> • Solve problems involving measurement and estimation of intervals of time to the nearest minute • Solve problems involving measurement and estimation of liquid volumes and masses of objects using grams, kilograms and liters • Represent and interpret data using scaled picture and bar graphs • Generate measurement data by measuring lengths to halves and fourths • Geometric measurement: Understand concepts of area and relate area to multiplication and to addition • Geometric measurement: Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
Geometry	<ul style="list-style-type: none"> • Recognize and draw shapes having specified attributes • Partition a rectangle into rows and columns • Partition circles and rectangles into two, three, or four equal shares 	<ul style="list-style-type: none"> • Understand that shapes in different categories may share attributes • Partition shapes into parts with equal areas

Utah Core Standards for Mathematics Progressions

	4 th Grade	5 th Grade
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • Use the four operations with whole numbers to solve word problems <ul style="list-style-type: none"> ○ Interpret a multiplication equation as a comparison ○ Involve multiplicative comparisons ○ Solve multistep word problems using whole numbers with whole number answers • Gain familiarity with factors and multiples in the range 1-100 • Generate and analyze patterns that follow a given rule 	<ul style="list-style-type: none"> • Write and interpret numerical expressions <ul style="list-style-type: none"> ○ Use parenthesis, brackets, or braces in numerical expressions and evaluate expression with these symbols ○ Write simple expressions and interpret numerical expressions without evaluating them • Analyze patterns and relationships <ul style="list-style-type: none"> ○ Generate two numerical patterns using two given rules ○ Form ordered pairs
Numbers and Operations in Base Ten	<ul style="list-style-type: none"> • Generalize place value understanding for multi-digit whole numbers <ul style="list-style-type: none"> ○ Read, write, compare and expand multi-digit whole numbers ○ Round multi-digit numbers to any place • Fluently add and subtract multi-digit whole numbers using the • Use place value understanding and properties of operations to perform multi-digit multiplication <ul style="list-style-type: none"> ○ Multiply up to four digits by a one-digit number ○ Multiply two two-digit numbers using strategies and properties (illustrate and explain the calculations using equations, rectangular arrays and area models) 	<ul style="list-style-type: none"> • Understand the place value system <ul style="list-style-type: none"> ○ Recognize a multi-digit number in the one place represents 10 times as much as it represents in the place to its right and 1/10 to its left ○ Explain patterns when multiplying by zero and explain patterns when a decimal is multiplied or divided ○ Use whole-number exponents to denote powers of 10 ○ Read, write and compare decimals to thousandths ○ Round to any place ○ Fluently multiply multi-digit whole numbers • Perform operations with multi-digit whole numbers and with decimal to hundredths <ul style="list-style-type: none"> ○ Fluently multiply multi-digit whole numbers ○ Find whole-number quotients of whole numbers up to four-digit dividends (illustrate and explain the calculations using equations, rectangular arrays and area models) ○ Add, subtract, multiply, and divide decimals to hundredths
Numbers and Operations-Fractions	<ul style="list-style-type: none"> • Extend understanding of fraction equivalence and ordering with denominators 2,3,4,5,6,8,10,12,10 <ul style="list-style-type: none"> ○ Explain and generate equivalent fractions using visual models ○ Compare with justification two fractions with different denominators and numerators and use the symbols $>$, $=$, $<$. • Build fractions from unit fractions by applying and extending previous understanding of operations on whole numbers <ul style="list-style-type: none"> ○ Understand addition and subtraction of fractions as joining and separating parts referring to the same whole ○ Decompose a fraction into a sum of fractions with same denominator ○ Add and subtract mixed numbers with like denominators ○ Solve word problems involving addition and subtraction of fractions having like denominators ○ Understand a fraction a/b as a multiple of $1/b$ and use this 	<ul style="list-style-type: none"> • Use equivalent fractions as a strategy to add and subtract fractions <ul style="list-style-type: none"> ○ Add and subtract fractions with unlike denominators ○ Solve word problems involving addition and subtraction of fractions with unlike denominators • Apply and extend previous understandings of multiplication and division to multiply and divide fractions <ul style="list-style-type: none"> ○ Interpret a fraction as division of the numerator by the denominator ○ Solve word problems involving division of whole numbers ○ Find the are of a rectangle with fractional side lengths by tiling it with unit squares ○ Multiply fractional side lengths to find area of rectangle to get a rectangular areas ○ Interpret multiplication as scaling ○ Solve real world problems involving multiplication of

Utah Core Standards for Mathematics Progressions

	<ul style="list-style-type: none"> ○ understanding to multiply a fraction by a whole number ○ Solve word problems involving multiplication of a fraction by a whole number • Understand decimal notation for fractions and compare decimal fractions <ul style="list-style-type: none"> ○ Express a fraction with denominator 10 as an equivalent fraction with denominator 100 ○ Use decimal notation for fractions with denominators 10 or 100 ○ Compare two decimals to hundredths by reasoning about their size 	<ul style="list-style-type: none"> ○ fractions and mixed numbers ○ Divide a unit fraction by a whole number and whole numbers by unit fractions
Measurement and Data	<ul style="list-style-type: none"> • Solve problems involving measurement and conversion of measurements form a larger unit to a smaller unit <ul style="list-style-type: none"> ○ Know relative sizes of measurement units within one system of units including km, m, cm; kg, g, oz; l, ml; hr, min, sec. and express measurement equivalents in terms of a smaller unit, recording measurement in a two-column table ○ Use the four operations to solve problems involving distances, intervals of time, liquid volumes, masses of objects, and money including problems involving simple fractions or decimals ○ Represent measurement quantities using diagrams such as number line diagrams such as number line diagrams that feature a measurement scale ○ Apply the area and perimeter formulas in real world problems ○ Make a line plot to display data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$) • Represent and interpret data by making a line plot to display data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$) • Understand concepts of angle and measure angles <ul style="list-style-type: none"> ○ As angle is measured with reference to a circle ○ An angle that turns through n one-degree is said to have an angle measure of n degrees ○ Measure and sketch angles in whole-number degrees using a protractor ○ Recognize angles measures as additive ○ Solve addition and subtraction problems to find unknown angles 	<ul style="list-style-type: none"> • Convert like measurement units within a given measurement system • Represent and Interpret data <ul style="list-style-type: none"> ○ Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$) ○ Use operations on fractions for this grade to solve problems from information on the line plot • Recognize volume as an attribute of solid figures and understand concepts of volume measurement. <ul style="list-style-type: none"> ○ Measure volume by counting unit cubes • Relate volume to the operations of multiplication and addition and solve real world problems involving volume <ul style="list-style-type: none"> ○ Find the volume of a right triangle by packing it with unit cubes ○ Apply formulas $V=l \times w \times h$ and $V= b \times h$ ○ Recognize volume as additive ○ Find volume of solid figures composed of two non-overlapping right rectangular prisms
Geometry	<ul style="list-style-type: none"> • Draw points, lines, line segments, ray, angles (right, acute, obtuse), and perpendicular and parallel lines in two-dimensional figures • Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. • Recognize right triangles as a category and identify right triangles • Recognize a line of symmetry for a two-dimensional figure and identify lines of symmetry • Recognize two-dimensional figures and draw lines of symmetry 	<ul style="list-style-type: none"> • Graph points on the coordinate plane to solve real-world and mathematical problems in the first quadrant • Classify two-dimensional figures into categories based on their properties <ul style="list-style-type: none"> ○ Understand that attributes belonging to a category of two-dimensional figures belong to all subcategories ○ Classify two-dimensional figures in a hierarchy based on properties

CCSS WHERE TO FOCUS MATHEMATICS

An important subset of the major work in grades K–8 is the progression that leads toward middle school algebra.

K	1	2	3	4	5	6	7	8
Know number names and the count sequence	Represent and solve problems involving addition and subtraction	Represent and solve problems involving addition and subtraction	Represent & solve problems involving multiplication and division	Use the four operations with whole numbers to solve problems	Understand the place value system	Apply and extend previous understandings of multiplication and division to divide fractions by fractions	Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers	Work with radical and integer exponents
Count to tell the number of objects	Understand and apply properties of operations and the relationship between addition and subtraction	Add and subtract within 20	Understand properties of multiplication and the relationship between multiplication and division	Generalize place value understanding for multi-digit whole numbers	Perform operations with multi-digit whole numbers and decimals to hundredths	Apply and extend previous understandings of multiplication and division to divide fractions by fractions	Analyze proportional relationships and use them to solve real-world and mathematical problems	Understand the connections between proportional relationships, lines, and linear equations**
Compare numbers	Use place value understanding and properties of operations to add and subtract	Use place value understanding and properties of operations to add and subtract	Multiply & divide within 100	Use place value understanding and properties of operations to perform multidigit arithmetic	Use equivalent fractions as a strategy to add and subtract fractions	Understand ratio concepts and use ratio reasoning to solve problems	Use properties of operations to generate equivalent expressions	Analyze and solve linear equations and pairs of simultaneous linear equations
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from	Add and subtract within 20	Measure and estimate lengths in standard units	Solve problems involving the four operations, and identify & explain patterns in arithmetic	Extend understanding of fraction equivalence and ordering	Apply and extend previous understandings of multiplication and division to multiply and divide fractions	Apply and extend previous understandings of arithmetic to algebraic expressions	Solve real-life and mathematical problems using numerical and algebraic expressions and equations	Define, evaluate, and compare functions
Work with numbers 11-19 to gain foundations for place value	Work with addition and subtraction equations	Relate addition and subtraction to length	Develop understanding of fractions as numbers	Build fractions from unit fractions by applying and extending previous understandings of operations	Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition	Reason about and solve one-variable equations and inequalities	Represent and analyze quantitative relationships between dependent and independent variables	Use functions to model relationships between quantities
	Extend the counting sequence		Solve problems involving measurement and estimation of intervals of time, liquid volumes, & masses of objects	Understand decimal notation for fractions, and compare decimal fractions	Graph points in the coordinate plane to solve real-world and mathematical problems*			
	Understand place value		Geometric measurement: understand concepts of area and relate area to multiplication and to addition					
	Use place value understanding and properties of operations to add and subtract							
	Measure lengths indirectly and by iterating length units							

* Indicates a cluster that is well thought of as a part of a student's progress to algebra, but that is currently not designated as major by the assessment consortia in their draft materials. Apart from the one asterisked exception, the clusters listed here are a subset of those designated as major in the assessment consortia's draft documents.

** Depends on similarity ideas from geometry to show that slope can be defined and then used to show that a linear equation has a graph which is a straight line and conversely.

The Utah Core Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important processes and proficiencies with longstanding importance in mathematics education.

1. **Make sense of problems and persevere in solving them.**
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
4. **Model with mathematics.**
5. **Use appropriate tools strategically.**
6. **Attend to precision.**
7. **Look for and make use of structure.**
8. **Look for and express regularity in repeated reasoning.**

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

“The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word “understand” are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices” (CCSS, 2010).

Canyons School District elementary math maps are created and published by the CSD Instructional Supports Department

a

Common Core State Standards Standards for Mathematical Practice Questions for Teachers to Ask

Make sense of problems and persevere in solving them	Reason abstractly and quantitatively	Construct viable arguments and critique the reasoning of others	Model with mathematics
<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • What is this problem asking? • How could you start this problem? • How could you make this problem easier to solve? • How is ___'s way of solving the problem like/different from yours? • Does your plan make sense? Why or why not? • What tools/manipulatives might help you? • What are you having trouble with? • How can you check this? 	<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • What does the number ____ represent in the problem? • How can you represent the problem with symbols and numbers? • Create a representation of the problem. 	<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • How is your answer different than ____'s? • How can you prove that your answer is correct? • What math language will help you prove your answer? • What examples could prove or disprove your argument? • What do you think about ____'s argument • What is wrong with ____'s thinking? • What questions do you have for ____? <p><i>*it is important that the teacher poses tasks that involve arguments or critiques</i></p>	<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • Write a number sentence to describe this situation • What do you already know about solving this problem? • What connections do you see? • Why do the results make sense? • Is this working or do you need to change your model? <p><i>*It is important that the teacher poses tasks that involve real world situations</i></p>
Use appropriate tools strategically	Attend to precision	Look for and make use of structure	Look for and express regularity in repeated reasoning
<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • How could you use manipulatives or a drawing to show your thinking? • Which tool/manipulative would be best for this problem? • What other resources could help you solve this problem? 	<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • What does the word ____ mean? • Explain what you did to solve the problem. • Compare your answer to ____'s answer • What labels could you use? • How do you know your answer is accurate? • Did you use the most efficient way to solve the problem? 	<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • Why does this happen? • How is ____ related to ____? • Why is this important to the problem? • What do you know about ____ that you can apply to this situation? • How can you use what you know to explain why this works? • What patterns do you see? <p><i>*deductive reasoning (moving from general to specific)</i></p>	<p><i>Teachers ask:</i></p> <ul style="list-style-type: none"> • What generalizations can you make? • Can you find a shortcut to solve the problem? How would your shortcut make the problem easier? • How could this problem help you solve another problem? <p><i>*inductive reasoning (moving from specific to general)</i></p>

Grades 2-5 CSD Math Block 90 Minutes Daily

Numeracy Component	Range of Time	Focus of Instruction	Instructional Materials		
			Hard Copy	Digital	
Check for Understanding (Formative Assessment) Monitor progress towards mastery of grade-level core standard	Review	5-10 minutes	<ul style="list-style-type: none"> Focused Review <ul style="list-style-type: none"> Identified skill deficit that have been identified through formative assessment to review (CFA, exit ticket, whiteboards, etc.) Cumulative review of previously taught skills and standards 	<ul style="list-style-type: none"> Daily Common Core Review Today's Challenge Review What you Know 	<ul style="list-style-type: none"> Today's Challenge
	Vocabulary	3-5 minutes	<ul style="list-style-type: none"> Teach Appropriate Vocabulary using the Systematic Vocabulary Routine 	<ul style="list-style-type: none"> Systematic Vocabulary Routine Vocabulary Review Activity My Word Cards 	
	Lesson Objectives	1-3 Minutes	<ul style="list-style-type: none"> Content Objectives- What are students going to learn? Language Objectives- How will students demonstrate learning through reading, writing, speaking, or listening? 	<ul style="list-style-type: none"> Lesson objectives are posted and referred to throughout the lesson Objectives include both content and math practice standards 	
	Concept/Skill Development (Acquisition, Automaticity & Application)	30-45 minutes	<p>Develop the Concept:</p> <ul style="list-style-type: none"> Acquisition: Students develop understanding of skills through the CRA Model <ul style="list-style-type: none"> <u>Concrete</u>: Hands-on (manipulatives) <u>Representational</u>: Visual (pictures or video) <u>Abstract</u>: Symbolic (numbers or algorithm) Automaticity: Students perform skills flexibly, accurately, and efficiently Application: Students apply skills to solve problems in new contexts 	<ul style="list-style-type: none"> Problem-Based Interactive Learning Visual Learning Bridge <ul style="list-style-type: none"> (K-2) Do You Understand? Show Me! 3-5) Convince Me! Guided Practice Independent Practice (Quick Check) Project-based Learning M² or M³ Extending the Challenge (Sheffield) A&B 	<ul style="list-style-type: none"> Solve and Share (Problem Based Learning) Visual Learning Animation Plus Convince Me! (3-5) Do You Understand? (K-2) Student and Teacher eTexts Listen and Look Videos (teacher) Math Exemplars
Skill-Based Instruction: Pre-teach, Review, Reinforce & Extend	30-45 minutes	<ul style="list-style-type: none"> Pre-teach upcoming concepts to groups and individual students that need support/scaffolding Students practice concepts independently as appropriate Reteach with skill-based groups who need extra support/scaffolding Provide extension opportunities for students who have shown mastery of the concept/skill Build Fluency with math facts and computation 	<ul style="list-style-type: none"> Intervention Activity ON-level and Advanced Activity Centers Reteach Leveled Assignment Differentiated Center materials Close/Assess and Differentiate Extended Learning Opportunities 	<ul style="list-style-type: none"> Practice Buddy Reflex (grades 2-5) 	

Skill-Based Instruction: Assisting All Students to Succeed in Mathematics

Skill-Based Instruction is additional support given to students during the math block by the teacher aimed at building targeted math skills. This is in addition to core instruction given to entire class.

enVision 2.0 supports skill-based instruction with the following resources:

- **Intervention Activity** (Assess and Differentiate section at the end of each lesson) Students needing intervention get focused instruction from the teacher.
- **Math Diagnosis and Intervention System 2.0 (MDIS)** Provides additional lessons to focus intervention for students.
- **Item Analysis for Diagnosis and Intervention (RtI)** Provided with assessments to support analyzing gaps in mastery of standards
- **Reteaching** Problem sets at the end of each topic that connect to the math standards

<i>Skill-based instruction is explicit & systematic (I do, we do, y'all do, and you do)</i>	<i>Examples</i>
Provide additional concrete models to build understanding with accompanying teacher think-alouds	<ul style="list-style-type: none"> • Use manipulatives such as place value blocks, Unifix cubes, and fraction circles. • Use visual representations such as number lines, arrays, and bar diagrams. • Teacher Think-Aloud: <i>"When I have fourteen cubes, I can create one ten stick and I have four cubes left over to make 14."</i>
Provide students opportunities to understand the relationship between the abstract symbols and visual representations.	<ul style="list-style-type: none"> • The = sign means that we have the same amount on both sides of the equal sign. <div style="text-align: center;"> $\odot \odot \odot = \odot \odot \odot$ </div>
Provide numerous examples with accompanying teacher think-alouds	<p>Skill: Addition of Fractions Examples:</p> <ul style="list-style-type: none"> • $\frac{1}{2} + \frac{1}{4} =$ • $\frac{1}{4} + \frac{1}{4} =$ <p>Teacher Think-Aloud: <i>"We know that when we add fractions with common denominators the denominator will stay the same because we still have the same size piece. So when I add $\frac{1}{4} + \frac{1}{4}$ I have $\frac{2}{4}$ because I have 2, $\frac{1}{4}$ pieces."</i></p>
Provide students with opportunities to solve problems in a group and communicate problem-solving strategies.	<ul style="list-style-type: none"> • Students effectively communicate their strategies to <i>one another</i> using appropriate mathematical vocabulary. • Students effectively communicate their strategies to the <i>teacher</i> using appropriate mathematical vocabulary.
Provide students ongoing, specific feedback that clarifies what students did correctly or what they need to improve.	<ul style="list-style-type: none"> • Student correctly answers that $5 + 3 = 8$. Teacher says, "Yes, that is correct. The total of five and three is eight." • Student incorrectly identifies that $5 + 3 = 7$. Teacher says, "Five plus three is not seven. Pull out your unifix cubes and show me the problem with your cubes." <i>Student counts the cubes and answers that $5 + 3 = 8$. "That is correct. The total of five and three is eight. Thank you for trying again."</i>
Provide frequent cumulative review to ensure that knowledge is maintained over time.	<p>Skill: Adding Decimals</p> <ul style="list-style-type: none"> • Teacher quickly reviews multi-digit addition with an emphasis on place value.
Provide opportunity for students to apply the skill in word problems.	<p>Skill: Area - finding the area of a rectangle given the side lengths.</p> <ul style="list-style-type: none"> • Students create word problems using the area of squares for example a student creates the following problem, <i>"Bobbie is tiling the kitchen floor with square foot tiles. The floor has side lengths of 10 feet and</i>

12 feet. How many tiles are needed to cover the floor?"

During skill-based instruction, students not with the teacher could engage in the following math center activities:

Center Options	Description
Center Activities from enVision 2.0	<ul style="list-style-type: none"> At the end of each enVision2.0 lesson in the Assess and Differentiate section are the On-Level and Advanced Center Activities which include: Center Games, Problem-Solving Reading Mat, Math and Science Activity
Digital Centers from enVision 2.0	<ul style="list-style-type: none"> The following digital components from enVision 2.0 could be utilized by students during math centers: Today's Challenge, Game from the Game Center, Digital Math Tool Activities, Another Look video, Bounce Pages, Practice Buddy (grades 3-5)
Technology	<ul style="list-style-type: none"> Reflex- Students work independently in grades 2-5 to build fluency of basic math facts Students use appropriate technology to deepen their understanding of math.
Fluency	<ul style="list-style-type: none"> Fluency is built on any skill that has been taught throughout the year (e.g., <i>previous instruction focused on fact families and pairs of students work together and to create fact families using number cards, including numbers 0-9. The student created fact families would be recorded on a piece of paper or graphic organizer.</i>)
Four-Square Math	<ul style="list-style-type: none"> Students are given a four square graphic organizer with a previously learned vocabulary word or concept in the middle of the graphic. The four areas to write could include any of the following: three words or pictures that help you remember the word, characteristics, non-example, example, a statement that is true about the word, three words related to the word, or a conclusion statement. Students write a math practice standard in the middle of the four square and could add any of the following to the squares: characteristics of the MP, list what students do when they engage in the MP, write questions that you would ask your partner when you are focusing on the MP, six word summary of the MP, etc.
Literature in Math	<ul style="list-style-type: none"> Students read or look at a book that relates to the current or past math concept. The teacher provides questions or sentence starters for the group at the center to support discussion after reading.
Manipulatives	<ul style="list-style-type: none"> Students manipulate math tools to complete a grade level task.
Math Journals	<ul style="list-style-type: none"> Students write or draw in math journals to summarize their learning. Students review their notes and star key ideas.
Problem-Solving using DOK 3	<ul style="list-style-type: none"> Students in small groups are presented with an application problem that requires reasoning, problem solving, and justification of their thought process by using words, pictures or equations. Tasks are available at the following websites: http://www.insidemathematics.org https://www.illustrativemathematics.org http://illuminations.nctm.org
Vocabulary	<ul style="list-style-type: none"> Students match previously taught vocabulary words with illustrations. After finding a match the student would define the word. Students do a word sort with the enVision vocabulary cards. Students find similarities and differences in words using a Venn Diagram.

SALTA 4th Grade Year-at-a-Glance 2016-2017

Flexible Pacing	Strands/Standards	enVision 2.0 Math Topic Titles	TOPICS	District Assessment Dates
Aug 24 - Nov 11 52 Days	Mathematical Practices: 1, 2, 3, 4 Number and Operations in Base Ten: Standards 1-6 (4.NBT.A & B)	• Generalize Place Value Understanding (5 Lessons)	Topic 1	Due by November 11 District-Wide Standards-Based Benchmark #1
		• Fluently Add and Subtract Multi-Digit Whole Numbers (6 Lessons)	Topic 2	
		• Use Strategies and Properties to Multiply by 1-Digit Numbers (10 Lessons)	Topic 3	
		• Use Strategies and Properties to Multiply by 2-Digit Numbers (11 Lessons)	Topic 4	
<p>Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments</p> <p>Number and Operations in Base Ten</p> <ul style="list-style-type: none"> • 4.NBT.A.1, 2 & 3 • 4.NBT.B.5 & 6 <p>M3 Analyze This! Representing and Interpreting Data</p>				
Nov 14 - Feb 3 47 Days	Mathematical Practices: 1, 3, 4, 8 Number and Operations in Base Ten: Standards 4-6 (4.NBT.B) Operations and Algebraic Thinking: Standards 1-3 (4.OA.A) Operations and Algebraic Thinking: Standard 4 (4.OA.B) Number and Operations in Fractions: Standards 1- 2 (4.NF.A)	• Use Strategies and Properties to Divide by 1-Digit Numbers (10 Lessons)	Topic 5	Due by Feb 3 District-Wide Standards-Based Benchmark #2
		• Use Operations with Whole Number to Solve Problems (5 Lessons)	Topic 6	
		• Factors and Multiples (5 Lessons)	Topic 7	
		• Extend Understanding of Fraction Equivalence and Ordering (7 Lessons)	Topic 8	
<p>Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments</p> <p>Operations and Algebraic Thinking</p> <ul style="list-style-type: none"> • 4.OA.A.1, 2 & 4 <p>Number and Operations in Base Ten</p> <ul style="list-style-type: none"> • 4.NBT.B.5 & 6 <p>Number and Operations – Fractions</p> <ul style="list-style-type: none"> • 4.NF.A.1 & 2 <p>M3 Factors, Multiples and Leftovers: Linking Multiplication and Division</p>				

Feb 6 – Apr 21 43 Days	Mathematical Practices: 3, 4, 7 Number and Operations in Fractions: Standards 3-4 (4.NF.B) Measurement and Data: Standard 4-7 (4.MD.B) Number and Operations in Fractions: Standards 5-8 (4.NF.C)	<ul style="list-style-type: none"> • Understand Addition and Subtraction of Fractions (11 Lessons) 	Topic 9	Due by April 21 District-Wide Standards-Based Benchmark #3
		<ul style="list-style-type: none"> • Extend Multiplication Concepts to Fractions (6 Lessons) 	Topic 10	
		<ul style="list-style-type: none"> • Represent and Interpret Data on Line Plots (4 Lessons) 	Topic 11	
		<ul style="list-style-type: none"> • Understand and Compare Decimals (6 Lessons) 	Topic 12	

Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments

Number and Operations in Base Ten

- 4.NF.B.3a, 3b, 3c & 3d
- 4.NF.B.4a, 4b & 4c
- 4.NF.C.5, 6 & 7

Measurement and Data

- 4.MD.B.4

M3 At the Mall with Algebra: Working with Variables and Equations

April 24 – June 6 30 Days	Mathematical Practices: 3, 5, 6, 7 Measurement and Data: Standard: 1-3 (4.MD.A) Operations and Algebraic Thinking: Standard 5 (4.OA.C) Measurement and Data: Standards 5-7 (4.MD.C) Geometry: Standards 1-3 (4.G.A)	<ul style="list-style-type: none"> • Measurement: Find Equivalence in Units of Measure (7 Lessons) 	Topic 13	Due by June 6 District-Wide Standards-Based Benchmark #4
		<ul style="list-style-type: none"> • Algebra: Generate and Analyze Patterns (4 Lessons) 	Topic 14	
		<ul style="list-style-type: none"> • Understand Concepts of Angle and Angle Measurement (6 Lessons) 	Topic 15	
		<ul style="list-style-type: none"> • Lines, Angles, and Shapes (6 Lessons) 	Topic 16	

Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments

Operations and Algebraic Thinking

- 4.OA.C.5

Measurement and Data

- 4.MD.A.1, 2, 3 & 4
- 4.MD.C.5a & 5b

Geometry

- 4.G.A.2 & 3

M3 Getting into Shapes

NUMBERS AND OPERATIONS IN BASE TEN (NBT)
Topic 1 - Generalize Place Value Understanding

Report Card Learning Targets I can.... <ul style="list-style-type: none"> Identify the power of ten in place value Read, write, and compare multi-digit numbers 		
TOPIC 1		
Coherence		pp. 1C-1D
Look back: Grade 3- <ul style="list-style-type: none"> Numbers to 1,000 Place Value Understanding and Operations 	Topic 1: <ul style="list-style-type: none"> Read and Write Multi-Digit Whole Numbers Place-Value Relationships and Comparison Round Whole Numbers 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> Multi-Digit Arithmetic Grade 5- <ul style="list-style-type: none"> Place-Value Relationships Decimal Place Value
Rigor		p. 1E
Conceptual Understanding: <ul style="list-style-type: none"> Understand the Structure of Our Numeration System 	Procedural Skill and Fluency: <ul style="list-style-type: none"> Procedures for Comparing and Rounding Multi-Digit Whole numbers 	Applications: <ul style="list-style-type: none"> Greater Numbers in Real-World Contexts Compare and Round in Real-World Problems
Focus	Strand: Mathematical Practice Standard #3	
	p. 1F	
4.MP.3	Construct viable arguments and critique the reasoning of others. Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments.	
	<i>Fourth grade students construct viable arguments to demonstrate their understanding of rounding procedures.</i>	

	<p>I can provide complete and clear explanations of my thinking and work. I can decide if other students' explanations make sense; clarify or improve other students' arguments. I can use counterexamples when appropriate.</p>		
Focus	Standards	Curriculum Supports – envision 2.0	Vocabulary
4.NBT.1 4.NBT.2 4.NBT.3 (4.NBT.A)	<p>Strand: Numbers and Operations in Base Ten</p> <p>Fourth Grade students will be able to generalize place value understanding for multi-digit whole numbers by analyzing patterns, writing whole numbers in a variety of ways, making comparisons, and rounding.</p> <p>Standard 4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i></p> <p>Standard 4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>Standard 4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.</p>	<p>Topic 1: Generalize Place Value Understanding (pp. 11-11)</p> <p>1-1 Numbers Through One Million (pp. 5-10)</p> <p>1-2 Place Value Relationships (pp. 11-16)</p> <p>1-3 Compare Whole Numbers (pp. 17-22)</p> <p>1-4 Round Whole numbers (pp. 23-28)</p> <p>1-5 Math Practices and Problem Solving: Construct Arguments (pp. 29-34)</p>	<p>Topic 1:</p> <ul style="list-style-type: none"> • place value • millions • period • expanded form • greater than symbol ($>$) • less than symbol ($<$)
	<p>Assessment Options:</p>	<p>Topic 1 Assessment – Generalize Place Value Understanding (print or online) (pp. 39-40)</p> <p>Topic 1 Performance Assessment – Generalize Place Value Understanding (pp. 41-42)</p>	

	(DOK 2)	<p>that the 6 in Dylan’s number was 10 times the 6 in Paul’s number. Show where each person placed a 6.</p> <p>(DOK 3)</p>
<p>4.NBT.2</p>	<p>Compare using $>$, $<$, or $=$. Place your answer inside the circle.</p> <p>1 hundred thousand  10,000</p> <p>200 thousands 4 hundreds  204,000</p> <p>7 hundreds + 4 thousands + 27  6 thousands + 4 hundreds</p> <p>(DOK 1)</p>	<p>1a. Arrange the following numbers in order, beginning with the smallest.</p> <p>504,054 4,450 505,045 44,500</p> <p>a. Use the words “ten times” to tell how you ordered the two smallest numbers using words, pictures and numbers.</p> <p>2. Olivia made the number 506,890 with cards.</p> <div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px; background-color: #fff9c4;">5</div> <div style="border: 1px solid black; padding: 5px; background-color: #fff9c4;">0</div> <div style="border: 1px solid black; padding: 5px; background-color: #fff9c4;">6</div> <div style="border: 1px solid black; padding: 5px; background-color: #fff9c4;">8</div> <div style="border: 1px solid black; padding: 5px; background-color: #fff9c4;">9</div> <div style="border: 1px solid black; padding: 5px; background-color: #fff9c4;">0</div> </div> <p>Step A Write Olivia's number in word form.</p> <p>Step B Olivia removed the card with the five on it. Explain how this would change the word form of the number. Use what you know about numbers and place value in your explanation. Use words and/or numbers in your explanation.</p> <p>(DOK 3)</p>
<p>4.NBT.3</p>	<p>Round 345,782 to the nearest:</p> <p>10</p> <p>100</p> <p>1,000</p> <p>10,000</p>	<p>On Saturday, 45,672 people visited Hogle Zoo. Sam and Dee both estimated how many people were there. Sam said that about 45,000 people visited the zoo on Saturday, and Dee said that about 46,000 people visited the zoo on Saturday. Who rounded the number of visitors correctly? Use a number line to</p>

	100,000 (DOK 1)	justify your answer. (DOK 3)
--	--------------------	---------------------------------

NUMBERS AND OPERATIONS IN BASE TEN (NBT)
Topic 2 - Fluently Add and Subtract Multi-Digit Whole Numbers
Topic 3 - Use Strategies and Properties to Multiply by 1-Digit Numbers
Topic 4 - Use Strategies and Properties to Multiply by 2-Digit Numbers

Report Card Learning Targets I can....		
<ul style="list-style-type: none"> • Fluently add multi-digit whole numbers • Fluently subtract multi-digit whole numbers • Illustrate and multiply whole numbers up to four digits 		
TOPICS 2, 3, and 4		
Coherence		pp. 43C-43D
Look back: Grade 3- <ul style="list-style-type: none"> • Multiplication • Division • Fluently Add and Subtract Within 1,000 Earlier in Grade 4- <ul style="list-style-type: none"> • Place Value 	Topics 2-4: <ul style="list-style-type: none"> • Multiplication by 1-Digit Numbers • Multiplication by 2-Digit Numbers • Division by 1-Digit Numbers • Solve Multi-Step Problems 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> • Use Operations to Solve Problems • Fractions Grade 5- <ul style="list-style-type: none"> • Compute with Decimals • Develop Fluency with the Standard Multiplication Algorithm • Divide by 2-Digit Numbers
Rigor		p. 43E
Conceptual Understanding: <ul style="list-style-type: none"> • Understand Place Value and Properties of Operations • Use Number Sense to Estimate 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • Develop Fluency in Adding and Subtracting Multi-Digit Whole Numbers • Procedures for Multiplying and Dividing Whole Numbers 	Applications: <ul style="list-style-type: none"> • Real-World Situations
Focus	Strand: Mathematical Practice Standards #2, #4, and #1	
	p. 43F	
4.MP.2	2. Reason abstractly and quantitatively. (Topic 2)	
4.MP.4	Make sense of quantities and their relationships in problem situations. Contextualize quantities and operations by using	

<p>4.MP.1</p>	<p>images or stories. Decontextualize a given situation and represent it symbolically. Interpret symbols as having meaning, not just as directions to carry out a procedure. Know and flexibly use different properties of operations, numbers, and geometric objects.</p> <p><i>Fourth grade students use reasoning to analyze relationships between quantities in problems, particularly those involving mental math and estimation.</i></p> <ul style="list-style-type: none"> I can identify and understand the quantities in the problem. I can show and explain how quantities are related (e.g., bar diagram). I can translate real-world contexts correctly to numbers, expressions, equations, or concrete or pictorial representations. I can connect numbers, expressions, equations, or concrete or pictorial representations back to real-world contexts. <p>4. Model with mathematics. (Topic 3)</p> <p>Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical.</p> <p><i>Fourth grade students use arrays, area models, bar diagrams, and other representations to apply operations to problems involving whole numbers.</i></p> <ul style="list-style-type: none"> I can identify the correct prior knowledge that needs to be applied to solve a problem. I can identify the hidden question(s) in multiple-step problems. I can use numbers, symbols, and words to solve problems. I can identify the operation(s) needed to solve a problem. I can use estimation as appropriate. <p>1. Make sense of problems and persevere in solving them. (Topic 4)</p> <p>Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Explain connections between various solution strategies and representations. Upon finding a solution, look back at the problem to determine whether the solution is reasonable and accurate, often checking answers to problems using a different method or approach.</p> <p><i>Fourth grade students persevere as they try to understand multiplication and division problems, plan how to solve them, and determine if their solution makes sense.</i></p> <ul style="list-style-type: none"> I can give a good explanation of the problem. I can think about a plan before jumping into the solution. I can think of similar problems, try special cases, or use a simpler form of the problem. I can, if needed, organize data or use representations to help make sense of the problem. I can identify likely strategies for solving the problem.
----------------------	---

	<p>I can pause when solving problems to make sure that the work being done makes sense. I can make sure the answer makes sense before stopping work. I do not give up when stuck. I can look for ways to get past being stuck. I can try alternative ways to solve the problem when I am stuck.</p>		
Focus	Standards	Curriculum Supports – envision 2.0	Vocabulary
4.NBT.4 4.NBT.5 (4.NBT.B)	<p>Strand: Numbers and Operations in Base Ten</p> <p>Fourth Grade students will use place value understanding and properties of operations to perform multi-digit addition, subtraction, multiplication, and division using a one digit divisor.</p> <p>Standard 4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p> <p>Standard 4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p>	<p>Topic 2: Fluently Add and Subtract Multi-Digit Whole Numbers (pp. 431-431)</p> <p>2-1 Mental Math: Find Sums and Differences(pp.47-52)</p> <p>2-2 Mental Math: Estimate Sums and Differences (pp. 53-58)</p> <p>2-3 Add Whole Numbers (pp. 59-64)</p> <p>2-4 Subtract Whole Numbers (pp. 65-70)</p> <p>2-5 Subtract Across Zeros (pp. 71-76)</p> <p>2-6 Math Practices and Problem Solving: Reasoning (pp. 77-82)</p> <p>Topic 3: Use Strategies and Properties to Multiply by 1-Digit Numbers (pp. 91A-91B)</p> <p>3-1 Mental Math: Multiply by Multiples of 10, 100, and 1,000 (pp. 95-100)</p> <p>3-2 Mental Math: Round to Estimate Products (pp. 101-106)</p> <p>3-3 (The Distributive Property (pp. 107-112)</p> <p>3-4 Mental Math Strategies for Multiplication (pp. 113-118)</p> <p>3-5 Arrays & Partial Products (pp. 119-124)</p> <p>3-6 Use Partial Products to Multiply by 1-Digit Numbers (pp. 125-130)</p> <p>3-7 Multiply 2- and 3-Digit Numbers By 1-Digit Numbers (pp. 131-136)</p> <p>3-8 Multiply 4-Digit by 1-Digit Numbers (pp. 137-142)</p> <p>3-9 Multiply by 1-Digit Numbers (pp. 143-148)</p>	<p>Topic 2:</p> <ul style="list-style-type: none"> • commutative property of addition • associative property of addition • identity property of addition • counting on • compensation • variable • algorithm • inverse operations <p>Topic 3:</p> <ul style="list-style-type: none"> • associative property of multiplication • numerical expression • distributive property • compensation • commutative property of multiplication • partial products

	<p>3-10 Math Practices and Problem Solving: Model with Math (<i>pp. 149-154</i>)</p> <p>Topic 4: Use Strategies and Properties to Multiply by 2-Digit Numbers (<i>pp. 167A – 167D</i>)</p> <p>4-1 Mental Math: Multiply Multiples of 10(<i>pp.171-176</i>)</p> <p>4-2 Use Models to Multiply 2-Digit Numbers by Multiples of 10 (<i>pp. 177-182</i>)</p> <p>4-3 Estimate: Use Rounding (<i>pp. 183-188</i>)</p> <p>4-4 Estimate: Use Compatible Numbers (<i>pp. 189-194</i>)</p> <p>4-5 Arrays and Partial Products (<i>pp. 195-200</i>)</p> <p>4-6 Multiply Using the Distributive Property (<i>pp. 201-206</i>)</p> <p>4-7 Use Partial Products to Multiply by 2- Digit Numbers (<i>pp. 207-212</i>)</p> <p>4-8 Multiply 2-Digit Numbers by Multiples of 10 (<i>pp. 213-218</i>)</p> <p>4-9 Multiply 2-Digit by 2-Digit Numbers (<i>pp. 219-224</i>)</p> <p>4-10 Continue to Multiply by 2-Digit Numbers (<i>pp. 225-230</i>)</p> <p>4-11 Math Practices and Problem Solving: Make Sense and Persevere (<i>pp. 231-236</i>)</p>	<p>Topic 4:</p> <ul style="list-style-type: none"> • compatible numbers
<p>Assessment Options:</p> <p>Topic 2 Assessment – Fluently Add and Subtract Multi-Digit Whole Numbers (<i>print or online</i>) (<i>pp. 87-88</i>)</p> <p>Topic 2 Performance Assessment – Fluently Add and Subtract Multi-Digit Whole Numbers (<i>pp. 89-90</i>)</p> <p>Topic 3 Assessment – Use Strategies and Properties to Multiply by 1-Digit Numbers (<i>print</i>)</p>	<p>Topic 3 Performance Assessment – Use Strategies and Properties to Multiply by 1-Digit Numbers (<i>pp. 165-166</i>)</p> <p>Topic 4 Assessment – Use Strategies and Properties to Multiply by 2-Digit Numbers (<i>print or online</i>) (<i>pp. 243-246</i>)</p> <p>Topic 4 Performance Assessment – Use Strategies and properties to Multiply by 1-Digit numbers (<i>pp. 247-248</i>)</p>	

or online) (pp. 161-164)

Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments

Number and Operations in Base Ten

- 4.NBT.A.1, 2 & 3
- 4.NBT.B.5 & 6

M3 Analyze This! Representing and Interpreting Data

District Wide Standards-based Benchmark #1 due by Nov. 11

Assessment Tasks – Topics 2, 3, and 4

	Procedural Check	Application Task
4.NBT.4	$93,486 + 17,049 =$ $45,001 - 13,808 =$	<p>According to the U.S. Census Bureau, the population of Cache County in 2009 was 115,269. In 1990 it was 70,183. How many more people were there in Cache County in 2009? Justify your answer. (DOK 3)</p> <p>According to the U.S. Census Bureau, the population of Cache County in 2009 was 115,269 and the population of Washington County was 137,473. How many people were there in both counties in 2009? How do you know? (DOK 2)</p> <p>Write a subtraction problem for which the difference equals 1,557. (DOK 3)</p> <p>Len solved the following math problem:</p> $\begin{array}{r} 632 \\ - 178 \\ \hline 546 \end{array}$ <p>Use your understanding of regrouping to explain whether or not his answer is correct. Draw a picture to support your answer. (DOK 3)</p>
4.NBT.5	$8 \times 8,256$ 87×36	<p>A classroom measures 25 ft. wide by 30 ft. long. What is the area of the classroom floor?</p> <p>What happens to the area if we reduce the length of the room by 5 feet?</p> <p>Will you get the same result if you reduce the width by 5 feet? Draw pictures to justify your answer. (DOK 3)</p>

(DOK 1)

Show three different ways to solve 379×6 ? Use your understanding of place value and partial products to explain why each solution method is possible. (DOK 3)

Use mental math to decide if the product of 29×34 over or under 900? Draw a picture to explain your thinking.

(DOK 3)

DWSBA 2: November 14-February 3

NUMBERS AND OPERATIONS IN BASE TEN (NBT)
Topic 5 - Use Strategies and Properties to Divide by 1-Digit Numbers

Report Card Learning Targets I can.... <ul style="list-style-type: none"> • Illustrate and divide whole numbers up to four digits 		
TOPIC 5		
Coherence		pp. 43C-43D
Look back: Grade 3- <ul style="list-style-type: none"> • Multiplication • Division • Fluently Add and Subtract Within 1,000 Earlier in Grade 4- <ul style="list-style-type: none"> • Place Value 	Topic 5: <ul style="list-style-type: none"> • Multiplication by 1-Digit Numbers • Multiplication by 2-Digit Numbers • Division by 1-Digit Numbers • Solve Multi-Step Problems 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> • Use Operations to Solve Problems • Fractions Grade 5- <ul style="list-style-type: none"> • Compute with Decimals • Develop Fluency with the Standard Multiplication Algorithm • Divide by 2-Digit Numbers
Rigor		p. 43E
Conceptual Understanding: <ul style="list-style-type: none"> • Understand Place Value and Properties of Operations • Use Number Sense to Estimate 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • Develop Fluency in Adding and Subtracting Multi-Digit Whole Numbers • Procedures for Multiplying and Dividing Whole Numbers 	Applications: <ul style="list-style-type: none"> • Real-World Situations
Focus	Strand: Mathematical Practice Standard #4	
	p. 43F	
4.MP.4	Model with mathematics. Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities,	

	<p>analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical. Fourth grade students use arrays, area models, bar diagrams, and other representations to apply operations to problems involving whole numbers.</p> <p>I can identify the correct prior knowledge that I need to apply to solve a problem. I can identify the hidden question(s) in multiple-step problems. I can use numbers, symbols, and words to solve problems. I can identify the operation(s) needed to solve a problem. I can use estimation as appropriate.</p>		
Focus	Standards	Curriculum Supports – envision 2.0	Vocabulary
4.NBT.6 (4.NBT.B)	<p>Strand: Numbers and Operations in Base Ten</p> <p>Fourth Grade students will use place value understanding and properties of operations to perform multi-digit addition, subtraction, multiplication, and division using a one digit divisor.</p> <p>Standard 4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p>	<p>Topic 5: Use Strategies and Properties to Divide by 1-Digit Numbers (pp. 249A-249D)</p> <p>5-1 Mental Math: Find Quotients (pp. 253-258)</p> <p>5-2 Mental Math: Estimate Quotients (pp. 259-264)</p> <p>5-3 Mental Math: Estimate Quotients for Greater Dividends (pp.265-270)</p> <p>5-4 Interpret Remainders (pp. 271-276)</p> <p>5-5 Division as Sharing (pp. 277-282)</p> <p>5-6 Use Partial Quotients to Divide (pp. 283-288)</p> <p>5-7 Use Partial Quotients to Divide: Greater Dividends (pp. 289-294)</p> <p>5-8 Divide with 1-Digit Numbers (pp. 295-300)</p> <p>5-9 Continue to Divide with 1-Digit Numbers (pp. 301-306)</p> <p>5-10 Math Practices and Problem Solving: Model with Math (pp. 307-312)</p>	<p>Topic 5:</p> <ul style="list-style-type: none"> • remainder • partial quotients

	Assessment Options:	Topic 5 Assessment - Use Strategies and Properties to Divide by 1-Digit Numbers <i>(print or online) (pp. 319-322)</i> Topic 5 Performance Assessment - Use Strategies and Properties to Divide by 1-Digit Numbers <i>(pp. 323-324)</i>	
Assessment Tasks – Topic 5			
	Procedural Check	Application Task	
4.NBT.6	$487 \div 6 =$ $2,426 \div 2 =$ $342 \div 3 =$ (DOK 1)	Each year our school has a field day where students rotate between 7 different activities. If the physical education teacher divides the 434 students evenly between the activities, how many students will there be at each activity? Will there be any students left out? Justify your answer. (DOK 3)	

OPERATIONS AND ALGEBRAIC THINKING (OA)
Topic 6 - Use Operations with Whole Numbers to Solve Problems

Report Card Learning Targets I can.... <ul style="list-style-type: none"> Solve multi-step word problems using the four operations 		
TOPIC 6		
Coherence		pp. 325C-325D
Look back: Grade 3- <ul style="list-style-type: none"> Word Problems Measurement Problems Earlier in Grade 4- <ul style="list-style-type: none"> Word Problems 	Topic 6 <ul style="list-style-type: none"> Operation Meanings Multi-Step Word Problems Multi-Digit Arithmetic 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> Extend Operations Meanings to Fractions Solve Word Problems Involving Measurements and Angles Grade 5- <ul style="list-style-type: none"> Solve Word Problems Involving Fractions
Rigor		p. 325E
Conceptual Understanding: <ul style="list-style-type: none"> Understand the Meanings of Multiplication 	Procedural Skill and Fluency: <ul style="list-style-type: none"> Use Understanding of Operations and Procedural Skills to Solve Multi-Step Word Problems 	Applications: <ul style="list-style-type: none"> Real-World Contexts
Focus	Strand: Mathematical Practice Standard # 1	
	p. 325F	
4.MP.1	Make sense of problems and persevere in solving them. Explain the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. When a solution pathway does not make sense, look for another pathway that does. Explain connections between various solution strategies and representations. Upon finding a solution, look back at the problem to determine whether the solution is reasonable and accurate, often checking answers to problems using a different method or approach. <i>Fourth grade students must make sense of word problems and persevere when solving multiple steps.</i> I can give a good explanation of the problem. I can think about a plan before jumping into the solution. I can think of similar problems, try special cases, or use a simpler form of the problem.	

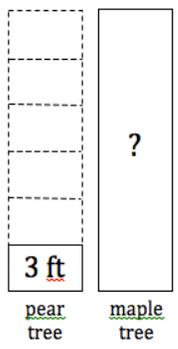
I can, if needed, organize data or use representations to help make sense of the problem.
 I can identify likely strategies for solving the problem.
 I can pause when solving problems to make sure that the work being done makes sense.
 I can make sure the answer makes sense before stopping work.
 I do not give up when stuck.
 I can look for ways to get past being stuck.
 I can try alternative ways to solve the problem when I am stuck.

Focus	Standards	Curriculum Supports – envision 2.0	Vocabulary
<p>4.OA.1 4.OA.2 4.OA.3 (4.OA.A)</p>	<p>Strand: Operations and Algebraic Thinking Fourth grade students use the four operations with whole numbers (addition, subtraction, multiplication, and division) to solve problems.</p> <p>Standard 4.OA.1 Interpret a multiplication equation as a comparison, <i>for example, interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.</i> Represent verbal statements of multiplicative comparisons as multiplication equations.</p> <p>Standard 4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, <i>for example, by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.</i></p> <p>Standard 4.OA.3 Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. a. Represent these problems using equations with a letter standing for the unknown quantity. b. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.</p>	<p>Topic 6: Use Operations with Whole Numbers to Solve Problems (pp. 325-325j)</p> <p>6-1 Solve Comparison Situations (pp. 327-332) 6-2 Continue to Solve Comparison Situations (pp. 333-338) 6-3 Solve Multi-Step Problems (pp.339-344) 6-4 Solve More Multi-Step Problems (pp. 345-350) 6-5 Math Practices and Problem Solving: Make Sense and Persevere (pp. 351-356)</p>	<p>Topic 6: No new vocabulary words Review as needed</p>

	Assessment Options:	Topic 6 Assessment - Use Operations with Whole Numbers to Solve Problems <i>(print or online) (pp. 361-362)</i> Topic 6 Performance Assessment - Use Operations with Whole Numbers to Solve Problems <i>(pp. 363-364)</i>	
--	----------------------------	--	--

Assessment Tasks – Topic 6

	Procedural Check	Application Task														
4.OA.1	Which equation represents four times as many as 96? $4 \times \underline{\quad} = 96$ $4 \times 96 = \underline{\quad}$ (DOK 1)	There are 48 oranges in Box A. There are 6 oranges in Box B. Box A has 8 times as many oranges as Box B. Write 2 equations that could be used to represent this story. Draw pictures to explain your equations. (DOK 3) Bradley is 6 feet tall. His son is 2 feet tall. Write a multiplication equation for their heights. Draw a picture to justify your answer. (DOK 3)														
4.OA.2	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>bag size</u></th> <th style="text-align: center;"><u>weight</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><u>extra-small</u></td> <td style="text-align: center;"><u>3 lbs</u></td> </tr> <tr> <td style="text-align: center;"><u>small</u></td> <td style="text-align: center;"><u>5 lbs</u></td> </tr> <tr> <td style="text-align: center;"><u>medium</u></td> <td style="text-align: center;"><u>9 lbs</u></td> </tr> <tr> <td style="text-align: center;"><u>large</u></td> <td style="text-align: center;"><u>15 lbs</u></td> </tr> <tr> <td style="text-align: center;"><u>extra-large</u></td> <td style="text-align: center;"><u>20 lbs</u></td> </tr> <tr> <td style="text-align: center;"><u>jumbo</u></td> <td style="text-align: center;"><u>30 lbs</u></td> </tr> </tbody> </table> <p>Use the chart to answer the following questions.</p> <p>a. The jumbo bag is 2 times as heavy as the large bag. T F</p> <p>b. The small bag weighs 2 times as much as the extra small bag. T F</p> <p>c. The medium bag weighs 6 times as much as the extra small bag. T F</p> <p>(DOK 2)</p>	<u>bag size</u>	<u>weight</u>	<u>extra-small</u>	<u>3 lbs</u>	<u>small</u>	<u>5 lbs</u>	<u>medium</u>	<u>9 lbs</u>	<u>large</u>	<u>15 lbs</u>	<u>extra-large</u>	<u>20 lbs</u>	<u>jumbo</u>	<u>30 lbs</u>	Sandra weighs 45 pounds. Her older sister, Lisa, weighs 3 times as much as Sandra and 5 times as much as their little sister, Mary. List the weights of each girl and draw a picture to justify your answer. (DOK 3)
<u>bag size</u>	<u>weight</u>															
<u>extra-small</u>	<u>3 lbs</u>															
<u>small</u>	<u>5 lbs</u>															
<u>medium</u>	<u>9 lbs</u>															
<u>large</u>	<u>15 lbs</u>															
<u>extra-large</u>	<u>20 lbs</u>															
<u>jumbo</u>	<u>30 lbs</u>															

	<p>Which equations could be used to find the answer for 3 times as many 112? Circle all that apply.</p> <p> $3 \times 112 = \underline{\quad}$ $3 \times \underline{\quad} = 112$ $3 + \underline{\quad} = 112$ $\underline{\quad} \div 3 = 112$ $112 \times 3 = \underline{\quad}$ </p> <p>(DOK 1)</p>	<p>Jayden helped his dad plant a baby pear tree in <u>their yard</u>. Jayden read the tag on the tree and joked, "This <u>tree</u> is just a baby and it's already three feet tall!"</p> <p>Jayden's dad pointed at a maple tree in the back of the <u>yard</u> and said, "That tree used to be the same size when I first planted it <u>a years</u> ago. Now it's six times the height of this little pear tree."</p> <p>Jayden was wondering what the height of the maple <u>tree</u> was, so his dad drew him the diagram to the right.</p> <p>How can the diagram that Jayden's dad drew help Jayden figure out the height of the maple tree?</p>  <p>(DOK 3)</p>
<p>4.OA.3</p>	<p>Students from three classes at Waterloo Elementary School are planning a boat trip for their field trip to Annapolis. On the trip, there will be 20 students from each class, along with 11 teachers and 13 parents.</p> <p>Part A: Write an equation that can be used to determine the number of boats, b, they will need on their trip if 10 people ride in each boat.</p> <p>Equation: $b = \underline{\hspace{2cm}}$</p> <p>(DOK 1)</p>	<p>A group of 6 people at an elementary school gave a total of \$1,890 to a town to fix up a playground. Each person gave the same amount.</p> <p>At a middle school, 5 people each gave \$280 to the same town.</p> <p>How much more did each person at the elementary school give than each person at the middle school?</p> <p>Show your work.</p> <p>(DOK 2)</p> <p>Explain how you can use the associative property of multiplication to mentally compute $32 \times 4 \times 25$. Draw a picture to show your thinking.</p> <p>(DOK 3)</p>

OPERATIONS AND ALGEBRAIC THINKING (OA)
Topic 7 – Factors and Multiples

Report Card Learning Targets I can.... <ul style="list-style-type: none"> • Create and analyze patterns 		
TOPIC 7		
Coherence		pp. 365C-365D
Look back: Grade 3- <ul style="list-style-type: none"> • Multiply and Divide Within 100 • Connect Multiplication to Area Earlier in Grade 4- <ul style="list-style-type: none"> • Multiplication and Division 	Topic 7: <ul style="list-style-type: none"> • Factors and Factor Pairs • Prime and Composite Numbers • Multiples • Relationships Between Factors and Multiples • Factors and Equivalent Fractions 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> • Use Common Factors to Write Equivalent Fractions • Extend the Concept of Factors and Multiples to Fraction Multiplication Grade 5- <ul style="list-style-type: none"> • Use Common Multiples to Write Fractions with a Common Denominator
Rigor		p. 365E
Conceptual Understanding: <ul style="list-style-type: none"> • Extend Understanding of Factors • Prime and Composite Numbers • Extend Understanding of Multiples 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • Use Understanding of Factors to Find All Factors 	Applications: <ul style="list-style-type: none"> • Real-World Contexts
Focus	Strand: Mathematical Practice Standard #8	
4.MP.8	Look for and express regularity in repeated reasoning. Notice repetitions in mathematics when solving multiple related problems. Use observations and reasoning to find shortcuts or generalizations. Evaluate the reasonableness of intermediate results.	

	<p>Fourth grade students use repeated reasoning when they analyze patterns of multiples and make generalizations.</p> <p>I can notice and describe when certain calculations or steps in a procedure are repeated. I can generalize from examples or repeated observations. I can recognize and understand appropriate shortcuts. I can evaluate the reasonableness of intermediate results.</p>		
Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
4.OA.4 (4.OA.B)	<p>Strand: Operations and Algebraic Thinking</p> <p>Fourth grade students gain familiarity with factors and multiples.</p> <p>Standard 4.OA.4 Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.</p>	<p>TOPIC 7: Factors and Multiples (pp. 365I-365J)</p> <p>7-1 Understand Factors (pp.369-374) 7-2 Factors (pp. 375-380) 7-3 Math Practices and Problem Solving: Repeated Reasoning (pp. 381-386) 7-4 Prime and Composite Numbers (pp. 387-392) 7-5 Multiples (pp. 393-398)</p>	<p>Topic 7:</p> <ul style="list-style-type: none"> • factor • factor pairs • multiple • generalize • prime number • composite number
	<p>Assessment Options:</p>	<p>Topic 7 Assessment - Factors and Multiples (print or online) (pp. 403-404) Topic 7 Performance Assessment - Factors and Multiples (pp. 405-406)</p>	

Assessment Tasks – Topic 7

	Procedural Check	Application Task
4.OA.4	<p>Identify each number as prime or composite. Then list all of its factors.</p> <p style="margin-left: 40px;">3 _____</p> <p style="margin-left: 40px;">6 _____</p> <p style="margin-left: 40px;">15 _____</p> <p style="margin-left: 40px;">24 _____</p> <p style="margin-left: 40px;">29 _____</p> <p style="margin-left: 40px;">What is the greatest multiple of 7 that is less than 60?</p> <p style="margin-left: 40px;">(DOK 1)</p>	<p>Students were asked to arrange their class store items in rectangular arrays. What arrangements could each person use for the items? Identify as many as possible?</p> <p>Fran – 30 items Clark – 27 items Rod – 31 items Sammy – 13 items</p> <p>Who could arrange their items in equal rows? Who couldn't arrange their items in equal rows? Why not? Who has the greatest number of arrangements? Draw pictures to justify your answers. (DOK 3)</p> <p>Beth and Stephen had 72 cookies to place in bags for a bake sale. Each bag needed an equal number of cookies.</p> <p>What are four different ways they could bag the cookies so that:</p> <ul style="list-style-type: none"> • Each bag has the same number of cookies • There are no leftover cookies • There are more than 2 and fewer than 10 cookies in each bag. <p>Draw a picture and write an equation for each solution. Which solution will give them the greatest number of bags?</p> <p>(DOK 3)</p>

NUMBERS AND OPERATIONS—FRACTIONS (NF)

Topic 8 - Extend Understanding of Fraction Equivalence and Ordering

Report Card Learning Targets I can.... <ul style="list-style-type: none"> Identify and create equivalent fractions Compare fractions 		
TOPIC 8		
Coherence		pp. 407C-407D
Look back: Grade 3- <ul style="list-style-type: none"> Meaning of Fractions Simple Equivalent Fractions and Fraction Comparison Earlier in Grade 4- <ul style="list-style-type: none"> Factors and Multiple 	Topic 8: <ul style="list-style-type: none"> Equivalent Fractions Visual Models Word Problems Involving Fractions 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> Add, Subtract, and Multiply Fractions Fractions in Data and Measurement Grade 5- <ul style="list-style-type: none"> Fraction Computation
Rigor		p. 407E
Conceptual Understanding: <ul style="list-style-type: none"> Understand the Procedure for Finding Equivalent Fractions Use Number Sense to Compare Fractions 	Procedural Skill and Fluency: <ul style="list-style-type: none"> Use Multiplication and Division to Find Equivalent Fractions Compare Fractions by Creating Equivalent Fractions 	Applications: <ul style="list-style-type: none"> Real-World Situations
Focus	Strand: Mathematical Practice Standard #3	
	p. 407F	
4.MP.3	Construct viable arguments and critique the reasoning of others. Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments. <i>Fourth grade students critique the reasoning of others when looking at problems related to number attributes and classifications.</i> I can provide complete and clear explanations of my thinking and work.	

	I can decide if other students' explanations make sense; clarify or improve other students' arguments. I can use counterexamples when appropriate.		
Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
4.NF.1 4.NF.2 (4.NF.A)	<p>Strand: Number and Operations—Fractions</p> <p>Fourth grade students will extend their understanding of equivalence and ordering of fractions. Denominators for fourth grade are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.</p> <p>Standard 4.NF.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p> <p>Standard 4.NF.2 Compare two fractions with different numerators and different denominators, <i>for example, by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$</i>. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, <i>for example, by using a visual fraction model</i>.</p>	<p>Topic 8: Extend Understanding of Fraction Equivalence and Ordering (pp.407I-407K)</p> <p>8-1 Equivalent Fractions: Area Models (pp. 411-416)</p> <p>8-2 Equivalent Fractions: Number Lines (pp. 417-422)</p> <p>8-3 Generate Equivalent Fractions: Multiplication (pp. 423-428)</p> <p>8-4 Generate Equivalent Fractions: Division (pp. 429-434)</p> <p>8-5 Use Benchmarks to Compare Fractions (pp. 435-440)</p> <p>8-6 Compare Fractions (pp. 441-446)</p> <p>8-7 Math Practices and Problem Solving: Construct Arguments (pp. 447-452)</p>	<p>Topic 8:</p> <ul style="list-style-type: none"> • equivalent fractions • fraction • numerator • denominator • common factor • benchmark fraction
	<p>Assessments Options:</p> <p>Topic 8 Assessment - Extend Understanding of Fraction Equivalence and Ordering (<i>print or online</i>) (pp. 457-458)</p>	<p>Topic 8 Performance Assessment – Extend Understanding of Fraction Equivalence and Ordering (pp. 459-460)</p>	

Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments

Operations and Algebraic Thinking

- 4.OA.A.1, 2 & 4

Number and Operations in Base Ten

- 4.NBT.B.5 & 6

Number and Operations - Fractions

- 4.NF.A.1 & 2

M3 Factors, Multiples and Leftovers: Linking Multiplication and Division

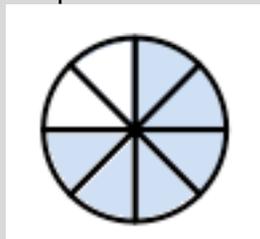
District Wide Standards-based Benchmark #2 due by Feb. 3

Assessment Tasks – Topic 8

Procedural Check

Application Task

4.NF.1 Look at the model. Name three equivalent fractions for the part that is shaded.



(DOK 1)

Brad’s mom left $\frac{1}{2}$ of a cake on the counter. Brad and his brother cut the $\frac{1}{2}$ cake into equal parts. What fraction of the whole cake did the two boys eat?

If 3 children shared equally the $\frac{1}{2}$ cake, what fraction of the whole cake did each child eat. Draw pictures to justify your answers. (DOK 3)

Use pictures to explain how $\frac{3}{5}$ is equal to $\frac{6}{10}$ when the two fractions have different numbers. (DOK 3)

Use pictures to show that $\frac{5}{15}$ is equivalent to $\frac{1}{3}$ rather than $\frac{1}{5}$. (DOK 3)

4.NF.2 Compare two fractions with different denominators and numerators to determine whether one is $>$, $=$, $<$ to the other and explain how you arrived at your answer.

Mario has $\frac{3}{5}$ of a candy bar. Trisha has $\frac{2}{3}$ of the same size candy bar. Who has more? Why?

I made a beaded necklace that was $\frac{2}{6}$ blue, $\frac{3}{5}$ green and the rest was white. Did the necklace have more blue or green beads? Explain your answer two ways (using a benchmark number, common numerators, or common denominators). Justify your answer. (DOK 3)

Amy, Beth, Katie, Gretchen, and Deb love chocolate. One afternoon, they each had a large chocolate bar. Each chocolate bar was the same size. They argued about who ate the most chocolate. Here is what each girl ate:

- Amy: $\frac{2}{6}$ of her chocolate bar
- Beth: $\frac{2}{3}$ of her chocolate bar
- Katie: $\frac{3}{4}$ of her chocolate bar
- Gretchen: $\frac{1}{2}$ of her chocolate bar
- Deb: $\frac{1}{3}$ of her chocolate bar

Use pictures and words to answer each of the following questions.

	(DOK 2)	Who ate the most chocolate? Who ate the least amount of chocolate? Use a number line to order each girl's portion of the chocolate bar. (DOK 3)
--	---------	--

NUMBERS AND OPERATIONS—FRACTIONS (NF)
Topic 9 - Understand Addition and Subtraction of Fractions
Topic 10 - Extend Multiplication Concepts to Fractions

Report Card Learning Targets I can.... <ul style="list-style-type: none"> • Add and subtract fractions with common denominators • Solve word problems with fractions using addition and subtraction • Multiply fractions by a whole number 		
TOPICS 9 and 10		
Coherence		pp. 461C-461D
Look back: Grade 3- <ul style="list-style-type: none"> • Meaning of Fractions • Simple Equivalent Fractions Earlier in Grade 4- <ul style="list-style-type: none"> • Equivalent Fractions 	Topics 9 and 10 <ul style="list-style-type: none"> • Fractions and Mixed Numbers • Fraction Addition and Multiplication • Multiplication and Unit Fractions • Word Problems Involving Fractions • Time Problems Involving Fractions 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> • Fractions in Data and Measurement • Decimal Fractions • Fractions and Angle Measure Grade 5- <ul style="list-style-type: none"> • Fraction Computation
Rigor		p. 461E
Conceptual Understanding: <ul style="list-style-type: none"> • Understand Why the Procedure for Adding and Subtracting Fractions Works • Use Number Sense to Estimate Fraction Sums and Differences • Make Sense of Multiplying a Whole Number by a Fraction or Mixed Number • Connect Addition and Multiplication 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • Use Conceptual Understanding to Add and Subtract Fractions • Use Conceptual Understanding to Multiply a Whole Number by a Fraction 	Applications: <ul style="list-style-type: none"> • Addition and Subtraction Situations • Multiplication Situations
Focus	Strand: Mathematical Practice Standard #4	
		p. 461F

4.MP.4	<p>Model with mathematics. Identify the mathematical elements of a situation and create a mathematical model that shows the relationships among them. Identify important quantities in a contextual situation, use mathematical models to show the relationships of those quantities, analyze the relationships, and draw conclusions. Models may be verbal, contextual, visual, symbolic, or physical. <i>Fourth grade students model with math when they use expressions, equations, number lines, fraction strips, and other pictures to represent problems involving fractions.</i> I can identify the correct prior knowledge that needs to be applied to solve a problem. I can identify the hidden question(s) in multiple-step problems. I can use numbers, symbols, and words to solve problems. I can identify the operation(s) needed to solve a problem. I can use estimation as appropriate</p>		
Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
4.NF.3 4.NF.4 (4.NF.B)	<p>Strand: Number and Operations—Fractions</p> <p>Fourth grade students will build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. Denominators for fourth grade are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.</p> <p>Standard 4.NF.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. In other words, any fraction is a sum of unit fractions.</p> <ol style="list-style-type: none"> Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, <i>for example, by using a visual fraction model. For example, $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2\ 1/8 = 1 + 1 + 1/8$; $2\ 1/8 = 8/8 + 8/8 + 1/8$.</i> Add and subtract mixed numbers with like denominators, <i>for example, by replacing each mixed</i> 	<p>Topic 9: Understand Addition and Subtraction of Fractions (pp.4611-461L)</p> <p>9-1 Model Addition of Fractions (pp. 465-470)</p> <p>9-2 Decompose Fractions (pp. 471-476)</p> <p>9-3 Add Fractions with Like Denominators (pp. 477-482)</p> <p>9-4 Model Subtraction of Fractions (pp. 483-488)</p> <p>9-5 Subtract Fractions with Like Denominators (pp. 489-494)</p> <p>9-6 Add and Subtract Fractions With Like Denominators (pp. 495-500)</p> <p>9-7 Estimate Fraction Sums and Differences (pp. 501-506)</p> <p>9-8 Model Addition and Subtraction of Mixed Numbers (pp. 507-512)</p> <p>9-9 Add Mixed Numbers (pp. 513-518)</p>	<p>Topic 9:</p> <ul style="list-style-type: none"> decompose compose mixed number

number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. For example, $3\frac{1}{4} + 2\frac{1}{4} = \frac{13}{4} + \frac{9}{4} = \frac{22}{4}$; $3\frac{1}{4} + 2\frac{1}{4} = (3 + 2) + (\frac{1}{4} + \frac{1}{4}) = 5 + \frac{2}{4} = 5\frac{2}{4}$, which is equivalent to $\frac{22}{4}$.

- d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, for example, by using visual fraction models and equations to represent the problem.

Standard 4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

- a. Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$. For example, use a visual fraction model to represent $\frac{5}{4}$ as the product $5 \times (\frac{1}{4})$, recording the conclusion by the equation $\frac{5}{4} = 5 \times (\frac{1}{4})$.
- b. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (\frac{2}{5})$ as $6 \times (\frac{1}{5})$, recognizing this product as $\frac{6}{5}$. (In general, $n \times (\frac{a}{b}) = (\frac{n \times a}{b})$.)
- c. Solve word problems involving multiplication of a fraction by a whole number (for example, by using visual fraction models and equations to represent the problem). For example, if each person at a party will eat $\frac{3}{8}$ of a pound of roast beef, and there will be five people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

9-10 Subtract Mixed Numbers
(pp. 519-524)

9-11 Math Practices and Problem Solving: Model with Math
(pp. 525-530)

Topic 10: Extend Multiplication Concepts to Fractions (pp.539A-539B)

10-1 Fractions as Multiples of Unit Fractions: Use Models
(pp. 543-548)

10-2 Multiply a Fraction by a Whole Number: Use Models
(pp.549-554)

10-3 Multiply a Fraction by a Whole Number: Use Symbols
(pp. 555-560)

10-4 Multiply a Whole Number and a Mixed Number (pp. 561-566)

10-5 Solve Time Problems
(pp. 567-572)

10-6 Math Practices and Problem Solving: Model with Math
(pp. 573-578)

Topic 10:

- unit fraction

	<p>Assessment Options: Topic 9 Assessment - Understand Addition and Subtraction of Fractions (<i>print or online</i>) (pp. 535-536) Topic 9 Performance Assessment – Understand Addition and Subtraction of Fractions (pp. 537-538)</p>	<p>Topic 10 Assessment - Extend Multiplication Concepts to Fractions (<i>print or online</i>) (pp. 583-584) Topic 10 Performance Assessment – Extend Multiplication Concepts to Fractions (pp. 585-586)</p>	
--	--	--	--

Assessment Tasks – Topics 9 and 10

	Procedural Check	Application Task
<p>4.NF.3</p>	<p>Missing addend: $1/6 + \underline{\quad} = 5/6$ $5/5 + \underline{\quad} + 2/5 = 2 \ 2/5$ $2/3 - 1/3 = \underline{\quad}$ $3/10 + 2/10 + 4/10 = \underline{\quad}$ $4/4 - 3/4 = \underline{\quad}$ (DOK 1)</p> <p>A cake recipe calls for $3/4$ cup of milk, $1/4$ cup of oil, and $2/4$ cup of water. How much liquid was needed to make the cake? $3 \ 2/5 + 4/5 = \underline{\quad}$ $5 \ 1/4 - 2 \ 3/4 = \underline{\quad}$</p> <p>(DOK 1)</p>	<p style="text-align: center;">Farmer Fred</p> <p>Farmer Fred's fields are worth twelve hundred dollars total. The fields are formed with the same properties as your pattern blocks. Each field's value is based on its size. What fraction of the total value is each field worth? How much is each field worth? Show and explain all of your mathematical thinking.</p> <div style="text-align: center;"> </div> <p>(DOK 3)</p> <ul style="list-style-type: none"> Sally said that $1/10 + 7/10 + 4/10$ is the same as $1 \ 1/5$. Is she correct? Explain and use a model to illustrate your explanation. (This is for Standard 4.c.) <p>(DOK 3)</p>

		<ul style="list-style-type: none"> • Draw a model of the garden plot according to the data table below. The plot is divided into 15 sections. What fraction of the plot will be potatoes? <table border="1"> <thead> <tr> <th>Crop</th> <th>Number of sections</th> </tr> </thead> <tbody> <tr> <td>Com</td> <td>4</td> </tr> <tr> <td>Peas</td> <td>2</td> </tr> <tr> <td>Strawberries</td> <td>2</td> </tr> <tr> <td>Tomatoes</td> <td>3</td> </tr> <tr> <td>Potatoes</td> <td>The rest</td> </tr> </tbody> </table> <p>(DOK 3)</p>	Crop	Number of sections	Com	4	Peas	2	Strawberries	2	Tomatoes	3	Potatoes	The rest
Crop	Number of sections													
Com	4													
Peas	2													
Strawberries	2													
Tomatoes	3													
Potatoes	The rest													
<p>4.NF.4</p>	<p>Solve. Simplify your answer.</p> <p>$5 \times \frac{1}{4} =$</p> <p>$a \times 16 = 76$</p> <p>$6 \times \frac{2}{3} =$</p> <p>(DOK 1)</p>	<p>Draw a picture to explain why $\frac{8}{5} = 8 \times \frac{1}{5}$</p> <p>(DOK 2)</p> <p>Kathy is having a party. She wants at least $\frac{2}{3}$ cups of nuts per guest. She expects 6 guests. How many cups of nuts should Kathy buy? Write an equation and justify your solution with a visual model.</p> <p>(DOK 3)</p>												

MEASUREMENT AND DATA (MD)
Topic 11 - Represent and Interpret Data on Line Plots

Report Card Learning Targets I can.... <ul style="list-style-type: none"> • Make line plots and use them to solve addition and subtraction problems 		
TOPIC 11		
Coherence		pp. 587C-587D
Look back: Grade 3- <ul style="list-style-type: none"> • Line Plots Earlier in Grade 4- <ul style="list-style-type: none"> • Fractions and Number Lines 	Topic 11: <ul style="list-style-type: none"> • Line Plots • Outliers • Use Fractions in Data Problems 	Look ahead: Grade 5- <ul style="list-style-type: none"> • Extend Work with Line Plots
Rigor		p. 587E
Conceptual Understanding: <ul style="list-style-type: none"> • Line Plots and Number Lines • Line Plots and Patterns • Line Plots and Outliers 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • Make Line Plots 	Applications: <ul style="list-style-type: none"> • Real-World Data • Addition and Subtraction Situations
Focus	Strand: Mathematical Practice Standard #3	
	p. 587F	
4.MP.3	Construct viable arguments and critique the reasoning of others. Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments. <i>Fourth grade students critique conclusions based on data presented in line plots.</i> I can ask questions to understand other people’s thinking. I can identify mistakes in other people’s thinking. I can provide suggestions for improving other people’s thinking.	

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
4.MD.4 (4.MD.B)	<p>Strand: Measurement and Data</p> <p>Fourth grade students will represent and interpret data through the use of a line plot.</p> <p>Standard 4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit (halves, quarters, and eighths). Solve problems involving addition and subtraction with like denominators of fractions by using information presented in line plots. <i>For example, use a line plot to find and interpret the difference in length between the longest and shortest pencils in a classroom.</i></p>	<p>Topic 11: Represent and Interpret Data on Line Plots (pp.5871-5871)</p> <p>11-1 Read Line Plots (pp. 591-596) 11-2 Make Line Plots (pp. 597-602) 11-3 Use Line Plots to Solve Problems (pp. 603-608) 11-4 Math Practices and Problem Solving: Critique Reasoning (pp. 609-614)</p>	<p>Topic 11:</p> <ul style="list-style-type: none"> line plot outlier
	<p>Assessment Options:</p> <p>Topic 11 Assessment – Represent and Interpret Data on Line Plots (print or online) (pp. 619-620)</p>	<p>Topic 11 Performance Assessment – Represent and Interpret Data on Line Plots (pp. 621-622)</p>	
Assessment Tasks – Topic 11			
	Procedural Check	Application Task	
4.MD.4	<p>Given the following fractions, create a line plot of the data.</p> $\frac{1}{4}, \frac{1}{2}, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{8}, \frac{1}{8}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{4}, \frac{1}{4}$ <p>Write a story problem that includes the fractions from the data set.</p> <p>(DOK 2)</p>	<p>Make a line plot that includes the following fractions (see below)</p>  <p>Students measure objects in their desk to the nearest $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, inch. They will display their data collected on the line plot. How many objects measured $\frac{1}{4}$ inch? $\frac{1}{2}$ inch? If you put all the objects together end to end what would the total length of ALL the objects? Be prepared to justify why you marked the line plot as you did.</p> <p>(DOK 3)</p>	

NUMBERS AND OPERATIONS—FRACTIONS (NF)
Topic 12 – Understand and Compare Decimals

Report Card Learning Targets I can.... <ul style="list-style-type: none"> Understand fraction and decimal relationships 		
TOPIC 12		
Coherence		pp. 623C-623D
Look back: Grade 3- <ul style="list-style-type: none"> Understand Fractions Fraction Equivalence and Comparison Earlier in Grade 4- <ul style="list-style-type: none"> Fraction Meanings and Operations 	Topic 12: <ul style="list-style-type: none"> Fractions and Decimals Compare Decimals Money and Decimals Solve Word Problems 	Look ahead: Grade 5- <ul style="list-style-type: none"> Decimal Place Value Operations with Decimals
Rigor		p. 623E
Conceptual Understanding: <ul style="list-style-type: none"> Understand Decimals Understand Decimal Comparison 	Procedural Skill and Fluency: <ul style="list-style-type: none"> Compare Decimals Add Fractions 	Applications: <ul style="list-style-type: none"> Situations Involving Decimals Solve Word Problems Involving Money
Focus	Strand: Mathematical Practice Standard #7	
	p. 623F	
4.MP.7	Look for and make use of structure. Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects. <i>Fourth grade students use place value to add and subtract decimals.</i> I can analyze and describe patterns in numbers. I can analyze and describe common attributes and patterns in shapes and solids. I can analyze expressions, equations, procedures, and objects to represent, describe, and work with them in different ways.	

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
<p>4.NF.5 4.NF.6 4.NF.7 (4.NF.C)</p>	<p>Strand: Number and Operations—Fractions Fourth grade students will understand decimal notation to the hundredths and compare decimal fractions with denominators of 10 and 100.</p> <p>Standard 4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.</i></p> <p>Standard 4.NF.6 Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as $\frac{62}{100}$, describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></p> <p>Standard 4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, <i>for example, by using a visual model.</i></p>	<p>Topic 12: Understand and Compare Decimals (pp. 623I-623J)</p> <p>12-1 Fractions and Decimals (pp. 627-632) 12-2 Fractions and Decimals on the Number Line (pp. 633-638) 12-3 Compare Decimals (pp. 639-644) 12-4 Add Fractions with Denominators of 10 and 100 (pp. 645-650) 12-5 Solve Word Problems Involving Money (pp. 651-656) 12-6 Math Practices and Problem Solving: Look for and Use Structure (pp. 657-662)</p>	<p>Topic 12:</p> <ul style="list-style-type: none"> • tenth • hundredth • decimal • decimal point

Assessment Options:

Topic 12 Assessment - Understand and Compare Decimals (*print or online*)
(pp. 667-668)

Topic 12 Performance Assessment – Understand and Compare Decimals
(pp. 669-670)

Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments

Number and Operations in Base Ten

- 4.NF.B.3a, 3b, 3c & 3d
- 4.NF.B.4a, 4b & 4c
- 4.NF.C.5, 6 & 7

Measurement and Data

- 4.MD.B.4

M3 At the Mall with Algebra: Working with Variables and Equations

District Wide Standards-based Benchmark #3 due by April 21

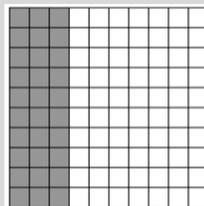
Assessment Tasks – Topic 12

Procedural Check

Application Task

4.NF.5
 $5/10 = a/100$
 $70/100 = b/10$
 $2/10 + 40/100 = c$

Develop a model to describe the addition of $7/10 + 3/100$.
 (DOK 2)



Circle all of the numbers that are equivalent to the drawing.

$30/100$ $3/10$ 0.03 0.30 $3/100$

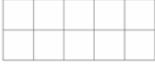
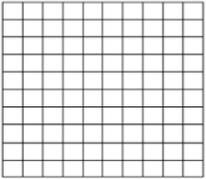
Use words and pictures to explain why the numbers that were not chosen are not equivalent to the drawing. (DOK 3)

A dime is $1/10$ of a dollar and a penny is $1/100$ of a dollar.

What fraction of a dollar is 6 dimes and 3 pennies? Use a model to show your thinking. Write your answer in both fraction and decimal form.

(DOK 1)

(DOK 3)

<p>4.NF.6</p>	<p>Give a length of adding machine tape to each student. The tape covers only the span of 0-1. Offer a variety of decimals and decimal fraction to place on their individual number line.</p>	<p>Supply the students with a decimal fraction such as $\frac{67}{100}$. Have them write a letter using pictures, numbers, and words to a student from a different class, explaining how to convert to a decimal.</p> <p>(DOK 2)</p> <div style="border: 1px solid black; padding: 5px;"> <p>Part A: Shade in boxes to create a design.</p>  <p>___ shaded boxes out of 10 Decimal Fraction ___ Decimal ___</p> <p>Part B: Shade in boxes to create a design.</p>  <p>___ shaded boxes out of 100 Decimal Fraction ___ Decimal ___</p> </div> <p>Compare the fraction and decimal in each design and determine which has the greater shaded portion. (DOK 3)</p>
<p>4.NF.7</p>	<p>Compare</p> <ol style="list-style-type: none"> 1. 0.1 and 0.7 2. 1.2 and 2.1 3. 0.3 and 0.30 4. 0.5 and 0.05 5. 0.4 and 0.17 	<p>Ron says 0.17 is greater than 0.4. Kym says Ron is wrong. Who is right? Justify your answer with written explanation and a visual model.</p>

DWSBA 4: April 24 – June 6
30 days

MEASUREMENT AND DATA (MD)

Topic 13 – Measurement: Find Equivalence in Units of Measure

Report Card Learning Targets I can.... <ul style="list-style-type: none"> • Know and use measurement conversions • Apply the area and perimeter formulas 		
TOPIC 13		
Coherence		pp. 671C-671D
Look back: Grade 3- <ul style="list-style-type: none"> • Find Area and Perimeter • Other Measurement Problems Earlier in Grade 4- <ul style="list-style-type: none"> • Whole-Number and Fraction Operations • Time and Money 	Topic 13: <ul style="list-style-type: none"> • Convert Measurements • Tables • Area and Perimeter Problems • Fraction Computation 	Look ahead: Grade 5- <ul style="list-style-type: none"> • Volume • Convert Measurements
Rigor		p. 671E
Conceptual Understanding: <ul style="list-style-type: none"> • Relative Sizes of Units 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • Convert Measurements • Use Formulas 	Applications: <ul style="list-style-type: none"> • Real-World Contexts
Focus	Strand: Mathematical Practice Standard #6	
	p. 671F	
4.MP.6	Attend to precision. Communicate precisely to others by crafting careful explanations that communicate mathematical reasoning by referring specifically to each important mathematical element, describing the relationships among them, and connecting their words clearly to their representations. Calculate accurately and efficiently and use clear and concise notation to record their work.	

Fourth grade students attend to precision when specifying the correct measurement units.

- I can compute accurately.
- I can use symbols appropriately.
- I can accurately use problem-solving strategies.
- I can specify and use units of measure appropriately.
- I can decide whether an exact answer or estimate is needed.
- I can calculate efficiently, accurately, and fluently.

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
<p>4.MD.1 4.MD.2 4.MD.3 (4.MD.A)</p>	<p>Strand: Measurement and Data Fourth grade students solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. Students will apply their knowledge of area and perimeter to solve real world and mathematical problems.</p> <p>Standard 4.MD.1 Know relative sizes of measurement units within each system of units (standard and metric), including kilometers, meters, and centimeters; liters and milliliters; kilograms and grams; pounds and ounces; hours, minutes, and seconds. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 foot is 12 times as long as 1 inch. Express the length of a four-foot snake as 48 inches. Know that one meter is 100 times as long as one centimeter. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36)...</i></p> <p>Standard 4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money.</p>	<p>Topic 13: Measurement: Find Equivalence in Units of Measure <i>(pp. 671I-671K)</i></p> <p>13-1 Equivalence with Customary Units of Length (pp. 679-684) 13-2 Equivalence with Customary Units of Capacity (pp. 685-690) 13-3 Equivalence with Customary Units of Weight (pp. 691-696) 13-4 Equivalence with Metric Units of Length (pp. 697-702) 13-5 Equivalence with Metric Units of Capacity and Mass (pp. 703-708) 13-6 Solve Perimeter and Area Problems (pp. 709-714) 13-7 Math Practices and Problem Solving: Precision (pp. 715-720)</p>	<p>Topic 13:</p> <ul style="list-style-type: none"> • capacity • quart • gallon • cup • pint • fluid ounce • weight • ounce • pound • ton • millimeter • centimeter • meter • kilometer • mass • milliliter • liter • gram • milligram • kilogram • perimeter

	<p>a. Include problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.</p> <p>b. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p> <p>Standard 4.MD.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i></p>		<ul style="list-style-type: none"> • area • formula
	<p>Assessment Options:</p>	<p>Topic 13 Assessment - Measurement: Find Equivalence in Units of Measure (<i>print or online</i>) (<i>pp. 725-726</i>)</p> <p>Topic 13 Performance Assessment – Measurement: Find Equivalence in Units of Measure (<i>pp. 727-728</i>)</p>	

Assessment Tasks – Topic 13

Procedural Check

Application Task

4.MD.1

8. George needs 18 ounces of chocolate chips. How many pounds of chocolate chips should he buy?

Sydney was doing research for a report on snakes and found information on the record-setting snake lengths. She made a chart with the name of the snake and its length in feet. Complete her chart to show the length of each snake in inches.

Record Setting Snake Lengths

	<u>feet</u>	<u>inches</u>
Corn Snake	6	
Smooth Green Snake	2	
Eastern Cottonmouth	5	

	<u>feet</u>	<u>inches</u>
Northern Copperhead	4	
Queen Snake	3	
Northern Pinesnake	7	

Describe the relationship between the snakes' lengths in feet and their lengths in inches.

(DOK 2)

Tess guessed that her cat weighed more than 10 and less than 11 pounds. Her scale only showed ounces. Use a number line and words to show all possible weights (in ounces) for Tess's cat.

(DOK 3)

(DOK 1)

4.MD.2

a. Express your solution as a fraction of a meter.
0.3 m + 1.45 m

b. Express your solution as a fraction of a liter.
1.7 L + 0.82 L

Sarah is walking to her friend's house. She leaves her house at 3:45 and arrives at her friend's house at 5:15.

Step A

How long did it take Sarah to walk from her house to her

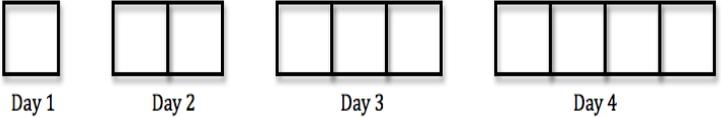
	<p>c. Express your solution as a fraction of a dollar. 4 dimes + 1 penny + 77 pennies</p> <p>(DOK 2)</p>	<p>friend's house?</p> <p>Step B</p> <p>Explain why your answer is correct. Use what you know about elapsed time in your explanation. Use words and/or numbers in your explanation.</p> <p>(DOK 3)</p>
<p>4.MD.3</p>	<p>The perimeter of a train ticket is 44 centimeters. The ticket is 14 centimeters long. How tall is it?</p> <p>(DOK 1)</p>	<p>Last year Mr. Petersen's rectangular garden had a width of 5 meters and an area of 20 square meters. This year he wants to make the garden three times as long and two times as wide.</p> <p>a. Solve for the length of last year's garden using the area formula. Then, draw and label the measurements of this year's garden.</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="text-align: center;"> <p>5 m</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>20 square meters</p> </div> <p>Last Year Year</p> </div> <div style="text-align: center;"> <div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto;"></div> <p>This</p> <p>___ m</p> </div> </div> <p>b. How much area for planting will Mr. Petersen have in the new garden?</p> <p>c. Last year, Mr. Petersen had a fence all the way around his garden. He can reuse all of the fence he had around the garden last year, but he needs to buy more fencing to go around this year's garden. How many more meters of fencing is needed for this year's garden than last year's?</p> <p>d. Last year Mr. Petersen was able to plant 4 rows of carrots with 13 plants in each row. This year</p>

he plans to plant twice as many rows with twice as many carrot plants in each. How many carrot plants will he plant this year? Write a multiplication equation to solve. Assess the reasonableness of your answer.

(DOK 3) Also addresses 4.NBT.5

OPERATIONS AND ALGEBRAIC THINKING (OA)
Topic 14 – Algebra: Generate and Analyze Patterns

Report Card Learning Targets I can.... <ul style="list-style-type: none"> • Create and analyze patterns 		
TOPIC 14		
Coherence		pp. 729C-729D
Look back: Grade 3- <ul style="list-style-type: none"> • Addition and Multiplication Patterns Earlier in Grade 4- <ul style="list-style-type: none"> • Use Patterns 	Topic 14: <ul style="list-style-type: none"> • Growing and Shrinking Number Patterns • Repeating Patterns and Division 	Look ahead: Grade 5- <ul style="list-style-type: none"> • Patterns and Relationships
Rigor		p. 729E
Conceptual Understanding: <ul style="list-style-type: none"> • Understand Relationships • Types of Patterns 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • Generate Values 	Applications: <ul style="list-style-type: none"> • Patterns in Real-World and Mathematical Situations
Focus	Strand: Mathematical Practice Standard #7	
	p. 729F	
4.MP.7	Look for and make use of structure. Recognize and apply the structures of mathematics such as patterns, place value, the properties of operations, or the flexibility of numbers. See complicated things as single objects or as being composed of several objects. Fourth grade students use structure to identify and analyze patterns. I can analyze and describe patterns in numbers. I can I can analyze and describe common attributes and patterns in shapes and solids. I can analyze expressions, equations, procedures, and objects to represent, describe, and work with them in different ways.	

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
4.OA.5 (4.OA.C)	Strand: Operations and Algebraic Thinking Fourth grade students generate and analyze numeric and shape patterns. Standard 4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule "add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i>	Topic 14: Algebra: Generate and Analyze Patterns (pp.729I-729J) 14-1 Number Sequences (pp. 733-738) 14-2 Patterns: Number Rules (pp. 739-744) 14-3 Patterns: Repeating Shapes (pp. 745-750) 14-4 Math Practices and Problem Solving: Look For and Use Structure (pp. 751-756)	Topic 14: <ul style="list-style-type: none"> rule repeating pattern
	Assessment Options:	Topic 14 Assessment - Algebra: Generate and Analyze Patterns (print or online) (pp. 761-762) Topic 14 Performance Assessment – Algebra: Generate and Analyze Patterns (pp. 763-764)	
Assessment Tasks – Topic 14			
	Procedural Check	Application Task	
4.OA.5	Fill in the missing number for each pattern and write the rule. 1. 2, 4, ____, 10, 12, ____ 2. 6, 12, ____, 24, ____, ____ 42 3. 4, ____, 12, ____, 20, ____ 4. ____, 20, 30, ____, ____, 60 5. 12, ____, ____, 48, 60, ____ 15, 18, ____, ____, ____, 30 (DOK 2)	Tara used toothpicks to design this pattern. Each day she continued the pattern. How many toothpicks will she need to make her design on the 9 th day?  Write the rule for the pattern and draw the pattern to justify your answer. (DOK3)	

MEASUREMENT AND DATA (MD)

Topic 15 – Geometric Measurement: Understand Concepts of Angles and Angle Measurement

Report Card Learning Targets I can....		
<ul style="list-style-type: none"> Understand and measure angles 		
TOPIC 15		
Coherence		pp. 765C-765D
Look back: Grade 3- <ul style="list-style-type: none"> Fraction Concepts Measurement Geometry Earlier in Grade 4 <ul style="list-style-type: none"> Equivalent Fractions Measurement 	Topic 15: <ul style="list-style-type: none"> Angle Concepts Measure Angles Draw and Identify Angles 	Look ahead: Later in Grade 4- <ul style="list-style-type: none"> Analyze Geometric Shapes Grade 5- <ul style="list-style-type: none"> Classify Two-Dimensional Shapes
Rigor		p. 765E
Conceptual Understanding: <ul style="list-style-type: none"> Understand Angle Measure Understand Unit Angles Angle Measure Is Additive 	Procedural Skill and Fluency: <ul style="list-style-type: none"> Use Protractors 	Applications: <ul style="list-style-type: none"> Addition and Subtraction Situations
Focus	Strand: Mathematical Practice Standard #5	
4.MP.5	<p>Use appropriate tools strategically. Consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. Choose tools that are relevant and useful to the problem at hand, such as drawings, diagrams, technologies, and physical objects and tools, as well as mathematical tools such as estimation or a particular strategy or algorithm.</p> <p><i>Fourth grade students use appropriate tools strategically.</i></p> <ul style="list-style-type: none"> I can identify available tools. I can think about correct tools to use without prompting. I can use tools correctly and accurately. I know when to use a particular tool. 	

I can decide if the results obtained using a tool make sense.

Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
<p>4.MD.5 4.MD.6 4.MD.7 (4.MD.C)</p>	<p>Strand: Measurement and Data Fourth grade students understand various concepts of angles and angle measurement.</p> <p>Standard 4.MD.5 Recognize angles as geometric figures that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.</p> <ol style="list-style-type: none"> Understand that an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure other angles. Understand that an angle that turns through n one-degree angles is said to have an angle measure of n degrees. <p>Standard 4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</p> <p>Standard 4.MD.7 Recognize angle measure as additive.</p> <ol style="list-style-type: none"> Understand that when an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, <i>for example by using an equation with a symbol for the unknown angle measure.</i> 	<p>Topic 15: Geometric Measurement: Understand Concepts of Angles and Angle Measurement <i>(pp.765I-765J)</i></p> <p>15-1 Lines, Rays, and Angles <i>(pp. 771-776)</i></p> <p>15-2 Understand Angles and Unit Angles <i>(pp. 777-782)</i></p> <p>15-3 Measure with Unit Angles <i>(pp. 783-788)</i></p> <p>15-4 Measure and Draw Angles <i>(pp. 789-794)</i></p> <p>15-5 Add and Subtract Angle Measures <i>(pp. 795-800)</i></p> <p>15-6 Math Practices and Problem Solving: Use Appropriate Tools <i>(pp. 801-806)</i></p>	<p>Topic 15:</p> <ul style="list-style-type: none"> point line line segment ray right angle acute angle obtuse angle straight angle degree unit angle angle measure protractor vertex

	<p>Assessment Options:</p>	<p>Topic 15 Assessment - Geometric Measurement: Understand Concepts of Angles and Angle Measurement (<i>print or online</i>) (pp. 811-812)</p> <p>Topic 15 Performance Assessment – Geometric Measurement: Understand Concepts of Angles and Angle Measurement (pp. 813-814)</p>	

Assessment Tasks – Topic 15

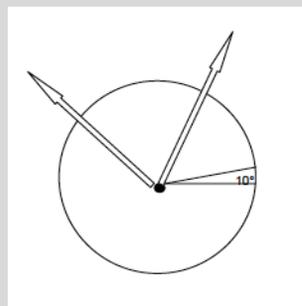
Procedural Check

4.MD.5 Students use the angle finder created in class. Teacher calls out angles form by parts of a circle – $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ -- and students create the angles with their finders. Teacher could extend the activity by showing other angles and asking students to form a similar degree angle with their finds.

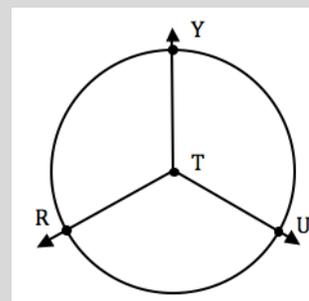
(DOK 1)

Application Task

Students will use their angle finder to locate and identify angles in real-life settings (i.e., classroom, playground, home). Students will trace the measurement of the angle finder to represent the measurement of the angle. Students will label the representation with rays, vertex, and interior arc. (DOK 2)



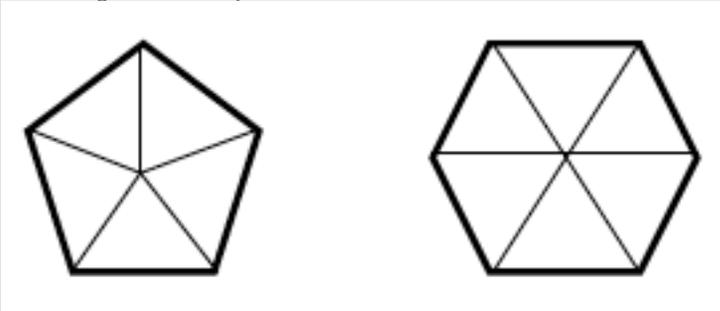
(DOK 2)



How does knowing the measurement of angle UTR help you know the measurement of the other two angles shown in the drawing? Use words, pictures, and your understanding of angle measurement to justify your answer.

(DOK 3)

4.MD.6 Working with partners, students draw several angles and have partners measure them, and vice versa. Measure the angles of a regular polygon—students understand that angles are equal. (DOK 1)

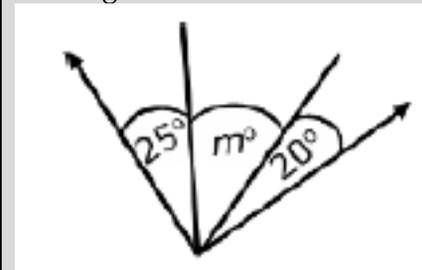


Students will locate angles in the classroom or outside. After writing down the angle measurement and item, the students will draw each of the angles found using a protractor.

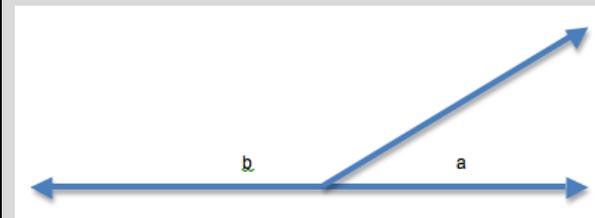
(DOK 2)

4.MD.7 Ruby is standing on first base. Jasmine is standing on second base. What is the angle of measure from home place between the two girls? What is the angle between third base and second base?

Bella and Edward’s teacher told them that the two outside rays in this drawing are perpendicular. She asked them to find the missing measure. What is it?



(DOK 2)



Angle a = $\frac{1}{6}$ of the straight angle
What is the value of angle b? Use words, pictures and your understanding of angle measurement to justify your answer.

(DOK 3)

(DOK 1)

GEOMETRY (G)
Topic 16 – Lines, Angles, and Shapes

Report Card Learning Targets I can.... <ul style="list-style-type: none"> • Draw and identify lines and angles • Classify 2D shapes by their properties 		
TOPIC 16		
Coherence		pp. 815C-815D
Look back: Grade 3- <ul style="list-style-type: none"> • Attributes of Two-Dimensional Shapes Earlier in Grade 4- <ul style="list-style-type: none"> • Points, Lines, Line Segments, Rays, Angles 	Topic 16: <ul style="list-style-type: none"> • Use Line Relationships in Classifying Quadrilaterals • Classify Triangles and Quadrilaterals • Recognize and Draw Line-Symmetric Figures 	Look ahead: Grade 5- <ul style="list-style-type: none"> • Classify Two-Dimensional Figures
Rigor		p. 815E
Conceptual Understanding: <ul style="list-style-type: none"> • Points, Lines, Line Segments, Rays and Angles • Classify Shapes • Lines of Symmetry 	Procedural Skill and Fluency: <ul style="list-style-type: none"> • No standards in this cluster that call for fluency 	Applications: <ul style="list-style-type: none"> • Real-World Applications
Focus	Strand: Mathematical Practice Standard # 3	
4.MP.3	Construct viable arguments and critique the reasoning of others. Use stated assumptions, definitions, and previously established results to construct arguments. Explain and justify the mathematical reasoning underlying a strategy, solution, or conjecture by using concrete referents such as objects, drawings, diagrams, and actions. Listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments. <i>Fourth grade students construct arguments to justify classifications of figures, and they critique the reasoning other students</i>	

	<p>use to make geometric identifications.</p> <p>I can ask questions to understand other people’s thinking. I can identify mistakes in other people’s thinking. I can provide suggestions for improving other people’s thinking.</p>		
Focus	Standards	Curriculum Supports – enVision 2.0	Vocabulary
4.G.1 4.G.2 4.G.3 (4.G.A)	<p>Strand: Geometry</p> <p>Fourth grade students draw and identify lines and angles as well as classify shapes by properties of their lines and angles.</p> <p>Standard 4.G.1 Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p> <p>Standard 4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p> <p>Standard 4.G.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.</p>	<p>Topic 16: Lines, Angles, and Shapes (pp.815I-815J)</p> <p>16-1 Lines (pp. 821-826) 16-2 Classify Triangles (pp. 827-832) 16-3 Classify Quadrilaterals (pp. 833-838) 16-4 Line Symmetry (pp. 839-844) 16-5 Draw Shapes with Line Symmetry (pp. 845-850) 16-6 Math Practices and Problem Solving: Critique Reasoning (pp. 851-856)</p>	<p>Topic 16:</p> <ul style="list-style-type: none"> • parallel lines • perpendicular lines • intersecting lines • right triangle • obtuse triangle • acute triangle • equilateral triangle • isosceles triangle • scalene triangle • parallelogram • rectangle • square • rhombus • trapezoid • line symmetric • line of symmetry
	<p>Assessment Options:</p>	<p>Topic 14 Assessment - Lines, Angles, and Shapes (print or online) (pp. 861-862)</p> <p>Topic 14 Performance Assessment – Lines, Angles, and Shapes (pp. 863-864)</p>	

Math Exemplars- Utilize both Summative Assessment Task and Instructional Tasks/Formative Assessments

Operations and Algebraic Thinking

- 4.OA.C.5

Measurement and Data

- 4.MD.A.1, 2, 3 & 4
- 4.MD.C.5a & 5b
- 4.MD.

Geometry

- 4.G.A.2 & 3

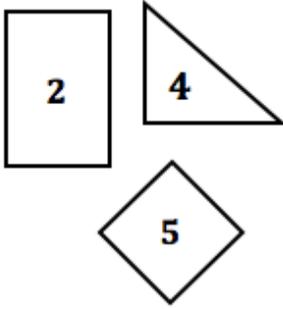
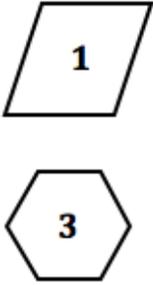
M3 Getting into Shapes

District Wide Standards-based Benchmark #4 due by June 6

Assessment Tasks – Topic 16

	Procedural Check	Application Task
<p>4.G.1</p>	<p>Have students draw and identify each of the geometric terms.</p> <p align="center">(DOK 1)</p>	<p>Have students locate examples of each geometric term in the classroom, take pictures of the examples outside, or cut out pictures of examples from a magazine. Create a geometric collage using what students found.</p> <p>(DOK 2)</p> <div> </div> <p>Identify the types of angles in each figure. Use the number of sides and the types of angles to compare each shape to a rectangle. Can any of these shapes be used to create a rectangle? Why or why not? Use pictures to explain your thinking.</p> <p>(DOK 3)</p>
<p>4.G.2</p>	<p>Give students different two-dimensional figures and have them classify them and justify their classification.</p> <p align="center">(DOK 3)</p>	<div> </div> <p>Organize these triangles in to two or more groups. Use words to explain how you organized your groups. Describe similarities and</p>

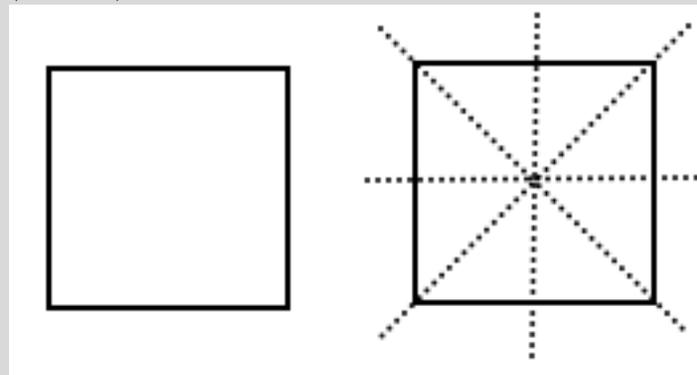
differences between the groups of triangles. (DOK 3)

Group A	Group B
	

Explain how these shapes were organized into these groups. What other ways could the shapes be organized? Use words to describe each group. (DOK 3)

4.G.3 Identify symmetrical figures. Draw lines of symmetry on figures given to them.

Use pattern blocks, tangrams, or pentominoes to create a figure that has at least one line of symmetry. Students will draw a two-dimensional replica of their figure showing the lines of symmetry. (DOK 2)



Rosa drew lines of symmetry on this quadrilateral. She came up with the rule that all quadrilaterals (4 sided figures) have 4 lines of symmetry.

Is Rosa's rule true for all quadrilaterals?

Use pictures and words to justify your answer. (DOK 3)

(DOK 1)

4th Grade Additional Assessment Tasks

<p>4.OA.1</p>	<p>Alison ran a total of 200 miles over 8 weeks. She ran the same number of miles each week. The number sentence below can be used to find the number of miles, m, she ran each week.</p> $m \times 8 = 200$ <p>How many miles, m, did Alison run each week?</p> <p>A. 4 miles B. 25 miles C. 40 miles D. 192 miles</p> <p>(DOK 1)</p>	<p>Hannah was doing a report on animals' sleep habits. She made the charts below to show the number of hours certain animals usually sleep each day.</p> <table border="1"> <thead> <tr> <th>Animal</th> <th>Bat</th> <th>Mouse</th> <th>Guinea Pig</th> <th>Possum</th> <th>Gray Seal</th> </tr> </thead> <tbody> <tr> <td>Hours of Sleep</td> <td>20 hours</td> <td>12 hours</td> <td>9 hours</td> <td>18 hours</td> <td>6 hours</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Animal</th> <th>Tiger</th> <th>Horse</th> <th>Cheetah</th> <th>Cow</th> <th>Goat</th> </tr> </thead> <tbody> <tr> <td>Hours of Sleep</td> <td>16 hours</td> <td>3 hours</td> <td>12 hours</td> <td>4 hours</td> <td>15 hours</td> </tr> </tbody> </table> <p>a. Fill in the blanks to make the statements true.</p> <ul style="list-style-type: none"> ▪ A possum sleeps _____ times as many hours a day as a guinea pig. ▪ A bat sleeps _____ times as many hours per day as a cow. <p>b. Write a multiplication equation to show the relationship between the length of time a gray seal sleeps and the length of time a possum sleeps.</p> <p>_____ \times _____ = _____</p> <p>(DOK 3)</p>	Animal	Bat	Mouse	Guinea Pig	Possum	Gray Seal	Hours of Sleep	20 hours	12 hours	9 hours	18 hours	6 hours	Animal	Tiger	Horse	Cheetah	Cow	Goat	Hours of Sleep	16 hours	3 hours	12 hours	4 hours	15 hours
Animal	Bat	Mouse	Guinea Pig	Possum	Gray Seal																					
Hours of Sleep	20 hours	12 hours	9 hours	18 hours	6 hours																					
Animal	Tiger	Horse	Cheetah	Cow	Goat																					
Hours of Sleep	16 hours	3 hours	12 hours	4 hours	15 hours																					
<p>4.OA.2</p>	<p>Create and solve an equation from a given word problem. (DOK 1)</p>	<p>Over the summer, Raul read 8 books. Natalia read 4 times as many books. How many books did Natalia read? Draw a picture or create a model of the problem, write an equation with a symbol for the unknown variable, and solve. (DOK 3)</p> <p>Abby and her friend Chris each ran a lemonade stand. When Abby and Chris compared what they had earned, Chris said, "Wow! You made \$200! That's 4 times as much as I earned!" This made Abby wonder how much Chris earned. Use words, numbers, and pictures to find out how much Chris earned. (DOK 3)</p>																								
<p>4.OA.3</p>	<p>Solve an equation from a given multistep word problem. Then check the reasonableness of the answer using mental math or estimation. (DOK 2)</p>	<p>A 17-inch long piece of rope is cut into 2-inch pieces. How many 2-inch pieces are there? How much of the rope is left? Draw a picture or diagram that illustrates the problem. Write an equation using a symbol for the unknown variable. Solve the equation. Use mental math or estimation to determine the reasonableness of your answer. Write an explanation of how you know you are right. (DOK 3)</p>																								

		<p>Use mental math or estimation to determine which school might have more students.</p> <p>Then write an equation to find out how many students are actually in each school and calculate the difference between the number of 4th grade students at the two schools.</p> <ul style="list-style-type: none"> Sandy Pines has 5 fourth grade classes with 21 students in each class. Canyon Heights has 3 fourth grade classes with 31 students in each class. <p>(DOK 3)</p>
<p>4.OA.3</p>	<p>$10,000 - 819 = \underline{\hspace{2cm}}$</p> <p>(DOK 1)</p>	<p>Gary, Stan, and Tom are comparing their collections of Pokémon cards. All together they have 700 cards. Stan has 250 cards and Gary has 300. How many cards does Tom have? (DOK 2)</p> <p>The 4th grade class at Canyoncrest Elementary School is going on their annual field trip to museum. The teachers reserved two buses to take the 123 students to the museum. Each bus has 32 seats that can hold up to three students per seat. Will the students need to sit in groups of 3 in each seat or can they have more room and only sit with a partner? Draw a picture to justify your answer. (DOK 3)</p>
<p>4.OA.3</p>	<p>$32 \times 10 =$ $47 \times 100 =$</p> <p>(DOK 1)</p>	<p>Justin can solve 900 math problems in 30 minutes. Steve can solve 400 math problems in 20 minutes. How many math problems can each solve in one minute? (DOK 2)</p>
<p>4.OA.3</p>	<p>Anna bought 3 bags of red gumballs and 5 bags of white gumballs. Each bag of gumballs had 7 pieces in it. Which expression could Anna use to find the total number of gumballs she bought?</p> <p>A. $(7 \times 3) + 5 =$ B. $(7 \times 5) + 3 =$ C. $7 \times (5 + 3) =$ D. $7 + (5 \times 3) =$</p> <p>(DOK 1)</p>	<p>Ms. Turner drove 825 miles in March. She drove 3 times as many miles in March as she did in January. She drove 4 times as many miles in February as she did in January. How many miles did she drive in February? Use words and pictures to justify your answer? (DOK 3)</p>

4.OA.3

$300 \times M = 27,000$. What is the value of M ?

- A. 80 B. 90 C. 900 D. 8,000

(DOK 1)

5. Bonnie's Bakery charges \$7.00 to decorate each cake. In October she decorates 424 cakes. What is the best estimate for how much money Bonnie earned baking cakes?

- A. \$2,400 B. \$2,800 C. \$3,200 D. \$3,500

(DOK 2)

Students from four classes at Aptos Elementary School are planning a trip for their year-end celebration. Each class has 23 students and 1 teacher. They will also have 12 parent volunteers. **Part A:** Write an equation that can be used to determine the number of vans, v , they will need on their trip if 10 people ride in each van.

Part B: How many vans will be needed for the trip if 10 people ride in each van?

Draw a picture to justify your answer. (DOK 3)

4.OA.3

There were 123 players at a soccer camp. The players were divided into teams having 11 players each.

What was the total number of teams and the total number of players left over?

- A. 10 teams with 3 players left over
B. 11 teams with 1 player left over
C. 11 teams with 2 players left over
D. 12 teams with 3 players left over

(DOK 1)

Mr. Torres sold a total of 30 boxes of sports cards at his store on Monday. These boxes contained only baseball cards and football cards.

- Each box contained 25 sports cards.
- He earned \$3 for each sports card he sold.
- He earned a total of \$1134 from the football cards he sold.

What amount of money did Mr. Torres earn from the baseball cards he sold? In the space below, use pictures, numbers, and/or words to show how you got your answer.



(DOK 3)

Tyler wants to buy a new bike that costs \$240. He has already saved \$32, but he needs to make a plan so he can save the rest of the money. He plans to save the same amount of money, x dollars, each month for the next four months.

Part A: Write an equation that helps Tyler determine the amount

		<p>of money he must save each month.</p> <p>Part B: Solve the equation to find the amount of money he must save each month to meet his goal of buying the new bike. Use words, pictures, and numbers to justify your answer.</p> <p>(DOK 3)</p>
<p>4.OA.3</p>	<p>A movie theater has two rooms.</p> <ul style="list-style-type: none"> Room A has 29 rows of seats with 18 seats in each row. Room B has three fewer rows times as many seats as Room A. How many seats are there in both rooms? <p>(DOK 2)</p>	<p>Mrs. Diaz loves books. Last year she calculated that she spent about \$700 at Phillips Bookstore. Mrs. Diaz decided to join the store’s reward program. The PB Reward Program gives customers 5 points for every dollar spent. When the customer receives 200 points, she gets a free book.</p> <p>If Mrs. Diaz spends about the same as she did last year, how many free books will she receive this year?</p> <p>Use words, numbers, and pictures to justify your answer.</p> <p>(DOK 3)</p>
<p>4.OA.4</p>	<p>Which number is a common factor of 36 and 56?</p> <p>A. 4</p> <p>B. 6</p> <p>C. 8</p> <p>D. 9</p> <p>(DOK 1)</p>	<p>Peter made the statement shown below.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>“The number 32 is a multiple of 8. That means all of the factors of 8 are also factors of 32.”</p> </div> <p>Is Peter’s statement correct? In the space below, use numbers and words to explain why or why not.</p> <p>(DOK 2)</p> <p>Javier says that all odd numbers greater than 2 and less than 20 are prime. Is he correct? Use words, numbers, and the definition of prime numbers to justify your answer. (DOK 3)</p>

<u>color</u>	<u>size</u>
<u>blue</u>	4 inches
<u>red</u>	7 inches
<u>yellow</u>	9 inches
<u>green</u>	5 inches
<u>orange</u>	6 inches

The chart above shows the length of the math center blocks. Kay and Devon both used only one color of blocks but they had the same length “train” of blocks. Use words, numbers, and pictures to show which colors each student used. Show all possible color combinations. (DOK 3)

4.OA.5 Starting at 1, create a pattern that starts at 1 and multiplies each number by 3. Stop when you have 6 numbers.
(DOK 1)

There are 3 pennies in Suzanne’s piggy bank. Each day she is going to earn 4 pennies and add them to her bank. How much money will she have in her piggy bank in 6 days? Create a visual representation to prove you work.

(DOK 3)

Patterns

3, 8, 13, 18, 23, 28..... What is the rule? (Start with 3, add 5)
5, 10, 15, 20 What is the rule? (Start with 5, add 5)

Look for any patterns you notice in the numbers. Use words, pictures or a chart to justify the rule you created.

(DOK 3)

4.OA.5

What are the missing two numbers in this pattern?

_____, _____, 22, 29, 36, 43, 50

- A. 7, 14
- B. 8, 15
- C. 20, 21
- D. 36, 29

(DOK 1)

Rosa wrote a pattern using the rule "subtract 7." The first two numbers in her pattern were 83 and 76. Which number below is part of Rosa's pattern?

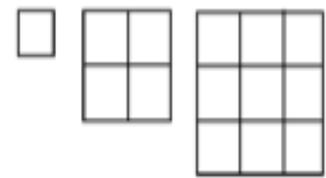
- A 41
- B 49
- C 57
- D 61

Laura looks for her favorite shells on the beach every morning. The first day, she finds 3 shells. The next day, she finds 8 shells. On the third day, she finds 13 shells in the cove. On the fourth day, she finds 18 shells as she walks by the water. If Laura keeps finding shells in this way, how many will she find on the eighth day?

Explain how you got your answer and how you know your answer is correct.

(DOK 3)

Use square tiles to copy and extend the pattern below until you have a sequence of five squares.



- Record and number the value of each square in the sequence under its picture.
- What is the difference between the numbers in consecutive squares? Describe any patterns that you notice.

- What do you think the value of the 6th term in the sequence will be? What about the 10th? Explain your thinking.

(DOK 3)

4.NBT.
2

4.NBT.3

8. The wetland is 7,483 square miles. It shrinks by 3,824 square miles during the dry summer months. About how many square miles of wetland are left during the summer? Round to the hundreds place in order to make your estimate.

- A. 3,000 B. 3,500 C. 3,600 D. 3,700

(DOK 1)

A number has been rounded to 700. What might the number be? Give three possible answers.

_____ was rounded to the nearest _____

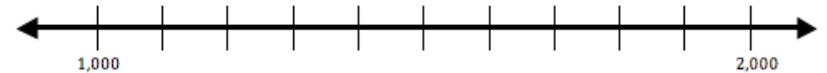
_____ was rounded to the nearest _____

_____ was rounded to the nearest _____

(DOK 2)

Find two numbers that may be rounded and added together to make 50. Use a number line to justify your answer.

(DOK 3)



1. Place 1,525 on the number line.
2. Round 1,525 to the nearest thousands.

Use the number line to explain your thinking. (DOK 3)

4.NBT.3

The total length of a vehicle is 205.83 inches. What is the length of the vehicle rounded to the nearest whole number?

- A. 200 inches
B. 205 inches
C. 206 inches
D. 207 inches

(DOK 1)

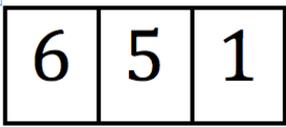
A teacher asked her students to use estimation to decide if the sum of the problem below is closer to 4,000 or 5,000.

$$496 + 1,404 + 2,605 + 489 =$$

One student replied that she thinks the sum is closer to 4,000. She used the estimation shown below to support her reasoning.

$$496 + 1,404 + 2,605 + 489 =$$

$$\begin{array}{cccc} \downarrow & \downarrow & \downarrow & \downarrow \\ 0 & + & 1,000 & + & 3,000 & + & 0 & = & 4,000 \end{array}$$

		<p>Is the student's reasoning correct? In the space below, use numbers and words to explain why or why not. If the student's reasoning is not correct, explain how she should have estimated.</p> <p>(DOK 3)</p>
<p>4.NBT.4</p>		
<p>4.NBT.5</p>	<p>There are 5,280 feet in a mile. What is the total number of feet in 6 miles?</p> <p>A 31,280</p> <p>B 31,680</p> <p>C 33,680</p> <p>D 35,280</p> <p>(DOK 1)</p>	<p>15. MacGill's Theater has 3 sections of seats, as shown below. Each section has eight rows of seats. The center section has 14 seats in each row. The side sections have 6 seats in each row. How many seats are in MacGill's Theater? Show your work in the space below.</p>  <p style="text-align: right;">_____ seats</p> <p>(DOK 2)</p>
<p>4.NBT.5</p>	<p>Solve:</p> <p>$33 \times 19 =$</p> <p>$12 \times 21 =$</p> <p>(DOK 1)</p>	<p>Illustrate and explain two different ways to solve the following problem.</p> <p>Sally sells 31 bags of cotton candy on the opening day of the state fair. If she sells the same amount of cotton candy everyday for 14 days, how many bags will she sell? (DOK 2)</p>  <p>Mrs. Bennett wrote these numbers on the board and she challenged her students to use them to make the greatest product possible.</p> <p>Terry said that 61×5 would make the greatest product.</p> <p>Rose said that 51×6 would make the greatest product.</p> <p>Use estimation to decide who was correct. Use words to explain</p>

<p>4.NBT.5</p>	<p>1. Draw an area model to solve the following. Find the value of the following expressions.</p> <p>a. 30×60</p> <p>b. 3×269</p> <p>(DOK 2)</p>	<p>justify your answer. (DOK 3)</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Jackson used an area model to show how he multiplied 37×16.</p> <p>Draw lines and write numbers to show how he might have multiplied the 2 numbers.</p> </div> <p>(DOK 2)</p> <p>Playground A: 35 ft. by 27 ft. Playground B: 36 ft. by 26 ft. Without computing decide if the area of Playground A is greater than, less than, or equal to the area of Playground B. Explain your thinking.</p> <p>Then, use pictures, numbers, and words to justify your answer.</p> <p>(DOK 3)</p>
<p>4.NBT.6</p>	<p>Four friends are having pancakes with strawberries on top. There are 26 strawberries. Each friend will get an equal number of strawberries. Which model shows how the strawberries could be divided equally among the 4 friends?</p> <p>A. </p> <p>B. </p> <p>C. </p> <p>D. </p> <p>(DOK 1)</p>	<p>Write a multiplication problem with one 3-digit factor and one 1-digit factor with a resulting product that falls between 4,000 and 5,000. Explain how you chose your numbers and prove your answer.</p> <p>(DOK 3)</p> <p>Using the digits 1, 2, 3, and 4, write a two-digit by two-digit multiplication problem that will result in the greatest possible product using those digits. Explain how you chose your numbers and prove your answer.</p> <p>(DOK 3)</p>

4.MD.1

1. Complete the following conversion charts:

Length	
3 km	_____ m
_____ km	9,000 m
6 km 435 m	_____ m
12 km 12 m	_____ m

Mass	
_____ kg	3,000 g
20 kg 300 g	_____ g
1 kg 74 g	_____ g
403 kg 4 g	_____ g

Capacity	
_____ L	4,000 mL
48 L 808 mL	_____ mL
2 L 20 mL	_____ mL
639 L 6 mL	_____ mL

A student completed the problem below. Check his work. Explain how you know if each solution is correct or incorrect.

Convert the following measurements:

a. 24 km = 24,000 m

b. 16 L = 16,000 mL

c. 38 kg = 3,800 g

(DOK 1)

(DOK 2)

4.MD.2

Give students word problems to solve. Require students to show work, including any diagrams.

(DOK 2)

1. Billy has been training for a half-marathon. He has a strict gym routine that he follows six times a week. For the problems below, use tape diagrams, numbers, and words to explain each answer.
- Each day Billy runs on the treadmill for 5 kilometers and runs on the outdoor track for 6,000 meters. In all, how many kilometers does Billy run each day?
 - Since Billy has started training, he has also been drinking more water. On Saturday, he drank 2 L 755 mL of water. On Sunday, he drank some more. If Billy drank a total of 4 L 255 mL of water on Saturday and Sunday, how many milliliters of water did Billy drink on Sunday?
 - Since exercising so much for his half-marathon, Billy has been losing weight. In his first week of training, he lost 2 kg 530 g of weight. In the following two weeks of training, he lost 1 kg 855 g per week. Billy now weighs 61 kg 760 g. What was Billy's weight, in grams, before he started training? Explain your thinking.

(DOK 3)



4th Grade Mathematics • Unpacked Content

For the new Common Core State Standards that will be effective in all North Carolina schools in the 2012-13 school year.

This document is designed to help North Carolina educators teach the Common Core (Standard Course of Study). NCDPI staff are continually updating and improving these tools to better serve teachers.

What is the purpose of this document?

To increase student achievement by ensuring educators understand specifically what the new standards mean a student must know, understand and be able to do. This document may also be used to facilitate discussion among teachers and curriculum staff and to encourage coherence in the sequence, pacing, and units of study for grade-level curricula. This document, along with on-going professional development, is one of many resources used to understand and teach the CCSS.

What is in the document?

Descriptions of what each standard means a student will know, understand and be able to do. The “unpacking” of the standards done in this document is an effort to answer a simple question “What does this standard mean that a student must know and be able to do?” and to ensure the description is helpful, specific and comprehensive for educators.

How do I send Feedback?

We intend the explanations and examples in this document to be helpful and specific. That said, we believe that as this document is used, teachers and educators will find ways in which the unpacking can be improved and made ever more useful. Please send feedback to us at feedback@dpi.state.nc.us and we will use your input to refine our unpacking of the standards. Thank You!

Just want the standards alone?

You can find the standards alone at <http://corestandards.org/the-standards>

Standards for Mathematical Practices

The Common Core State Standards for Mathematical Practice are expected to be integrated into every mathematics lesson for all students Grades K-12. Below are a few examples of how these Practices may be integrated into tasks that students complete.

Mathematic Practices	Explanations and Examples
1. Make sense of problems and persevere in solving them.	Mathematically proficient students in grade 4 know that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. Fourth graders may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, “Does this make sense?” They listen to the strategies of others and will try different approaches. They often will use another method to check their answers.
2. Reason abstractly and quantitatively.	Mathematically proficient fourth grade students should recognize that a number represents a specific quantity. They connect the quantity to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities. They extend this understanding from whole numbers to their work with fractions and decimals. Students write simple expressions, record calculations with numbers, and represent or round numbers using place value concepts.
3. Construct viable arguments and critique the reasoning of others.	In fourth grade mathematically proficient students may construct arguments using concrete referents, such as objects, pictures, and drawings. They explain their thinking and make connections between models and equations. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?” They explain their thinking to others and respond to others’ thinking.
4. Model with mathematics.	Mathematically proficient fourth grade students experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. Fourth graders should evaluate their results in the context of the situation and reflect on whether the results make sense.
5. Use appropriate tools strategically.	Mathematically proficient fourth grader students consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. For instance, they may use graph paper or a number line to represent and compare decimals and protractors to measure angles. They use other measurement tools to understand the relative size of units within a system and express measurements given in larger units in terms of smaller units.
6. Attend to precision.	As fourth grader students develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and in their own reasoning. They are careful about specifying units of measure and state the meaning of the symbols they choose. For instance, they use appropriate labels when creating a line plot.
7. Look for and make use of structure.	In fourth grade mathematically proficient students look closely to discover a pattern or structure. For instance, students use properties of operations to explain calculations (partial products model). They relate representations of counting problems such as tree diagrams and arrays to the multiplication principle of counting. They generate number or shape patterns that follow a given rule.
8. Look for and express regularity in repeated reasoning.	Students in fourth grade should notice repetitive actions in computation to make generalizations. Students use models to explain calculations and understand how algorithms work. They also use models to examine patterns and generate their own algorithms. For example, students use visual fraction models to write equivalent fractions.

Grade 4 Critical Areas

The Critical Areas are designed to bring focus to the standards at each grade by describing the big ideas that educators can use to build their curriculum and to guide instruction. The Critical Areas for fourth grade can be found on page 27 in the *Common Core State Standards for Mathematics*.

1. Developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends.

Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

2. Developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers.

Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., $15/9 = 5/3$), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

3. Understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Operations and Algebraic Thinking

4.OA

Common Core Cluster

Use the four operations with whole numbers to solve problems.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **multiplication/multiply, division/divide, addition/add, subtraction/subtract, equations, unknown, remainders, reasonableness, mental computation, estimation, rounding**

Common Core Standard

Unpacking

What do these standards mean a child will know and be able to do?

4.OA.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

A *multiplicative comparison* is a situation in which one quantity is multiplied by a specified number to get another quantity (e.g., “*a* is *n* times as much as *b*”). Students should be able to identify and verbalize which quantity is being multiplied and which number tells how many times.

Students should be given opportunities to write and identify equations and statements for multiplicative comparisons.

Example:

$$5 \times 8 = 40.$$

Sally is five years old. Her mom is eight times older. How old is Sally’s Mom?

$$5 \times 5 = 25$$

Sally has five times as many pencils as Mary. If Sally has 5 pencils, how many does Mary have?

4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.¹

This standard calls for students to translate comparative situations into equations with an unknown and solve. Students need many opportunities to solve contextual problems. Refer to Glossary, Table 2 (page 89) For more examples (table included at the end of this document for your convenience)

In a multiplicative comparison, the underlying question is *what amount would be added to one quantity* in order to result in the other. In a multiplicative comparison, the underlying question is *what factor would multiply one quantity* in order to result in the other.

Tape diagram used to solve the Compare problem in Table 3

B is the cost of a blue hat in dollars

R is the cost of a red hat in dollars

\$6

$$3 \times B = R$$

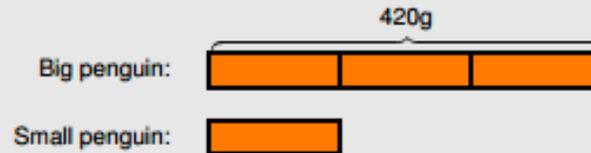
\$6 \$6 \$6

$$3 \times \$6 = \$18$$

¹ See Glossary, Table 2. (page 89) (Table included at the end of this document for your convenience)

A tape diagram used to solve a Compare problem

A big penguin will eat 3 times as much fish as a small penguin.
The big penguin will eat 420 grams of fish. All together, how much will the two penguins eat?



B = number of grams the big penguin eats
 S = number of grams the small penguin eats

$$3 \cdot S = B$$

$$3 \cdot S = 420$$

$$S = 140$$

$$\begin{aligned} S + B &= 140 + 420 \\ &= 560 \end{aligned}$$

(Progressions for the CCSSM; Operations and Algebraic Thinking, CCSS Writing Team, May 2011, page 29)

Examples:

Unknown Product: A blue scarf costs \$3. A red scarf costs 6 times as much. How much does the red scarf cost? ($3 \times 6 = p$).

Group Size Unknown: A book costs \$18. That is 3 times more than a DVD. How much does a DVD cost? ($18 \div p = 3$ or $3 \times p = 18$).

Number of Groups Unknown: A red scarf costs \$18. A blue scarf costs \$6. How many times as much does the red scarf cost compared to the blue scarf? ($18 \div 6 = p$ or $6 \times p = 18$).

When distinguishing multiplicative comparison from additive comparison, students should note that

- additive comparisons focus on the difference between two quantities (e.g., Deb has 3 apples and Karen has 5 apples. How many more apples does Karen have?). A simple way to remember this is, “How many more?”
- multiplicative comparisons focus on comparing two quantities by showing that one quantity is a specified number of times larger or smaller than the other (e.g., Deb ran 3 miles. Karen ran 5 times as many miles as Deb. How many miles did Karen run?). A simple way to remember this is “How many times as much?” or “How many times as many?”

4.OA.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

The focus in this standard is to have students use and discuss various strategies. It refers to estimation strategies, including using compatible numbers (numbers that sum to 10 or 100) or rounding. Problems should be structured so that all acceptable estimation strategies will arrive at a reasonable answer. Students need many opportunities solving multistep story problems using all four operations.

Example:

On a vacation, your family travels 267 miles on the first day, 194 miles on the second day and 34 miles on the third day. How many miles did they travel total?

Some typical estimation strategies for this problem:

Student 1

I first thought about 267 and 34. I noticed that their sum is about 300. Then I knew that 194 is close to 200. When I put 300 and 200 together, I get 500.

Student 2

I first thought about 194. It is really close to 200. I also have 2 hundreds in 267. That gives me a total of 4 hundreds. Then I have 67 in 267 and the 34. When I put 67 and 34 together that is really close to 100. When I add that hundred to the 4 hundreds that I already had, I end up with 500.

Student 3

I rounded 267 to 300. I rounded 194 to 200. I rounded 34 to 30. When I added 300, 200 and 30, I know my answer will be about 530.

The assessment of estimation strategies should only have one reasonable answer (500 or 530), or a range (between 500 and 550). Problems will be structured so that all acceptable estimation strategies will arrive at a reasonable answer.

Examples continued on the next page.

Example 2:

Your class is collecting bottled water for a service project. The goal is to collect 300 bottles of water. On the first day, Max brings in 3 packs with 6 bottles in each container. Sarah wheels in 6 packs with 6 bottles in each container. About how many bottles of water still need to be collected?

Student 1

First, I multiplied 3 and 6 which equals 18. Then I multiplied 6 and 6 which is 36. I know 18 plus 36 is about 50. I'm trying to get to 300. 50 plus another 50 is 100. Then I need 2 more hundreds. So we still need 250 bottles.

Student 2

First, I multiplied 3 and 6 which equals 18. Then I multiplied 6 and 6 which is 36. I know 18 is about 20 and 36 is about 40. $40+20=60$. $300-60=240$, so we need about 240 more bottles.

This standard references interpreting remainders. Remainders should be put into context for interpretation. ways to address remainders:

- Remain as a left over
- Partitioned into fractions or decimals
- Discarded leaving only the whole number answer
- Increase the whole number answer up one
- Round to the nearest whole number for an approximate result

Example:

Write different word problems involving $44 \div 6 = ?$ where the answers are best represented as:

Problem A: 7

Problem B: 7 r 2

Problem C: 8

Problem D: 7 or 8

Problem E: $7 \frac{2}{6}$

possible solutions:

Problem A: 7. Mary had 44 pencils. Six pencils fit into each of her pencil pouches. How many pouches did she fill? $44 \div 6 = p$; $p = 7 \text{ r } 2$. *Mary can fill 7 pouches completely.*

Problem B: 7 r 2. Mary had 44 pencils. Six pencils fit into each of her pencil pouches. How many pouches could she fill and how many pencils would she have left? $44 \div 6 = p$; $p = 7 \text{ r } 2$; *Mary can fill 7 pouches and have 2 left over.*

Problem C: 8. Mary had 44 pencils. Six pencils fit into each of her pencil pouches. What would the fewest number of pouches she would need in order to hold all of her pencils? $44 \div 6 = p$; $p = 7 \text{ r } 2$; *Mary can needs 8 pouches to hold all of the pencils.*

Problem D: 7 or 8. Mary had 44 pencils. She divided them equally among her friends before giving one of the leftovers to each of her friends. How many pencils could her friends have received? $44 \div 6 = p$; $p = 7 \text{ r } 2$; *Some of her friends received 7 pencils. Two friends received 8 pencils.*

Problem E: $7 \frac{2}{6}$. Mary had 44 pencils and put six pencils in each pouch. What fraction represents the number of pouches that Mary filled? $44 \div 6 = p$; $p = 7 \frac{2}{6}$

Example:

There are 128 students going on a field trip. If each bus held 30 students, how many buses are needed? ($128 \div 30 = b$; $b = 4 \text{ R } 8$; *They will need 5 buses because 4 busses would not hold all of the students*).

Students need to realize in problems, such as the example above, that an extra bus is needed for the 8 students that are left over.

	<p>Estimation skills include identifying when estimation is appropriate, determining the level of accuracy needed, selecting the appropriate method of estimation, and verifying solutions or determining the reasonableness of situations using various estimation strategies. Estimation strategies include, but are not limited to:</p> <ul style="list-style-type: none"> • front-end estimation with adjusting (using the highest place value and estimating from the front end, making adjustments to the estimate by taking into account the remaining amounts), • clustering around an average (when the values are close together an average value is selected and multiplied by the number of values to determine an estimate), • rounding and adjusting (students round down or round up and then adjust their estimate depending on how much the rounding affected the original values), • using friendly or compatible numbers such as factors (students seek to fit numbers together - e.g., rounding to factors and grouping numbers together that have round sums like 100 or 1000), • using benchmark numbers that are easy to compute (students select close whole numbers for fractions or decimals to determine an estimate).
--	--

Common Core Cluster	
Gain familiarity with factors and multiples.	
Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: multiplication/multiply, division/divide, factor pairs, factor, multiple, prime, composite	
Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
<p>4.OA.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.</p>	<p>This standard requires students to demonstrate understanding of factors and multiples of whole numbers. This standard also refers to prime and composite numbers. Prime numbers have exactly two factors, the number one and their own number. For example, the number 17 has the factors of 1 and 17. Composite numbers have more than two factors. For example, 8 has the factors 1, 2, 4, and 8.</p> <p>A common misconception is that the number 1 is prime, when in fact; it is neither prime nor composite. Another common misconception is that all prime numbers are odd numbers. This is not true, since the number 2 has only 2 factors, 1 and 2, and is also an even number.</p> <p>Prime vs. Composite: A prime number is a number greater than 1 that has only 2 factors, 1 and itself. Composite numbers have more than 2 factors. Students investigate whether numbers are prime or composite by</p>

- building rectangles (arrays) with the given area and finding which numbers have more than two rectangles (e.g. 7 can be made into only 2 rectangles, 1 x 7 and 7 x 1, therefore it is a prime number)
- finding factors of the number

Students should understand the process of finding factor pairs so they can do this for any number 1 - 100,

Example:

Factor pairs for 96: 1 and 96, 2 and 48, 3 and 32, 4 and 24, 6 and 16, 8 and 12.

Multiples can be thought of as the result of skip counting by each of the factors. When skip counting, students should be able to identify the number of factors counted e.g., 5, 10, 15, 20 (there are 4 fives in 20).

Example:

Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24

Multiples: 1, 2, 3, 4, 5...24

2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

3, 6, 9, 12, 15, 18, 21, 24

4, 8, 12, 16, 20, 24

8, 16, 24

12, 24

24

To determine if a number between 1-100 is a multiple of a given one-digit number, some helpful hints include the following:

- all even numbers are multiples of 2
- all even numbers that can be halved twice (with a whole number result) are multiples of 4
- all numbers ending in 0 or 5 are multiples of 5

Common Core Cluster

Generate and analyze patterns.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **pattern (number or shape), pattern rule**

Common Core Standard

4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Unpacking

What do these standards mean a child will know and be able to do?

Patterns involving numbers or symbols either repeat or grow. Students need multiple opportunities creating and extending number and shape patterns. Numerical patterns allow students to reinforce facts and develop fluency with operations.

Patterns and rules are related. A pattern is a sequence that repeats the same process over and over. A rule dictates what that process will look like. Students investigate different patterns to find rules, identify features in the patterns, and justify the reason for those features.

Example:

Pattern	Rule	Feature(s)
3, 8, 13, 18, 23, 28, ...	Start with 3, add 5	The numbers alternately end with a 3 or 8
5, 10, 15, 20 ...	Start with 5, add 5	The numbers are multiples of 5 and end with either 0 or 5. The numbers that end with 5 are products of 5 and an odd number. The numbers that end in 0 are products of 5 and an even number.

After students have identified rules and features from patterns, they need to generate a numerical or shape pattern from a given rule.

Example:

Rule: Starting at 1, create a pattern that starts at 1 and multiplies each number by 3. Stop when you have 6 numbers.

Students write 1, 3, 9, 27, 81, 243. Students notice that all the numbers are odd and that the sums of the digits of the 2 digit numbers are each 9. Some students might investigate this beyond 6 numbers. Another feature to investigate is the patterns in the differences of the numbers ($3 - 1 = 2$, $9 - 3 = 6$, $27 - 9 = 18$, etc.)

This standard calls for students to describe features of an arithmetic number pattern or shape pattern by identifying the rule, and features that are not explicit in the rule. A t-chart is a tool to help students see number patterns.

Example:

There are 4 beans in the jar. Each day 3 beans are added. How many beans are in the jar for each of the first 5 days?

Day	Operation	Beans
0	$3 \times 0 + 4$	4
1	$3 \times 1 + 4$	7
2	$3 \times 2 + 4$	10
3	$3 \times 3 + 4$	13
4	$3 \times 4 + 4$	16
5	$3 \times 5 + 4$	19

This standard begins with a small focus on reasoning about a number or shape pattern, connecting a rule for a given pattern with its sequence of numbers or shapes. Patterns that consist of repeated sequences of shapes or growing sequences of designs can be appropriate for the grade. For example, students could examine a sequence of dot designs in which each design has 4 more dots than the previous one and they could reason about how the dots are organized in the design to determine the total number of dots in the 100th design. In examining numerical sequences, fourth graders can explore rules of repeatedly adding the same whole number or repeatedly multiplying by the same whole number. Properties of repeating patterns of shapes can be explored with division. For example, to determine the 100th shape in a pattern that consists of repetitions of the sequence “square, circle, triangle,” the fact that when we divide 100 by 3 the whole number quotient is 33 with remainder 1 tells us that after 33 full repeats, the 99th shape will be a triangle (the last shape in the repeating pattern), so the 100th shape is the first shape in the pattern, which is a square. Notice that the Standards do not require students to infer or guess the underlying rule for a pattern, but rather ask them to generate a pattern from a given rule and identify features of the given pattern. (*Progressions for the CCSSM; Operations and Algebraic Thinking*, CCSS Writing Team, May 2011, page 31)

Common Core Standard and Cluster

Generalize place value understanding for multi-digit whole numbers.

¹Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **place value, greater than, less than, equal to, <, >, =, comparisons/compare, round**

Unpacking

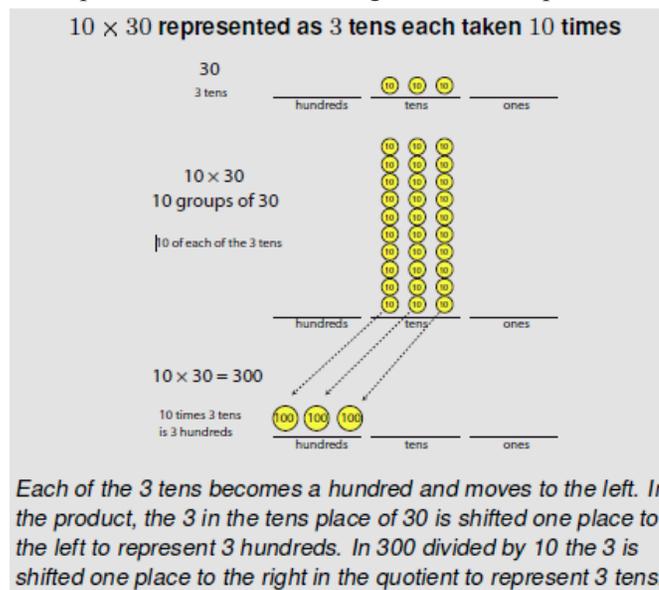
What do these standards mean a child will know and be able to do?

4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.

This standard calls for students to extend their understanding of place value related to multiplying and dividing by multiples of 10. In this standard, students should reason about the magnitude of digits in a number. Students should be given opportunities to reason and analyze the relationships of numbers that they are working with.

In the base-ten system, the value of each place is 10 times the value of the place to the immediate right. Because of this, multiplying by 10 yields a product in which each digit of the multiplicand is shifted one place to the left.



(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 12)

Example:

How is the 2 in the number 582 similar to and different from the 2 in the number 528?

<p>4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p>	<p>This standard refers to various ways to write numbers. Students should have flexibility with the different number forms. Traditional expanded form is $285 = 200 + 80 + 5$. Written form or number name is two hundred eighty-five. However, students should have opportunities to explore the idea that 285 could also be 28 tens plus 5 ones or 1 hundred, 18 tens, and 5 ones.</p> <p>To read numerals between 1,000 and 1,000,000, students need to understand the role of commas. Each sequence of three digits made by commas is read as hundreds, tens, and ones, followed by the name of the appropriate base-thousand unit (thousand, million, billion, trillion, etc.). Thus, 457,000 is read “four hundred fifty seven thousand.” The same methods students used for comparing and rounding numbers in previous grades apply to these numbers, because of the uniformity of the base-ten system. (<i>Progressions for the CCSSM; Number and Operation in Base Ten</i>, CCSS Writing Team, April 2011, page 12)</p> <p>Students should also be able to compare two multi-digit whole numbers using appropriate symbols.</p>
<p>4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.</p>	<p>This standard refers to place value understanding, which extends beyond an algorithm or procedure for rounding. The expectation is that students have a deep understanding of place value and number sense and can explain and reason about the answers they get when they round. Students should have numerous experiences using a number line and a hundreds chart as tools to support their work with rounding.</p> <p>Example: Your class is collecting bottled water for a service project. The goal is to collect 300 bottles of water. On the first day, Max brings in 3 packs with 6 bottles in each container. Sarah wheels in 6 packs with 6 bottles in each container. About how many bottles of water still need to be collected? Continues on next page.</p> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>Student 1 First, I multiplied 3 and 6 which equals 18. Then I multiplied 6 and 6 which is 36. I know 18 plus 36 is about 50. I’m trying to get to 300. 50 plus another 50 is 100. Then I need 2 more hundreds. So we still need 250 bottles.</p> </div> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>Student 2 First, I multiplied 3 and 6 which equals 18. Then I multiplied 6 and 6 which is 36. I know 18 is about 20 and 36 is about 40. $40+20=60$. $300-60 = 240$, so we need about 240 more bottles.</p> </div> </div>

Example:

On a vacation, your family travels 267 miles on the first day, 194 miles on the second day and 34 miles on the third day. How many total miles did they travel?

Some typical estimation strategies for this problem:

Student 1

I first thought about 267 and 34. I noticed that their sum is about 300. Then I knew that 194 is close to 200. When I put 300 and 200 together, I get 500.

Student 2

I first thought about 194. It is really close to 200. I also have 2 hundreds in 267. That gives me a total of 4 hundreds. Then I have 67 in 267 and the 34. When I put 67 and 34 together that is really close to 100. When I add that hundred to the 4 hundreds that I already had, I end up with 500.

Student 3

I rounded 267 to 300. I rounded 194 to 200. I rounded 34 to 30. When I added 300, 200 and 30, I know my answer will be about 530.

Example:

Round 368 to the nearest hundred.

This will either be 300 or 400, since those are the two hundreds before and after 368.

Draw a number line, subdivide it as much as necessary, and determine whether 368 is closer to 300 or 400.

Since 368 is closer to 400, this number should be rounded to 400



Common Core Cluster

Use place value understanding and properties of operations to perform multi-digit arithmetic.

¹Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.

Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **add, addend, sum, subtract, difference, equation, strategies, (properties)-rules about how numbers work, rectangular arrays, area model, multiply, divide, factor, product, quotient, reasonableness**

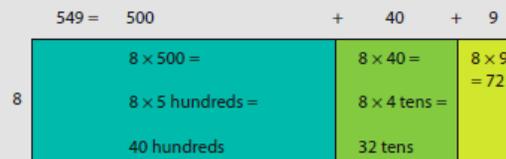
Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
<p>4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>	<p>Students build on their understanding of addition and subtraction, their use of place value and their flexibility with multiple strategies to make sense of the standard algorithm. They continue to use place value in describing and justifying the processes they use to add and subtract.</p> <p>This standard refers to fluency, which means accuracy, efficiency (using a reasonable amount of steps and time), and flexibility (using a variety strategies such as the distributive property). This is the first grade level in which students are expected to be proficient at using the standard algorithm to add and subtract. However, other previously learned strategies are still appropriate for students to use.</p> <p>Computation algorithm. A set of predefined steps applicable to a class of problems that gives the correct result in every case when the steps are carried out correctly.</p> <p>Computation strategy. Purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. (<i>Progressions for the CCSSM; Number and Operation in Base Ten</i>, CCSS Writing Team, April 2011, page 2)</p> <p>In mathematics, an algorithm is defined by its steps and not by the way those steps are recorded in writing. With this in mind, minor variations in methods of recording standard algorithms are acceptable.</p> <p>As with addition and subtraction, students should use methods they understand and can explain. Visual representations such as area and array diagrams that students draw and connect to equations and other written numerical work are useful for this purpose. By reasoning repeatedly about the connection between math drawings and written numerical work, students can come to see multiplication and division algorithms as abbreviations or</p>

summaries of their reasoning about quantities.

Students can invent and use fast special strategies while also working towards understanding general methods and the standard algorithm.

One component of understanding general methods for multiplication is understanding how to compute products of one-digit numbers and multiples of 10, 100, and 1000. This extends work in Grade 3 on products of one-digit numbers and multiples of 10. We can calculate 6×700 by calculating 6×7 and then shifting the result to the left two places (by placing two zeros at the end to show that these are hundreds) because 6 groups of 7 hundred is 6×7 hundreds, which is 42 hundreds, or 4,200. Students can use this place value reasoning, which can also be supported with diagrams of arrays or areas, as they develop and practice using the patterns in relationships among products such as 6×7 , 6×70 , 6×700 , and 6×7000 . Products of 5 and even numbers, such as 5×4 , 5×40 , 5×400 , 5×4000 and 4×5 , 4×50 , 4×500 , 4×5000 might be discussed and practiced separately afterwards because they may seem at first to violate the patterns by having an “extra” 0 that comes from the one-digit product.

Computation of 8×549 connected with an area model



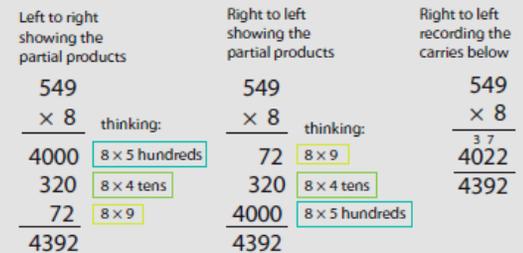
Each part of the region above corresponds to one of the terms in the computation below.

$$8 \times 549 = 8 \times (500 + 40 + 9)$$

$$= 8 \times 500 + 8 \times 40 + 8 \times 9.$$

This can also be viewed as finding how many objects are in 8 groups of 549 objects, by finding the cardinalities of 8 groups of 500, 8 groups of 40, and 8 groups of 9, then adding them.

Computation of 8×549 : Ways to record general methods



The first method proceeds from left to right, and the others from right to left. In the third method, the digits representing new units are written below the line rather than above 549, thus keeping the digits of the products close to each other, e.g., the 7 from $8 \times 9 = 72$ is written diagonally to the left of the 2 rather than above the 4 in 549.

(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 13)

When students begin using the standard algorithm their explanation may be quite lengthy. After much practice with using place value to justify their steps, they will develop fluency with the algorithm. Students should be able to explain why the algorithm works.

$$\begin{array}{r} 3892 \\ + 1567 \\ \hline \end{array}$$

Student explanation for this problem continued on the next page:

1. Two ones plus seven ones is nine ones.
2. Nine tens plus six tens is 15 tens.
3. I am going to write down five tens and think of the 10 tens as one more hundred. (notates with a 1 above the hundreds column)
4. Eight hundreds plus five hundreds plus the extra hundred from adding the tens is 14 hundreds.
5. I am going to write the four hundreds and think of the 10 hundreds as one more 1000. (notates with a 1 above the thousands column)
6. Three thousands plus one thousand plus the extra thousand from the hundreds is five thousand.

$$\begin{array}{r} 3546 \\ - 928 \\ \hline \end{array}$$

Student explanation for this problem:

1. There are not enough ones to take 8 ones from 6 ones so I have to use one ten as 10 ones. Now I have 3 tens and 16 ones. (Marks through the 4 and notates with a 3 above the 4 and writes a 1 above the ones column to be represented as 16 ones.)
2. Sixteen ones minus 8 ones is 8 ones. (Writes an 8 in the ones column of answer.)
3. Three tens minus 2 tens is one ten. (Writes a 1 in the tens column of answer.)
4. There are not enough hundreds to take 9 hundreds from 5 hundreds so I have to use one thousand as 10 hundreds. (Marks through the 3 and notates with a 2 above it. (Writes down a 1 above the hundreds column.) Now I have 2 thousand and 15 hundreds.
5. Fifteen hundreds minus 9 hundreds is 6 hundreds. (Writes a 6 in the hundreds column of the answer).
6. I have 2 thousands left since I did not have to take away any thousands. (Writes 2 in the thousands place of answer.)

Students should know that it is mathematically possible to subtract a larger number from a smaller number but that their work with whole numbers does not allow this as the difference would result in a negative number.

4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

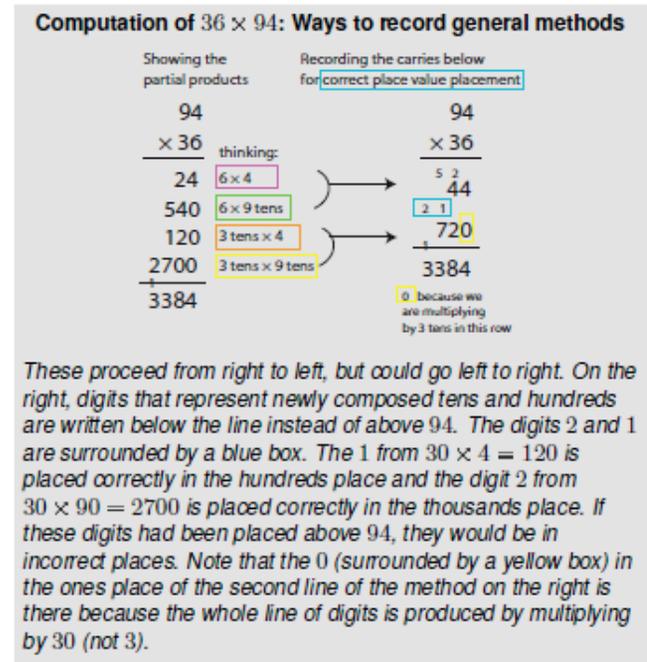
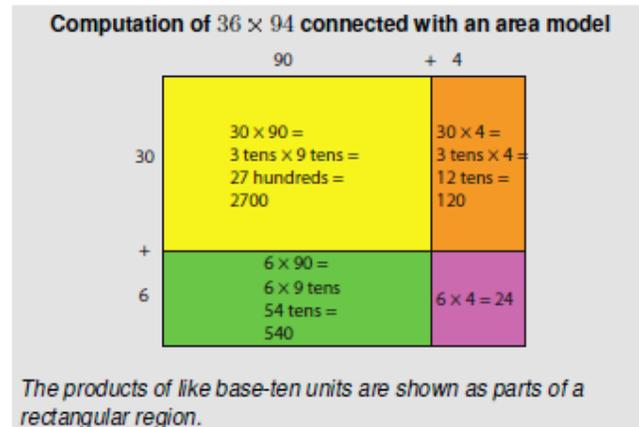
Students who develop flexibility in breaking numbers apart have a better understanding of the importance of place value and the distributive property in multi-digit multiplication. Students use base ten blocks, area models, partitioning, compensation strategies, etc. when multiplying whole numbers and use words and diagrams to explain their thinking. They use the terms factor and product when communicating their reasoning. Multiple strategies enable students to develop fluency with multiplication and transfer that understanding to division. Use of the standard algorithm for multiplication is an expectation in the 5th grade.

Another part of understanding general base-ten methods for multi-digit multiplication is understanding the role played by the distributive property. This allows numbers to be decomposed into base-ten units, products of the

units to be computed, and then combined. By decomposing the factors into like base-ten units and applying the distributive property, multiplication computations are reduced to single-digit multiplications and products of numbers with multiples of 10, of 100, and of 1000. Students can connect diagrams of areas or arrays to numerical work to develop understanding of general base-ten multiplication methods. Computing products of two two-digit numbers requires using the distributive property several times when the factors are decomposed into base-ten units.

Example:

$$\begin{aligned} 36 \times 94 &= (30 + 6) \times (90 + 4) \\ &= (30 + 6) \times 90 + (30 + 6) \times 4 \\ &= 30 \times 90 + 6 \times 90 + 30 \times 4 + 6 \times 4. \end{aligned}$$



(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 14)

This standard calls for students to multiply numbers using a variety of strategies.

Example:

There are 25 dozen cookies in the bakery. What is the total number of cookies at the bakery?

Student 1

$$25 \times 12$$

I broke 12 up into 10 and 2

$$25 \times 10 = 250$$

$$25 \times 2 = 50$$

$$250 + 50 = 300$$

Student 2

$$25 \times 12$$

I broke 25 up into 5 groups of 5

$$5 \times 12 = 60$$

I have 5 groups of 5 in 25

$$60 \times 5 = 300$$

Student 3

$$25 \times 12$$

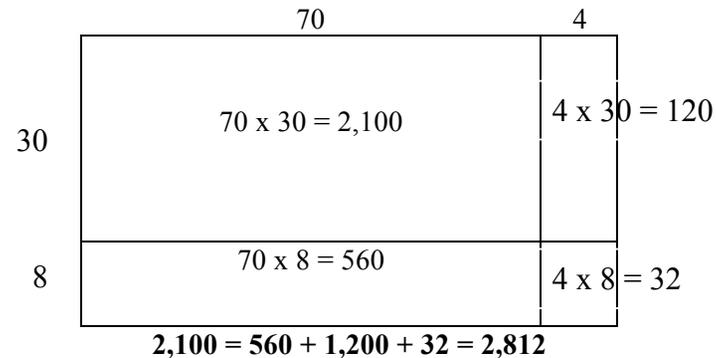
I doubled 25 and cut

12 in half to get 50×6

$$50 \times 6 = 300$$

Example:

What would an array area model of 74×38 look like?

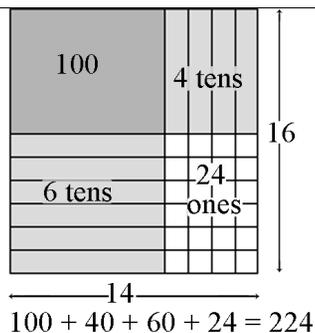


Example:

To illustrate 154×6 students use base 10 blocks or use drawings to show 154 six times. Seeing 154 six times will lead them to understand the distributive property, $154 \times 6 = (100 + 50 + 4) \times 6 = (100 \times 6) + (50 \times 6) + (4 \times 6) = 600 + 300 + 24 = 924$.

The area model below shows the partial products.

$$14 \times 16 = 224$$



Using the area model, students first verbalize their understanding:

- 10 x 10 is 100
- 4 x 10 is 40
- 10 x 6 is 60, and
- 4 x 6 is 24.

They use different strategies to record this type of thinking.

Students explain this strategy and the one below with base 10 blocks, drawings, or numbers.

$$\begin{array}{r}
 25 \\
 \times 24 \\
 \hline
 400 \text{ (} 20 \times 20 \text{)} \\
 100 \text{ (} 20 \times 5 \text{)} \\
 80 \text{ (} 4 \times 20 \text{)} \\
 \underline{20 \text{ (} 4 \times 5 \text{)}} \\
 600
 \end{array}$$

4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

In fourth grade, students build on their third grade work with division within 100. Students need opportunities to develop their understandings by using problems in and out of context.

General methods for computing quotients of multi-digit numbers and one-digit numbers rely on the same understandings as for multiplication, but cast in terms of division. One component is quotients of multiples of 10, 100, or 1000 and one-digit numbers. For example, $42 \div 6$ is related to $420 \div 6$ and $4200 \div 6$. Students can draw on their work with multiplication and they can also reason that $4200 \div 6$ means partitioning 42 hundreds into 6 equal groups, so there are 7 hundreds in each group. Another component of understanding general methods for multi-digit division computation is the idea of decomposing the dividend into like base-ten units and finding the quotient unit by unit, starting with the largest unit and continuing on to smaller units. As with multiplication, this relies on the distributive property. This can be viewed as finding the side length of a rectangle (the divisor is the length of the other side) or as allocating objects (the divisor is the number of groups).

Multi-digit division requires working with remainders. In preparation for working with remainders, students can compute sums of a product and a number, such as $4 \times 8 + 3$. In multi-digit division, students will need to find the greatest multiple less than a given number. For example, when dividing by 6, the greatest multiple of 6 less than 50 is $6 \times 8 = 48$. Students can think of these “greatest multiples” in terms of putting objects into groups. For example, when 50 objects are shared among 6 groups, the largest whole number of objects that can

be put in each group is 8, and 2 objects are left over. (Or when 50 objects are allocated into groups of 6, the largest whole number of groups that can be made is 8, and 2 objects are left over.) The equation $6 \times 8 + 2 = 50$ (or $8 \times 6 + 2 = 50$) corresponds with this situation.

Cases involving 0 in division may require special attention.

(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 14)

Cases involving 0 in division

<p>Case 1 a 0 in the dividend:</p> $\begin{array}{r} 1 \\ 6 \overline{) 901} \\ - 6 \\ \hline 3 \end{array}$ <p style="text-align: center; border: 1px solid black; border-radius: 10px; padding: 2px;">What to do about the 0?</p> <p style="text-align: center; border: 1px solid black; border-radius: 10px; padding: 2px;">3 hundreds = 30 tens</p>	<p>Case 2 a 0 in a remainder part way through:</p> $\begin{array}{r} 4 \\ 2 \overline{) 83} \\ - 8 \\ \hline 0 \end{array}$ <p style="text-align: center; border: 1px solid black; border-radius: 10px; padding: 2px;">Stop now because of the 0?</p> <p style="text-align: center; border: 1px solid black; border-radius: 10px; padding: 2px;">No, there are still 3 ones left.</p>	<p>Case 3 a 0 in the quotient:</p> $\begin{array}{r} 3 \\ 12 \overline{) 3714} \\ - 36 \\ \hline 11 \end{array}$ <p style="text-align: center; border: 1px solid black; border-radius: 10px; padding: 2px;">Stop now because 11 is less than 12?</p> <p style="text-align: center; border: 1px solid black; border-radius: 10px; padding: 2px;">No, it is 11 tens, so there are still $110 + 4 = 114$ left.</p>
--	--	---

Division as finding side length

? hundreds + ? tens + ? ones

7

966

$$\begin{array}{r} ??? \\ 7 \overline{) 966} \end{array}$$

100 + 30 + 8 = 138

966
-700
266

266
-210
56

56
-56
0

$$\begin{array}{r} 8 \\ 30 \\ 100 \\ \hline 7 \overline{) 966} \\ - 700 \\ \hline 266 \\ - 210 \\ \hline 56 \\ - 56 \\ \hline 0 \end{array}$$

} 138

966 ÷ 7 is viewed as finding the unknown side length of a rectangular region with area 966 square units and a side of length 7 units. The amount of hundreds is found, then tens, then ones. This yields a decomposition into three regions of dimensions 7 by 100, 7 by 30, and 7 by 8. It can be connected with the decomposition of 966 as $7 \times 100 + 7 \times 30 + 7 \times 8$. By the distributive property, this is $7 \times (100 + 30 + 8)$, so the unknown side length is 138. In the recording on the right, amounts of hundreds, tens, and ones are represented by numbers rather than by digits, e.g., 700 instead of 7.

(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 15)

Division as finding group size

$$745 \div 3 = ?$$

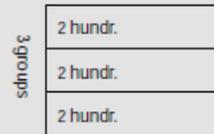


Thinking:

Divide
7 hundreds, 4 tens, 5 ones
equally among 3 groups,
starting with hundreds.

$$3 \overline{)745}$$

1



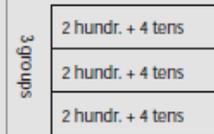
7 hundreds \div 3
each group gets
2 hundreds;
1 hundred is left.

$$\begin{array}{r} 2 \\ 3 \overline{)745} \\ -6 \\ \hline 1 \end{array}$$

Unbundle 1 hundred.
Now I have
10 tens + 4 tens = 14 tens.

$$\begin{array}{r} 2 \\ 3 \overline{)745} \\ -6 \\ \hline 14 \end{array}$$

2



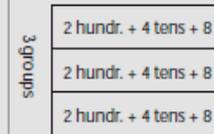
14 tens \div 3
each group gets
4 tens;
2 tens are left.

$$\begin{array}{r} 24 \\ 3 \overline{)745} \\ -6 \\ \hline 14 \\ -12 \\ \hline 2 \end{array}$$

Unbundle 2 tens.
Now I have
20 + 5 = 25 left.

$$\begin{array}{r} 24 \\ 3 \overline{)745} \\ -6 \\ \hline 14 \\ -12 \\ \hline 25 \end{array}$$

3



25 \div 3
each group gets 8;
1 is left.

$$\begin{array}{r} 248 \\ 3 \overline{)745} \\ -6 \\ \hline 14 \\ -12 \\ \hline 25 \\ -24 \\ \hline 1 \end{array}$$

Each group got 248
and 1 is left.

$745 \div 3$ can be viewed as allocating 745 objects bundled in 7 hundreds, 4 tens, and 3 ones equally among 3 groups. In Step 1, the 2 indicates that each group got 2 hundreds, the 6 is the number of hundreds allocated, and the 1 is the number of hundreds not allocated. After Step 1, the remaining hundred is decomposed as 10 tens and combined with the 4 tens (in 745) to make 14 tens.

(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 15)

Example:

A 4th grade teacher bought 4 new pencil boxes. She has 260 pencils. She wants to put the pencils in the boxes so that each box has the same number of pencils. How many pencils will there be in each box?

- Using Base 10 Blocks: Students build 260 with base 10 blocks and distribute them into 4 equal groups. Some students may need to trade the 2 hundreds for tens but others may easily recognize that 200 divided by 4 is 50.
- Using Place Value: $260 \div 4 = (200 \div 4) + (60 \div 4)$
- Using Multiplication: $4 \times 50 = 200$, $4 \times 10 = 40$, $4 \times 5 = 20$; $50 + 10 + 5 = 65$; so $260 \div 4 = 65$

This standard calls for students to explore division through various strategies.

Example:

There are 592 students participating in Field Day. They are put into teams of 8 for the competition. How many teams get created?

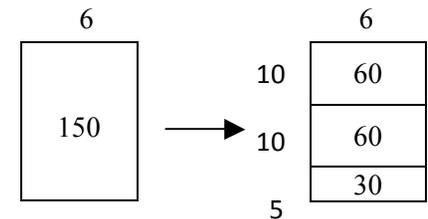
<p>Student 1 592 divided by 8 There are 70 8's in 560 $592 - 560 = 32$ There are 4 8's in 32 $70 + 4 = 74$</p>	<p>Student 2 592 divided by 8 I know that 10 8's is 80 If I take out 50 8's that is 400 $592 - 400 = 192$ I can take out 20 more 8's which is 160 $192 - 160 = 32$ 8 goes into 32 4 times I have none left I took out 50, then 20 more, then 4 more That's 74</p>	<table style="border-collapse: collapse; margin-left: auto; margin-right: auto;"> <tr><td style="border-right: 1px solid black; padding: 5px;">592</td><td style="padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">-400</td><td style="padding: 5px;">50</td></tr> <tr><td colspan="2" style="border-top: 1px solid black; padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">192</td><td style="padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">-160</td><td style="padding: 5px;">20</td></tr> <tr><td colspan="2" style="border-top: 1px solid black; padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">32</td><td style="padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">-32</td><td style="padding: 5px;">4</td></tr> <tr><td colspan="2" style="border-top: 1px solid black; padding: 5px;"></td></tr> <tr><td style="border-right: 1px solid black; padding: 5px;">0</td><td style="padding: 5px;"></td></tr> </table>	592		-400	50			192		-160	20			32		-32	4			0		<p>Student 3 I want to get to 592 $8 \times 25 = 200$ $8 \times 25 = 200$ $8 \times 25 = 200$ $200 + 200 + 200 = 600$ $600 - 8 = 592$ I had 75 groups of 8 and took one away, so there are 74 teams</p>
592																							
-400	50																						
192																							
-160	20																						
32																							
-32	4																						
0																							

Example:

Using an Open Array or Area Model

After developing an understanding of using arrays to divide, students begin to use a more abstract model for division. This model connects to a recording process that will be formalized in the 5th grade.

Example: $150 \div 6$



Students make a rectangle and write 6 on one of its sides. They express their understanding that they need to think of the rectangle as representing a total of 150.

1. Students think, 6 times what number is a number close to 150? They recognize that 6×10 is 60 so they record 10 as a factor and partition the rectangle into 2 rectangles and label the area aligned to the factor of 10 with 60. They express that they have only used 60 of the 150 so they have 90 left.
2. Recognizing that there is another 60 in what is left they repeat the process above. They express that they have used 120 of the 150 so they have 30 left.
3. Knowing that 6×5 is 30. They write 30 in the bottom area of the rectangle and record 5 as a factor.
4. Students express their calculations in various ways:

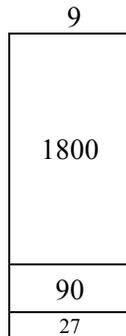
a. 150 $150 \div 6 = 10 + 10 + 5 = 25$

60	(6×10)
90	
60	(6×10)
30	
30	(6×5)
0	

b. $150 \div 6 = (60 \div 6) + (60 \div 6) + (30 \div 6) = 10 + 10 + 5 = 25$

Example:

$1917 \div 9$



A student's description of his or her thinking may be:

I need to find out how many 9s are in 1917. I know that 200×9 is 1800. So if I use 1800 of the 1917, I have 117 left. I know that 9×10 is 90. So if I have 10 more 9s, I will have 27 left. I can make 3 more 9s. I have 200 nines, 10 nines and 3 nines. So I made 213 nines. $1917 \div 9 = 213$.

Number and Operation – Fractions¹

4.NF

Common Core Cluster

Extend understanding of fraction equivalence and ordering.

Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., $15/9 = 5/3$), and they develop methods for generating and recognizing equivalent fractions.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **partition(ed), fraction, unit fraction, equivalent, multiple, reason, denominator, numerator, comparison/compare, <, >, =, benchmark fraction**

Common Core Standard

4.NF.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

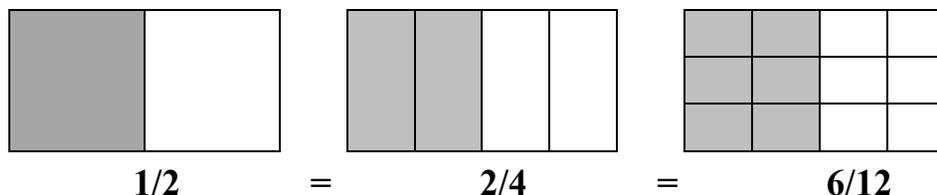
Unpacking

What do these standards mean a child will know and be able to do?

This standard refers to visual fraction models. This includes area models, number lines or it could be a collection/set model. This standard extends the work in third grade by using additional denominators. (5, 10, 12 and 100)

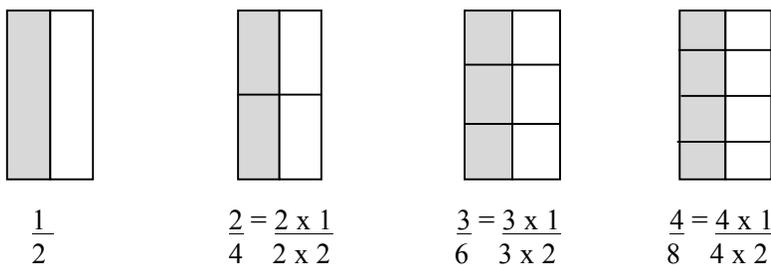
This standard addresses equivalent fractions by examining the idea that equivalent fractions can be created by multiplying both the numerator and denominator by the same number or by dividing a shaded region into various parts.

Example:

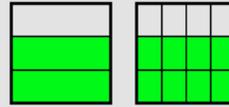


Students should begin to notice connections between the models and fractions in the way both the parts and wholes are counted and begin to generate a rule for writing equivalent fractions.

$$\frac{1}{2} \times \frac{2}{2} = \frac{2}{4}$$



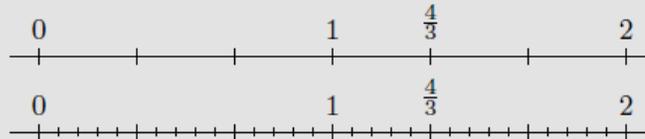
Using an area model to show that $\frac{2}{3} = \frac{4 \times 2}{4 \times 3}$



The whole is the square, measured by area. On the left it is divided horizontally into 3 rectangles of equal area, and the shaded region is 2 of these and so represents $\frac{2}{3}$. On the right it is divided into 4×3 small rectangles of equal area, and the shaded area comprises 4×2 of these, and so it represents $\frac{4 \times 2}{4 \times 3}$.

(Progressions for the CCSSM, Number and Operation – Fractions, CCSS Writing Team, August 2011, page 5)

Using the number line to show that $\frac{4}{3} = \frac{5 \times 4}{5 \times 3}$



$\frac{4}{3}$ is 4 parts when each part is $\frac{1}{3}$, and we want to see that this is also 5×4 parts when each part is $\frac{1}{5 \times 3}$. Divide each of the intervals of length $\frac{1}{3}$ into 5 parts of equal length. There are 5×3 parts of equal length in the unit interval, and $\frac{4}{3}$ is 5×4 of these. Therefore $\frac{4}{3} = \frac{5 \times 4}{5 \times 3} = \frac{20}{15}$.

(Progressions for the CCSSM, Number and Operation – Fractions, CCSS Writing Team, August 2011, page 5)

There is **NO** mathematical reason why fractions must be written in simplified form, although it may be convenient to do so in some cases.

Technology Connection: <http://illuminations.nctm.org/activitydetail.aspx?id=80>

4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer

This standard calls students to compare fractions by creating visual fraction models or finding common denominators or numerators. Students' experiences should focus on visual fraction models rather than algorithms. When tested, models may or may not be included. Students should learn to draw fraction models to help them compare. Students must also recognize that they must consider the size of the whole when comparing fractions (ie, $\frac{1}{2}$ and $\frac{1}{8}$ of two medium pizzas is very different from $\frac{1}{2}$ of one medium and $\frac{1}{8}$ of one large).

to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.

Example:

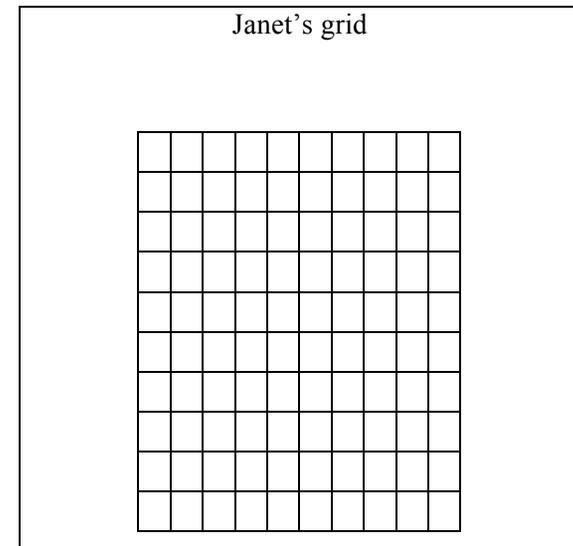
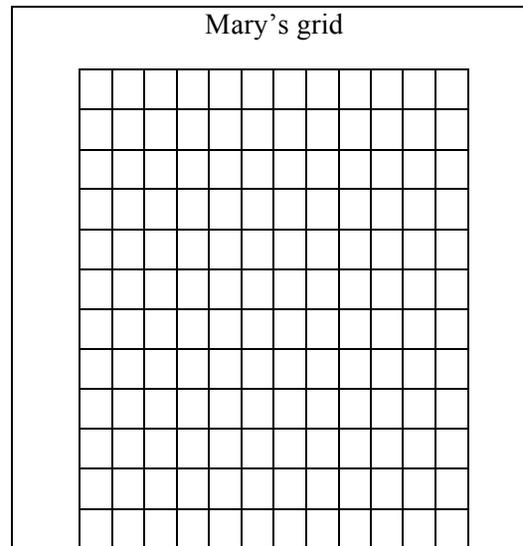
Use pattern blocks.

1. If a red trapezoid is one whole, which block shows $\frac{1}{3}$?
2. If the blue rhombus is $\frac{1}{3}$, which block shows one whole?
3. If the red trapezoid is one whole, which block shows $\frac{2}{3}$?

Mary used a 12 x 12 grid to represent 1 and Janet used a 10 x 10 grid to represent 1. Each girl shaded grid squares to show $\frac{1}{4}$. How many grid squares did Mary shade? How many grid squares did Janet shade? Why did

they need to shade different numbers of grid squares?

Possible solution: Mary shaded 36 grid squares; Janet shaded 25 grid squares. The total number of little squares is different in the two grids, so $\frac{1}{4}$ of each total number is different.



Examples continued on the next page.

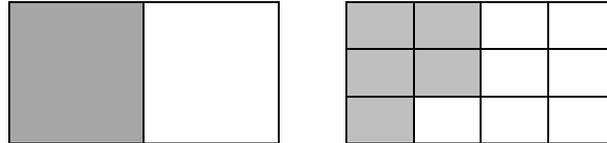
Example:

There are two cakes on the counter that are the same size. The first cake has $\frac{1}{2}$ of it left. The second cake has $\frac{5}{12}$ left. Which cake has more left?

Student 1

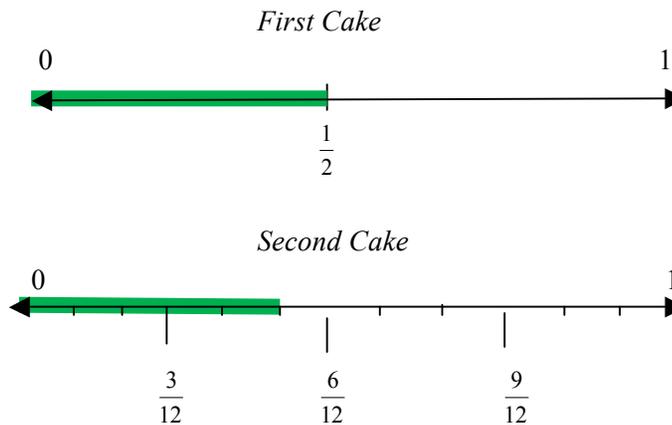
Area model:

The first cake has more left over. The second cake has $\frac{5}{12}$ left which is smaller than $\frac{1}{2}$.



Student 2

Number Line model:



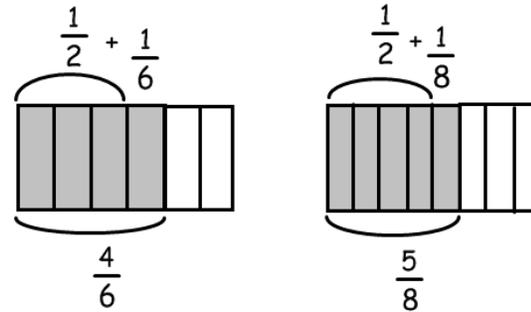
Student 3

verbal explanation:

I know that $\frac{6}{12}$ equals $\frac{1}{2}$. Therefore, the second cake which has $\frac{5}{12}$ left is less than $\frac{1}{2}$.

Example:

When using the benchmark of $\frac{1}{2}$ to compare $\frac{4}{6}$ and $\frac{5}{8}$, you could use diagrams such as these:



$\frac{4}{6}$ is $\frac{1}{6}$ larger than $\frac{1}{2}$, while $\frac{5}{8}$ is $\frac{1}{8}$ larger than $\frac{1}{2}$. Since $\frac{1}{6}$ is greater than $\frac{1}{8}$, $\frac{4}{6}$ is the greater fraction.

In fifth grade students who have learned about fraction multiplication can see equivalence as “multiplying by 1”:

$$\frac{7}{9} = \frac{7}{9} \times 1 = \frac{7}{9} \times \frac{4}{4} = \frac{28}{36}$$

However, although a useful mnemonic device, this does **not constitute a valid argument at fourth grade**, since students have not yet learned fraction multiplication. (*Progressions for the CCSSM, Number and Operation – Fractions*, CCSS Writing Team, August 2011, page 6)

Common Core Cluster

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **operations, addition/joining, subtraction/separating, fraction, unit fraction, equivalent, multiple, reason, denominator, numerator, decomposing, mixed number,(properties)-rules about how numbers work, multiply, multiple,**

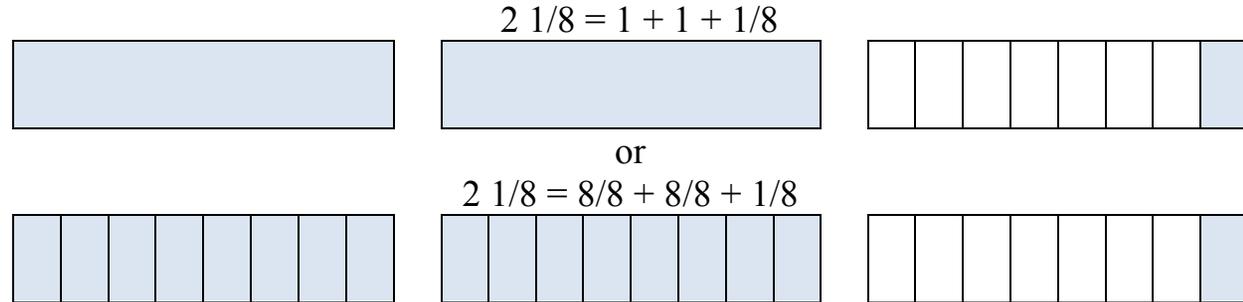
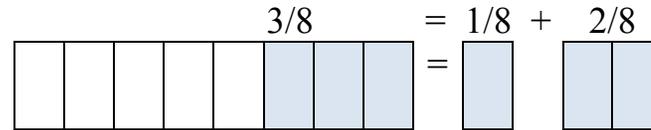
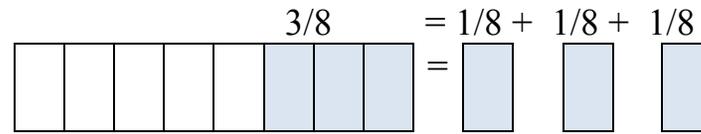
Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
<p>4.NF.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.</p> <p>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p>	<p>A fraction with a numerator of one is called a unit fraction. When students investigate fractions other than unit fractions, such as $2/3$, they should be able to join (compose) or separate (decompose) the fractions of the same whole.</p> <p>Example: $2/3 = 1/3 + 1/3$</p> <p>Being able to visualize this decomposition into unit fractions helps students when adding or subtracting fractions. Students need multiple opportunities to work with mixed numbers and be able to decompose them in more than one way. Students may use visual models to help develop this understanding.</p> <p>Example:</p> $1 \frac{1}{4} - \frac{3}{4} = \square \qquad 4/4 + \frac{1}{4} = 5/4 \qquad 5/4 - \frac{3}{4} = 2/4 \text{ or } \frac{1}{2}$ <p>Example of word problem: Mary and Lacey decide to share a pizza. Mary ate $3/6$ and Lacey ate $2/6$ of the pizza. How much of the pizza did the girls eat together?</p> <p>Possible solution: The amount of pizza Mary ate can be thought of a $3/6$ or $1/6$ and $1/6$ and $1/6$. The amount of pizza Lacey ate can be thought of a $1/6$ and $1/6$. The total amount of pizza they ate is $1/6 + 1/6 + 1/6 + 1/6 + 1/6$ or $5/6$ of the whole pizza.</p>

- b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.

Examples: $3/8 = 1/8 + 1/8 + 1/8$;
 $3/8 = 1/8 + 2/8$; $2 1/8 = 1 + 1 + 1/8$;
 $1/8 = 8/8 + 8/8 + 1/8$.

Students should justify their breaking apart (decomposing) of fractions using visual fraction models. The concept of turning mixed numbers into improper fractions needs to be emphasized using visual fraction models.

Example:



Similarly, converting an improper fraction to a mixed number is a matter of decomposing the fraction into a sum of a whole number and a number less than 1. Students can draw on their knowledge from third grade of whole numbers as fractions.

Example, knowing that $1 = 3/3$, they see:

$$\frac{5}{3} = \frac{3}{3} + \frac{2}{3} = 1 + \frac{2}{3} = 1\frac{2}{3}$$

(Progressions for the CCSSM, Number and Operation – Fractions, CCSS Writing Team, August 2011, page 8)

- c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

A separate algorithm for mixed numbers in addition and subtraction is not necessary. Students will tend to add or subtract the whole numbers first and then work with the fractions using the same strategies they have applied to problems that contained only fractions.

Example:

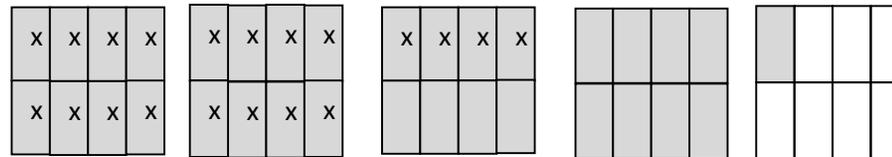
Susan and Maria need $8\frac{3}{8}$ feet of ribbon to package gift baskets. Susan has $3\frac{1}{8}$ feet of ribbon and Maria has $5\frac{3}{8}$ feet of ribbon. How much ribbon do they have altogether? Will it be enough to complete the project? Explain why or why not.

The student thinks: I can add the ribbon Susan has to the ribbon Maria has to find out how much ribbon they have altogether. Susan has $3\frac{1}{8}$ feet of ribbon and Maria has $5\frac{3}{8}$ feet of ribbon. I can write this as $3\frac{1}{8} + 5\frac{3}{8}$. I know they have 8 feet of ribbon by adding the 3 and 5. They also have $\frac{1}{8}$ and $\frac{3}{8}$ which makes a total of $\frac{4}{8}$ more. Altogether they have $8\frac{4}{8}$ feet of ribbon. $8\frac{4}{8}$ is larger than $8\frac{3}{8}$ so they will have enough ribbon to complete the project. They will even have a little extra ribbon left, $\frac{1}{8}$ foot.

Example:

Trevor has $4\frac{1}{8}$ pizzas left over from his soccer party. After giving some pizza to his friend, he has $2\frac{4}{8}$ of a pizza left. How much pizza did Trevor give to his friend?

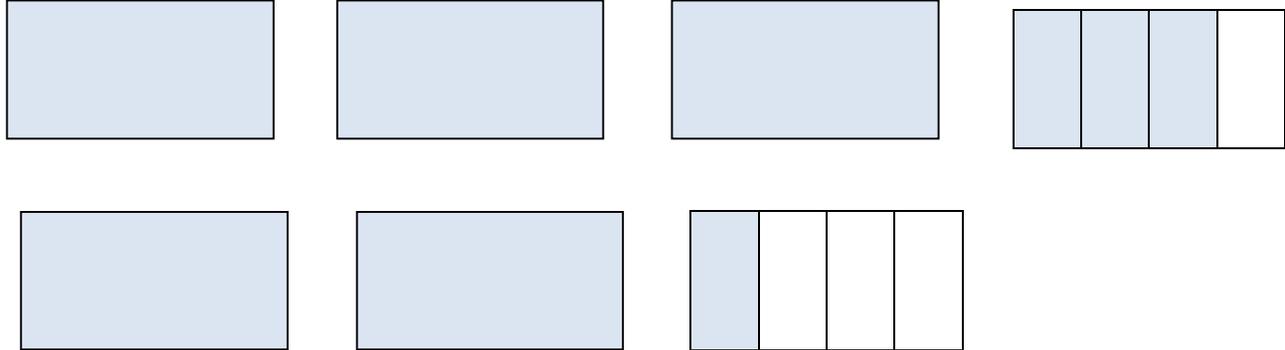
Possible solution: Trevor had $4\frac{1}{8}$ pizzas to start. This is $\frac{33}{8}$ of a pizza. The x's show the pizza he has left which is $2\frac{4}{8}$ pizzas or $\frac{20}{8}$ pizzas. The shaded rectangles without the x's are the pizza he gave to his friend which is $\frac{13}{8}$ or $1\frac{5}{8}$ pizzas.



Mixed numbers are introduced for the first time in Fourth Grade. Students should have ample experiences of adding and subtracting mixed numbers where they work with mixed numbers or convert mixed numbers so that the numerator is equal to or greater than the denominator.

Example:

While solving the problem, $3\frac{3}{4} + 2\frac{1}{4}$ students could do the following:



Student 1

$$3 + 2 = 5 \text{ and } \frac{3}{4} + \frac{1}{4} = 1 \text{ so } 5 + 1 = 6$$

Student 2

$$3\frac{3}{4} + 2 = 5\frac{3}{4} \text{ so } 5\frac{3}{4} + \frac{1}{4} = 6$$

Student 3

$$3\frac{3}{4} = \frac{15}{4} \text{ and } 2\frac{1}{4} = \frac{9}{4} \text{ so } \frac{15}{4} + \frac{9}{4} = \frac{24}{4} = 6$$

Fourth Grade students should be able to decompose and compose fractions with the same denominator. They add fractions with the same denominator.

Example:

$$\begin{aligned} \frac{7}{5} + \frac{4}{5} &= \frac{\overbrace{\frac{1}{5} + \dots + \frac{1}{5}}^7}{5} + \frac{\overbrace{\frac{1}{5} + \dots + \frac{1}{5}}^4}{5} \\ &= \frac{\overbrace{1 + 1 + \dots + 1}^{7+4}}{5} \\ &= \frac{7+4}{5} \end{aligned}$$

Using the understanding gained from work with whole numbers of the relationship between addition and subtraction, they also subtract fractions with the same denominator. For example, to subtract $\frac{5}{6}$ from $\frac{17}{6}$, they decompose.

Example:

$$\frac{12}{6} + \frac{5}{6}, \text{ so } \frac{17}{6} - \frac{5}{6} = \frac{17-5}{6} = \frac{12}{6} = 2$$

Students also compute sums of whole numbers and fractions, by representing the whole number as an equivalent fraction with the same denominator as the fraction.

Example:

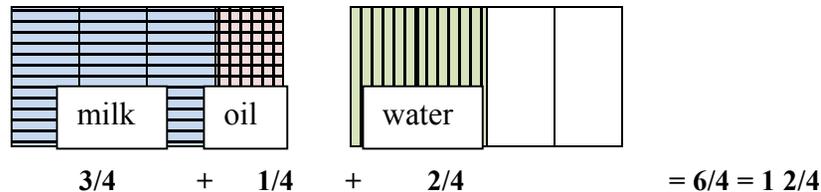
$$7\frac{1}{5} = 7 + \frac{1}{5} = \frac{35}{5} + \frac{1}{5} = \frac{36}{5}$$

Students use this method to add mixed numbers with like denominators. Converting a mixed number to a fraction should not be viewed as a separate technique to be learned by rote, but simply as a case of fraction addition.

(Progressions for the CCSSM, Number and Operation – Fractions, CCSS Writing Team, August 2011, page 6-7)

- d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

A cake recipe calls for you to use $\frac{3}{4}$ cup of milk, $\frac{1}{4}$ cup of oil, and $\frac{2}{4}$ cup of water. How much liquid was needed to make the cake?



4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

- a. Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$.

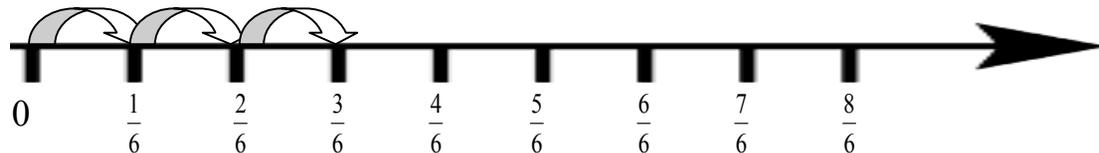
For example, use a visual fraction model to represent $\frac{5}{4}$ as the product $5 \times (\frac{1}{4})$, recording the conclusion by the equation $\frac{5}{4} = 5 \times (\frac{1}{4})$.

This standard builds on students' work of adding fractions and extending that work into multiplication.

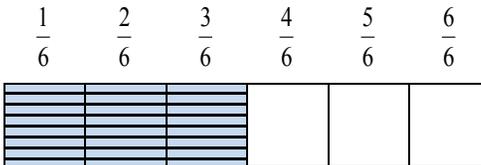
Example:

$$\frac{3}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = 3 \times (\frac{1}{6})$$

Number line:



Area model:



Students should see a fraction as the numerator times the unit fraction with the same denominator.

Example:

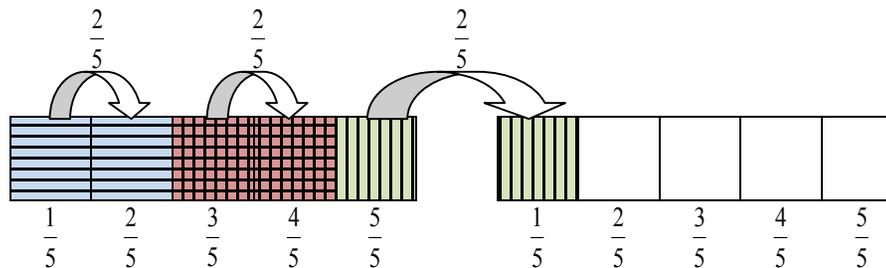
$$\frac{7}{5} = 7 \times \frac{1}{5}, \quad \frac{11}{3} = 11 \times \frac{1}{3}.$$

(Progressions for the CCSSM, Number and Operation – Fractions, CCSS Writing Team, August 2011, page 8)

- b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number.

For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)

This standard extended the idea of multiplication as repeated addition. For example, $3 \times (2/5) = 2/5 + 2/5 + 2/5 = 6/5 = 6 \times (1/5)$. Students are expected to use and create visual fraction models to multiply a whole number by a fraction.



The same thinking, based on the analogy between fractions and whole numbers, allows students to give meaning to the product of whole number and a fraction.

Example:

$$3 \times \frac{2}{5} \text{ as } \frac{2}{5} + \frac{2}{5} + \frac{2}{5} = \frac{3 \times 2}{5} = \frac{6}{5}$$

(Progressions for the CCSSM, Number and Operation – Fractions, CCSS Writing Team, August 2011, page 8)

- c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

For example, if each person at a party will eat $\frac{3}{8}$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?

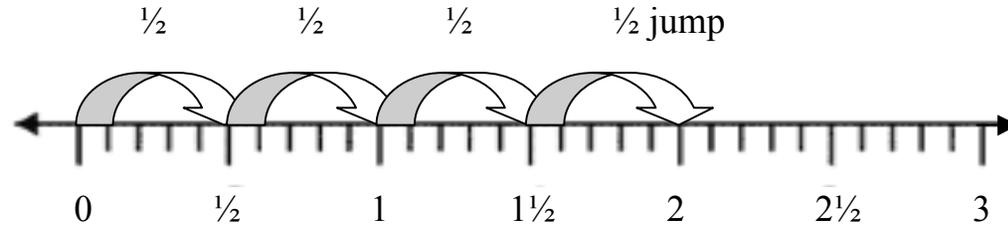
When introducing this standard make sure student use visual fraction models to solve word problems related to multiplying a whole number by a fraction.

Example:

In a relay race, each runner runs $\frac{1}{2}$ of a lap. If there are 4 team members how long is the race?

Student 1

Draws a number line shows 4 jumps of $\frac{1}{2}$



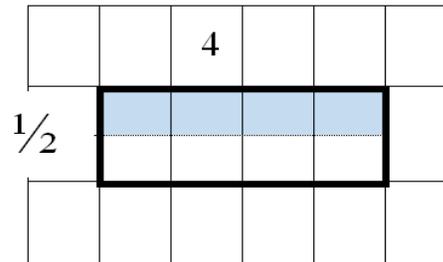
Student 2

Draws an area model showing 4 pieces of $\frac{1}{2}$ joined together to equal 2.



Student 3

Draws an area model representing $4 \times \frac{1}{2}$ on a grid, dividing one row into $\frac{1}{2}$ to represent the multiplier



Example:

Heather bought 12 plums and ate $\frac{1}{3}$ of them. Paul bought 12 plums and ate $\frac{1}{4}$ of them. Which statement is true?

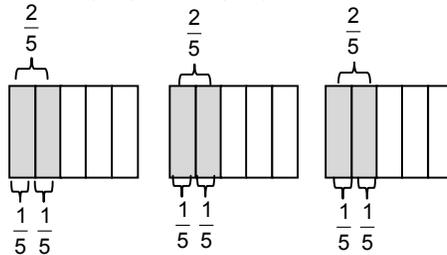
Draw a model to explain your reasoning.

- a. Heather and Paul ate the same number of plums.
- b. Heather ate 4 plums and Paul ate 3 plums.
- c. Heather ate 3 plums and Paul ate 4 plums.
- d. Heather had 9 plums remaining.

Example:

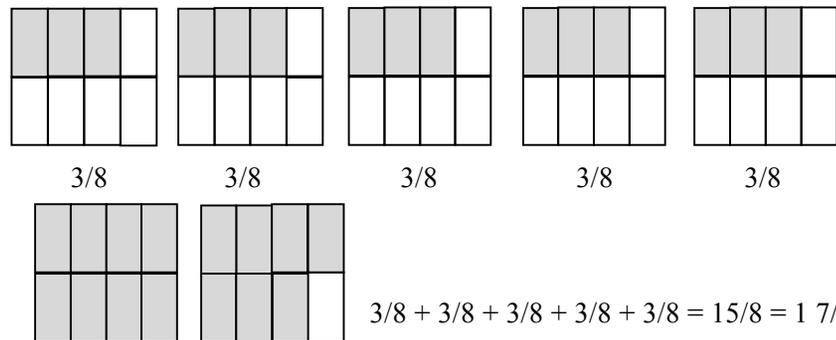
Students need many opportunities to work with problems in context to understand the connections between models and corresponding equations. Contexts involving a whole number times a fraction lend themselves to modeling and examining patterns.

Examples: $3 \times (2/5) = 6 \times (1/5) = 6/5$



If each person at a party eats $\frac{3}{8}$ of a pound of roast beef, and there are 5 people at the party, how many pounds of roast beef are needed? Between what two whole numbers does your answer lie?

A student may build a fraction model to represent this problem:



Students solve word problems involving multiplication of a fraction by a whole number.

Example:

If a bucket holds $2\frac{3}{4}$ gallons and 43 buckets of water fill a tank, how much does the tank hold?

The solution $43 \times 2\frac{3}{4}$ gallons, one possible way to solve problem.

$$43 \times \left(2 + \frac{3}{4}\right) = 43 \times \frac{11}{4} = \frac{473}{4} = 118\frac{1}{4} \text{ gallons}$$

(Progressions for the CCSSM, Number and Operation – Fractions, CCSS Writing Team, August 2011, page 8)

Common Core Cluster

Understand decimal notation for fractions, and compare decimal fractions.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **fraction, numerator, denominator, equivalent, reasoning, decimals, tenths, hundredths, multiplication, comparisons/compare, <, >, =**

Common Core Standard

4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.²

For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.

² Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

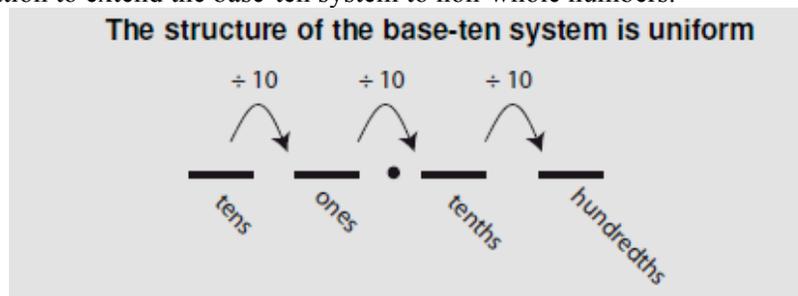
Unpacking

What do these standards mean a child will know and be able to do?

This standard continues the work of equivalent fractions by having students change fractions with a 10 in the denominator into equivalent fractions that have a 100 in the denominator. In order to prepare for work with decimals (4.NF.6 and 4.NF.7), experiences that allow students to shade decimal grids (10x10 grids) can support this work. Student experiences should focus on working with grids rather than algorithms.

Students can also use base ten blocks and other place value models to explore the relationship between fractions with denominators of 10 and denominators of 100.

Students in fourth grade work with fractions having denominators 10 and 100. Because it involves partitioning into 10 equal parts and treating the parts as numbers called one tenth and one hundredth, work with these fractions can be used as preparation to extend the base-ten system to non-whole numbers.



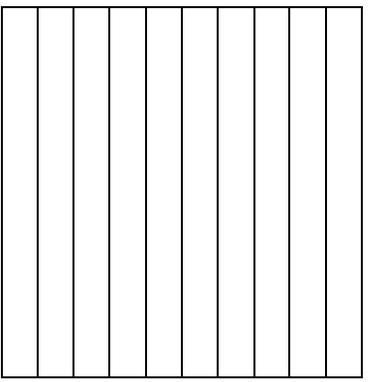
(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 12)

This work in fourth grade lays the foundation for performing operations with decimal numbers in fifth grade.

Example:

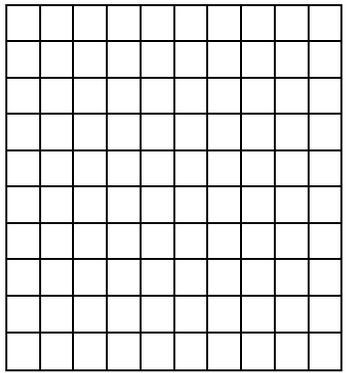
Ones	.	Tenths	Hundredths
-------------	---	---------------	-------------------

Tenths Grid



.3 = 3 tenths = 3/10

Hundredths Grid

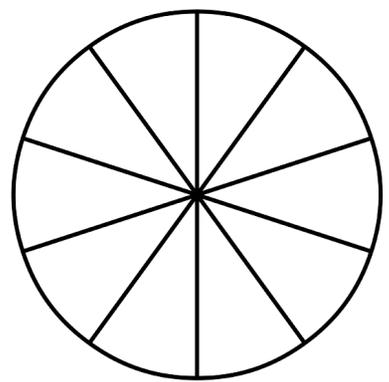


.30 = 30 hundredths = 30/100

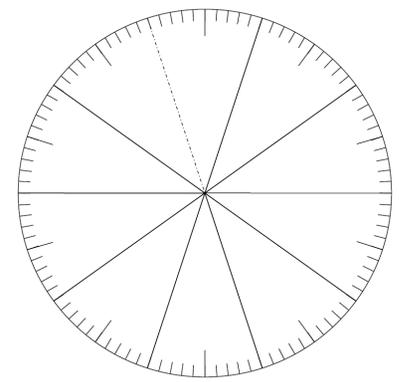
Example:

Represent 3 tenths and 30 hundredths on the models below.

10ths circle



100ths circle



4.NF.6 Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*

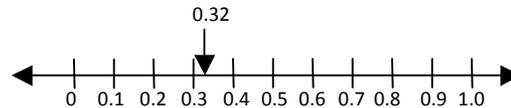
Decimals are introduced for the first time. Students should have ample opportunities to explore and reason about the idea that a number can be represented as both a fraction and a decimal.

Students make connections between fractions with denominators of 10 and 100 and the place value chart. By reading fraction names, students say $\frac{32}{100}$ as thirty-two hundredths and rewrite this as 0.32 or represent it on a place value model as shown below.

Hundreds	Tens	Ones	•	Tenths	Hundredths
			•	3	2

Students use the representations explored in 4.NF.5 to understand $\frac{32}{100}$ can be expanded to $\frac{3}{10}$ and $\frac{2}{100}$.

Students represent values such as 0.32 or $\frac{32}{100}$ on a number line. $\frac{32}{100}$ is more than $\frac{30}{100}$ (or $\frac{3}{10}$) and less than $\frac{40}{100}$ (or $\frac{4}{10}$). It is closer to $\frac{30}{100}$ so it would be placed on the number line near that value.



4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

Students should reason that comparisons are only valid when they refer to the same whole. Visual models include area models, decimal grids, decimal circles, number lines, and meter sticks.

The decimal point is used to signify the location of the ones place, but its location may suggest there should be a “oneths” place to its right in order to create symmetry with respect to the decimal point. However, because one is the basic unit from which the other base ten units are derived, the symmetry occurs instead with respect to the ones place.

Ways of reading decimals aloud vary. Mathematicians and scientists often read 0.15 aloud as “zero point one five” or “point one five.” (Decimals smaller than one may be written with or without a zero before the decimal point.)

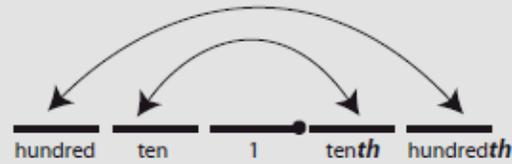
Decimals with many non-zero digits are more easily read aloud in this manner. (For example, the number π , which has infinitely many non-zero digits, begins 3.1415)

Other ways to read 0.15 aloud are “1 tenth and 5 hundredths” and “15 hundredths,” just as 1,500 is sometimes read “15 hundred” or “1 thousand, 5 hundred.” Similarly, 150 is read “one hundred and fifty” or “a hundred fifty” and understood as 15 tens, as 10 tens and 5 tens, and as $100 + 50$.

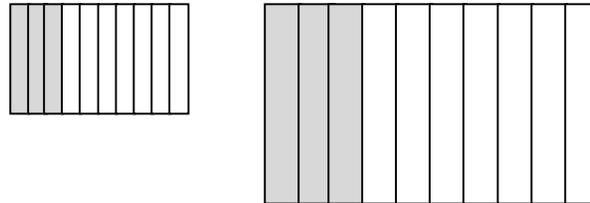
Just as 15 is understood as 15 ones and as 1 ten and 5 ones in computations with whole numbers, 0.15 is viewed as 15 hundredths and as 1 tenth and 5 hundredths in computations with decimals.

It takes time to develop understanding and fluency with the different forms. Layered cards for decimals can help students become fluent with decimal equivalencies such as three tenths is thirty hundredths.

Symmetry with respect to the ones place



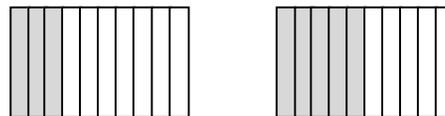
(Progressions for the CCSSM; Number and Operation in Base Ten, CCSS Writing Team, April 2011, page 12-13)
 Students build area and other models to compare decimals. Through these experiences and their work with fraction models, they build the understanding that comparisons between decimals or fractions are only valid when the whole is the same for both cases. Each of the models below shows $3/10$ but the whole on the right is much bigger than the whole on the left. They are both $3/10$ but the model on the right is a much larger quantity than the model on the left.



When the wholes are the same, the decimals or fractions can be compared.

Example:

Draw a model to show that $0.3 < 0.5$. (Students would sketch two models of approximately the same size to show the area that represents three-tenths is smaller than the area that represents five-tenths.)



Common Core Cluster

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **measure, metric, customary, convert/conversion, relative size, liquid volume, mass, length, distance, kilometer (km), meter (m), centimeter (cm), millimeter (mm), kilogram (kg), gram (g), liter (L), milliliter (mL), inch (in), foot (ft), yard (yd), mile (mi), ounce (oz), pound (lb), cup (c), pint (pt), quart (qt), gallon (gal), time, hour, minute, second, equivalent, operations, add, subtract, multiply, divide, fractions, decimals, area, perimeter**

Common Core Standard

Unpacking

What do these standards mean a child will know and be able to do?

4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.
For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...

The units of measure that have not been addressed in prior years are cups, pints, quarts, gallons, pounds, ounces, kilometers, millimeter, milliliters, and seconds. Students' prior experiences were limited to measuring length, mass (metric and customary systems), liquid volume (metric only), and elapsed time. Students did not convert measurements.

Students develop benchmarks and mental images about a meter (e.g., about the height of a tall chair) and a kilometer (e.g., the length of 10 football fields including the end zones, or the distance a person might walk in about 12 minutes), and they also understand that “kilo” means a thousand, so 3000 m is equivalent to 3 km. Expressing larger measurements in smaller units within the metric system is an opportunity to reinforce notions of place value. There are prefixes for multiples of the basic unit (meter or gram), although only a few (kilo-, centi-, and milli-) are in common use. Tables such as the one below are an opportunity to develop or reinforce place value concepts and skills in measurement activities. Relating units within the metric system is another opportunity to think about place value. For example, students might make a table that shows measurements of the same lengths in centimeters and meters. Relating units within the traditional system provides an opportunity to engage in mathematical practices, especially “look for and make use of structure” and “look for and express regularity in repeated reasoning” For example, students might make a table that shows measurements of the same lengths in feet and inches.

(Progressions for the CCSSM, Geometric Measurement, CCSS Writing Team, June 2012, page20)

Super- or subordinate unit	Length in terms of basic unit
kilometer	10^3 or 1000 meters
hectometer	10^2 or 100 meters
decameter	10^1 or 10 meters
meter	1 meter
decimeter	10^{-1} or $\frac{1}{10}$ meters
centimeter	10^{-2} or $\frac{1}{100}$ meters
millimeter	10^{-3} or $\frac{1}{1000}$ meters

Note the similarity to the structure of base-ten units and U.S. currency (see illustrations on p. 12 of the Number and Operations in Base Ten Progression).

Centimeter and meter equivalences

cm	m
100	1
200	2
300	3
500	
1000	

Foot and inch equivalences

feet	inches
0	0
1	12
2	24
3	

(Progressions for the CCSSM, Geometric Measurement, CCSS Writing Team, June 2012, page 20)

Students need ample opportunities to become familiar with these new units of measure and explore the patterns and relationships in the conversion tables that they create.

Students may use a two-column chart to convert from larger to smaller units and record equivalent measurements. They make statements such as, if one foot is 12 inches, then 3 feet has to be 36 inches because there are 3 groups of 12.

Example:

Customary length conversion table

Yards	Feet
1	3
2	6
3	9
<i>n</i>	<i>n</i> x 3

Foundational understandings to help with measure concepts:

Understand that larger units can be subdivided into equivalent units (partition).

Understand that the same unit can be repeated to determine the measure (iteration).

Understand the relationship between the size of a unit and the number of units needed (compensatory principal).

These Standards do not differentiate between weight and mass. Technically, mass is the amount of matter in an object. Weight is the force exerted on the body by gravity. On the earth's surface, the distinction is not important (on the moon, an object would have the same mass, would weigh less due to the lower gravity).

(Progressions for the CCSSM, Geometric Measurement, CCSS Writing Team, June 2012, page 2)

4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

This standard includes multi-step word problems related to expressing measurements from a larger unit in terms of a smaller unit (e.g., feet to inches, meters to centimeter, and dollars to cents). Students should have ample opportunities to use number line diagrams to solve word problems.

Example:

Charlie and 10 friends are planning for a pizza party. They purchased 3 quarts of milk. If each glass holds 8oz will everyone get at least one glass of milk?

possible solution: Charlie plus 10 friends = 11 total people

11 people x 8 ounces (glass of milk) = 88 total ounces

1 quart = 2 pints = 4 cups = 32 ounces

Therefore 1 quart = 2 pints = 4 cups = 32 ounces

2 quarts = 4 pints = 8 cups = 64 ounces

3 quarts = 6 pints = 12 cups = 96 ounces

If Charlie purchased 3 quarts (6 pints) of milk there would be enough for everyone at his party to have at least one glass of milk. If each person drank 1 glass then he would have 1- 8 oz glass or 1 cup of milk left over.

Additional Examples with various operations:

Division/fractions: Susan has 2 feet of ribbon. She wants to give her ribbon to her 3 best friends so each friend gets the same amount. How much ribbon will each friend get?

Students may record their solutions using fractions or inches. (The answer would be $\frac{2}{3}$ of a foot or 8 inches.

Students are able to express the answer in inches because they understand that $\frac{1}{3}$ of a foot is 4 inches and $\frac{2}{3}$ of a foot is 2 groups of $\frac{1}{3}$.)

Addition: Mason ran for an hour and 15 minutes on Monday, 25 minutes on Tuesday, and 40 minutes on Wednesday. What was the total number of minutes Mason ran?

Subtraction: A pound of apples costs \$1.20. Rachel bought a pound and a half of apples. If she gave the clerk a \$5.00 bill, how much change will she get back?

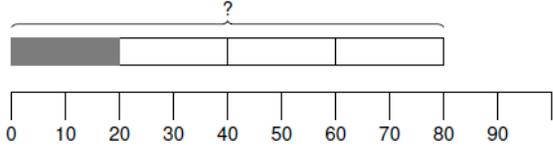
Multiplication: Mario and his 2 brothers are selling lemonade. Mario brought one and a half liters, Javier brought 2 liters, and Ernesto brought 450 milliliters. How many total milliliters of lemonade did the boys have?

Number line diagrams that feature a measurement scale can represent measurement quantities. Examples include: ruler, diagram marking off distance along a road with cities at various points, a timetable showing hours throughout the day, or a volume measure on the side of a container.

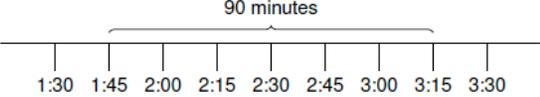
Example:

Using number line diagrams to solve word problems

Juan spent $\frac{1}{4}$ of his money on a game. The game cost \$20. How much money did he have at first?



What time does Marla have to leave to be at her friend's house by a quarter after 3 if the trip takes 90 minutes?



Using a number line diagram to represent time is easier if students think of digital clocks rather than round clocks. In the latter case, placing the numbers on the number line involves considering movements of the hour and minute hands.

Students also combine competencies from different domains as they solve measurement problems using all four arithmetic operations, addition, subtraction, multiplication, and division.

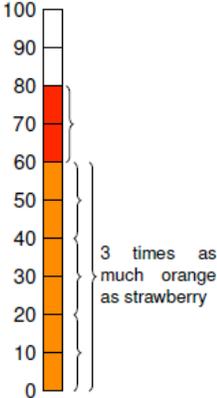
Example: “How many liters of juice does the class need to have at least 35 cups if each cup takes 225 ml?”

Students may use tape or number line diagrams for solving such problems.

Example:

Using tape diagrams to solve word problems

Lisa put two flavors of soda in a glass. There were 80 ml of soda in all. She put three times as much orange drink as strawberry. How many ml of orange did she put in?



In this diagram, quantities are represented on a measurement scale.

(Progressions for the CCSSM, Geometric Measurement, CCSS Writing Team, June 2012, page 20)

Example:

At 7:00 a.m. Candace wakes up to go to school. It takes her 8 minutes to shower, 9 minutes to get dressed and 17 minutes to eat breakfast. How many minutes does she have until the bus comes at 8:00 a.m.? Use the number line to help solve the problem.



4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

Based on work in third grade students learn to consider perimeter and area of rectangles. Fourth graders multiplication, spatially structuring arrays, and area, they abstract the formula for the area of a rectangle $A = l \times w$.

- The formula is a generalization of the understanding, that, given a unit of length, a rectangle whose sides have length w units and l units, can be partitioned into w rows of unit squares with l squares in each row. The product $l \times w$ gives the number of unit squares in the partition, thus the area measurement is $l \times w$ square units. These square units are derived from the length unit.

Students generate and discuss advantages and disadvantages of various formulas for the perimeter length of a rectangle that is l units by w units.

- For example, $P = 2l + 2w$ has two multiplications and one addition, but $P = 2(l + w)$, which has one addition and one multiplication, involves fewer calculations. The latter formula is also useful when generating all possible rectangles with a given perimeter. The length and width vary across all possible pairs whose sum is half of the perimeter (e.g., for a perimeter of 20, the length and width are all of the pairs of numbers with sum 10).

Giving verbal summaries of these formulas is also helpful. For example, a verbal summary of the basic formula, $A = l + w + l + w$, is “add the lengths of all four sides.” Specific numerical instances of other formulas or mental calculations for the perimeter of a rectangle can be seen as examples of the properties of operations, e.g., $2l + 2w = 2(l + w)$ illustrates the distributive property.

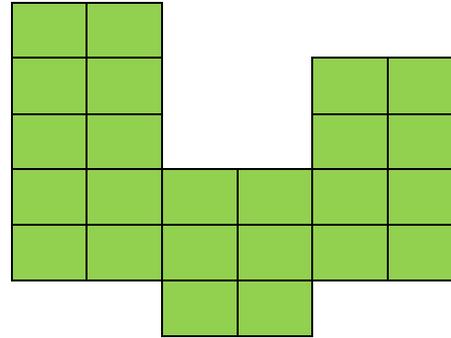
Perimeter problems often give only one length and one width, thus remembering the basic formula can help to prevent the usual error of only adding one length and one width. The formula $P = 2(l + w)$ emphasizes the step of multiplying the total of the given lengths by 2. Students can make a transition from showing all length units along the sides of a rectangle or all area units within by drawing a rectangle showing just parts of these as a reminder of which kind of unit is being used. Writing all of the lengths around a rectangle can also be useful. Discussions of formulas such as $P = 2l + 2w$, can note that unlike area formulas, perimeter formulas combine length measurements to yield a length measurement.

Such abstraction and use of formulas underscores the importance of distinguishing between area and perimeter in Grade 3 and maintaining the distinction in Grade 4 and later grades, where rectangle perimeter and area problems may get more complex and problem solving can benefit from knowing or being able to rapidly remind oneself of how to find an area or perimeter. By repeatedly reasoning about how to calculate areas and perimeters of rectangles, students can come to see area and perimeter formulas as summaries of all such calculations. (*Progressions for the CCSSM, Geometric Measurement*, CCSS Writing Team, June 2012, page 21)

Example:

Mr. Rutherford is covering the miniature golf course with an artificial grass. How many 1-foot squares of carpet will he need to cover the entire course?

1-foot square
of carpet



Students learn to apply these understandings and formulas to the solution of real-world and mathematical problems.

Example: A rectangular garden has an area of 80 square feet. It is 5 feet wide. How long is the garden?

Here, specifying the area and the width creates an unknown factor problem. Similarly, students could solve perimeter problems that give the perimeter and the length of one side and ask the length of the adjacent side.

Students should be challenged to solve multistep problems.

Example: A plan for a house includes a rectangular room with an area of 60 square meters and a perimeter of 32 meters. What are the length and the width of the room?

In fourth grade and beyond, the mental visual images for perimeter and area from third grade can support students in problem solving with these concepts. When engaging in the mathematical practice of reasoning abstractly and quantitatively in work with area and perimeter, students think of the situation and perhaps make a drawing. Then they recreate the “formula” with specific numbers and one unknown number as a situation equation for this particular numerical situation. “Apply the formula” does **not** mean write down a memorized formula and put in known values because in fourth grade students do not evaluate expressions (they begin this type of work in Grade 6). In fourth grade, working with perimeter and area of rectangles is still grounded in specific visualizations and numbers. These numbers can now be any of the numbers used in fourth grade (for addition and subtraction for perimeter and for multiplication and division for area). By repeatedly reasoning about constructing situation equations for perimeter and area involving specific numbers and an unknown number, students will build a foundation for applying area, perimeter, and other formulas by substituting specific values for the variables in later grades. (*Progressions for the CCSSM, Geometric Measurement*, CCSS Writing Team, June 2012, page 22)

Common Core Cluster

Represent and interpret data.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **data, line plot, length, fractions**

Common Core Standard

4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

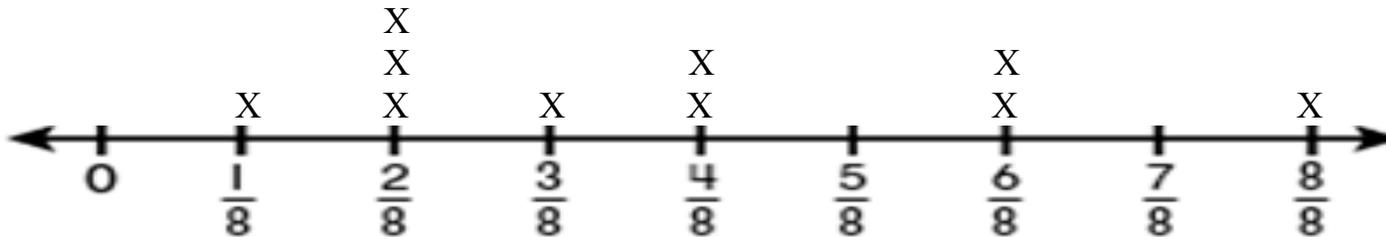
Unpacking

What do these standards mean a child will know and be able to do?

This standard provides a context for students to work with fractions by measuring objects to an eighth of an inch. Students are making a line plot of this data and then adding and subtracting fractions based on data in the line plot.

Example:

Students measured objects in their desk to the nearest $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{1}{8}$ inch. They displayed their data collected on a line plot. How many object measured $\frac{1}{4}$ inch? $\frac{1}{2}$ inch? If you put all the objects together end to end what would be the total length of **all** the objects.



Common Core Cluster

Geometric measurement: understand concepts of angle and measure angles.

Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematical language. The terms students should learn to use with increasing precision with this cluster are: **measure, point, end point, geometric shapes, ray, angle, circle, fraction, intersect, one-degree angle, protractor, decomposed, addition, subtraction, unknown**

Common Core Standard

4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

- a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $1/360$ of a circle is called a “one-degree angle,” and can be used to measure angles.

Unpacking

What do these standards mean a child will know and be able to do?

This standard brings up a connection between angles and circular measurement (360 degrees). Angle measure is a “turning point” in the study of geometry. Students often find angles and angle measure to be difficult concepts to learn, but that learning allows them to engage in interesting and important mathematics. An *angle* is the union of two rays, a and b , with the same initial point P . The rays can be made to coincide by rotating one to the other about P ; this rotation determines the size of the angle between a and b . The rays are sometimes called the *sides* of the angles.

Another way of saying this is that each ray determines a direction and the angle size measures the change from one direction to the other. Angles are measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $1/360$ of a circle is called a “one-degree angle,” and degrees are the unit used to measure angles in elementary school. A full rotation is thus 360°

Two angles are called *complementary* if their measurements have the sum of 90° . Two angles are called *supplementary* if their measurements have the sum of 180° . Two angles with the same vertex that overlap only at a boundary (i.e., share a side) are called *adjacent angles*. These terms may come up in classroom discussion, they will not be tested. This concept is developed thoroughly in middle school (7th grade).

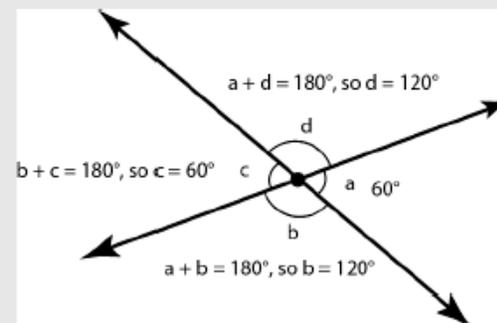
Like length, area, and volume, angle measure is additive: The sum of the measurements of *adjacent angles* is the measurement of the angle formed by their union. This leads to other important properties. If a right angle is decomposed into two adjacent angles, the sum is 90° , thus they are complementary. Two adjacent angles that compose a “straight angle” of 180° must be supplementary.

An angle

name	measurement
right angle	90°
straight angle	180°
acute angle	between 0 and 90°
obtuse angle	between 90° and 180°
reflex angle	between 180° and 360°

(Progressions for the CCSSM, Geometric Measurement, CCSS Writing Team, June 2012, page 23)

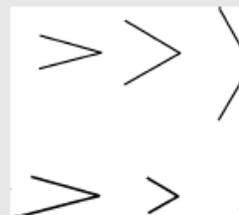
Angles created by the intersection of two lines



When two lines intersect, they form four angles. If the measurement of one is known (e.g., angle a is 60°), the measurement of the other three can be determined.

(*Progressions for the CCSSM, Geometric Measurement*, CCSS Writing Team, June 2012, page 23)

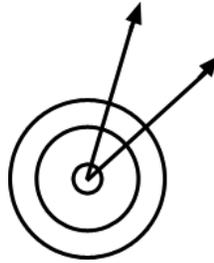
Two representations of three angles



Initially, some students may correctly compare angle sizes only if all the line segments are the same length (as shown in the top row). If the lengths of the line segments are different (as shown in the bottom row), these students base their judgments on the lengths of the segments, the distances between their endpoints, or even the area of the triangles determined by the drawn arms. They believe that the angles in the bottom row decrease in size from left to right, although they have, respectively, the same angle measurements as those in the top row.

(*Progressions for the CCSSM, Geometric Measurement*, CCSS Writing Team, June 2012, page 23)

The diagram below will help students understand that an angle measurement is not related to an area since the area between the 2 rays is different for both circles yet the angle measure is the same.



b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.

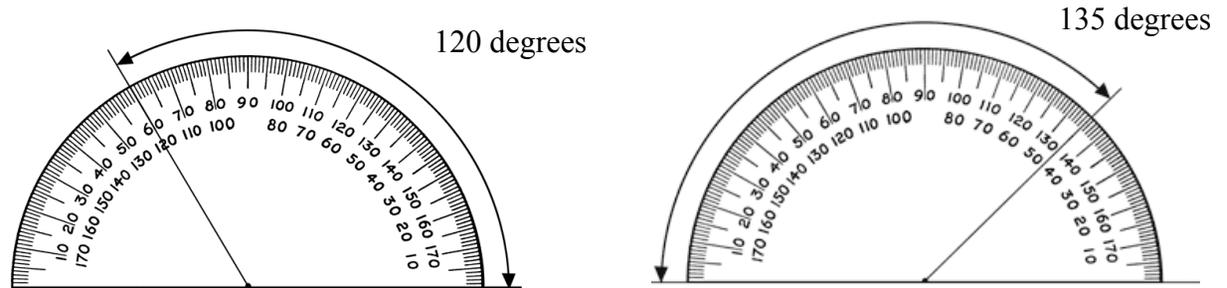
This standard calls for students to explore an angle as a series of “one-degree turns.”

A water sprinkler rotates one-degree at each interval. If the sprinkler rotates a total of 100° , how many one-degree turns has the sprinkler made?

4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

Before students begin measuring angles with protractors, they need to have some experiences with benchmark angles. They transfer their understanding that a 360° rotation about a point makes a complete circle to recognize and sketch angles that measure approximately 90° and 180° . They extend this understanding and recognize and sketch angles that measure approximately 45° and 30° . They use appropriate terminology (acute, right, and obtuse) to describe angles and rays (perpendicular).

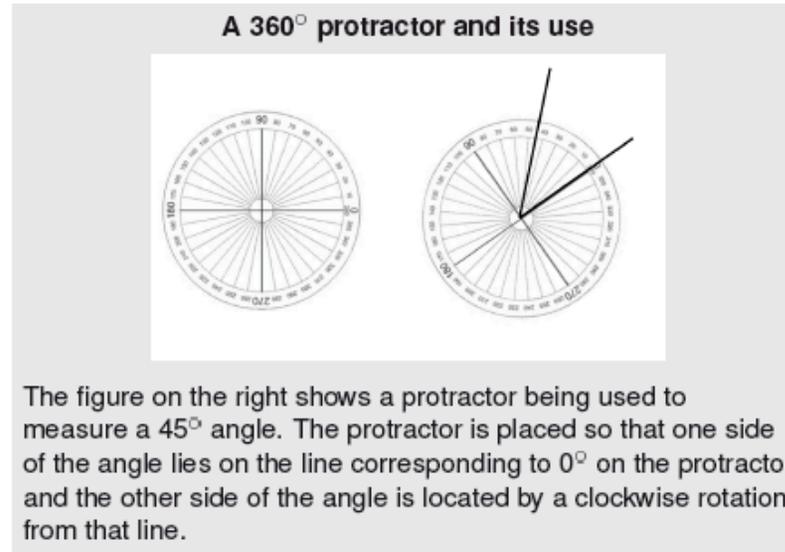
Students should measure angles and sketch angles



As with all measurable attributes, students must first recognize the attribute of angle measure, and distinguish it from other attributes. As with other concepts students need varied examples and explicit discussions to avoid learning limited ideas about measuring angles (e.g., misconceptions that a right angle is an angle that points to the right, or two right angles represented with different orientations are not equal in measure). If examples and tasks are not varied, students can develop incomplete and inaccurate notions. For example, some come to associate all slanted lines with 45° measures and horizontal and vertical lines with measures of 90° . Others believe angles can

be “read off” a protractor in “standard” position, that is, a base is horizontal, even if neither ray of the angle is horizontal. Measuring and then sketching many angles with no horizontal or vertical ray perhaps initially using circular 360° protractors can help students avoid such limited conceptions.

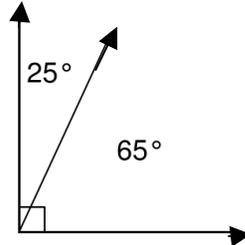
(*Progressions for the CCSSM, Geometric Measurement*, CCSS Writing Team, June 2012, page 23)



(*Progressions for the CCSSM, Geometric Measurement*, CCSS Writing Team, June 2012, page 23)

4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

This standard addresses the idea of decomposing (breaking apart) an angle into smaller parts.



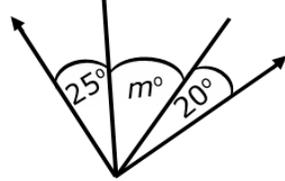
Example:

A lawn water sprinkler rotates 65 degrees and then pauses. It then rotates an additional 25 degrees. What is the total degree of the water sprinkler rotation? To cover a full 360 degrees how many times will the water sprinkler need to be moved?

If the water sprinkler rotates a total of 25 degrees then pauses. How many 25 degree cycles will it go through for the rotation to reach at least 90 degrees?

Example:

If the two rays are perpendicular, what is the value of m ?



Example:

Joey knows that when a clock's hands are exactly on 12 and 1, the angle formed by the clock's hands measures 30° . What is the measure of the angle formed when a clock's hands are exactly on the 12 and 4?

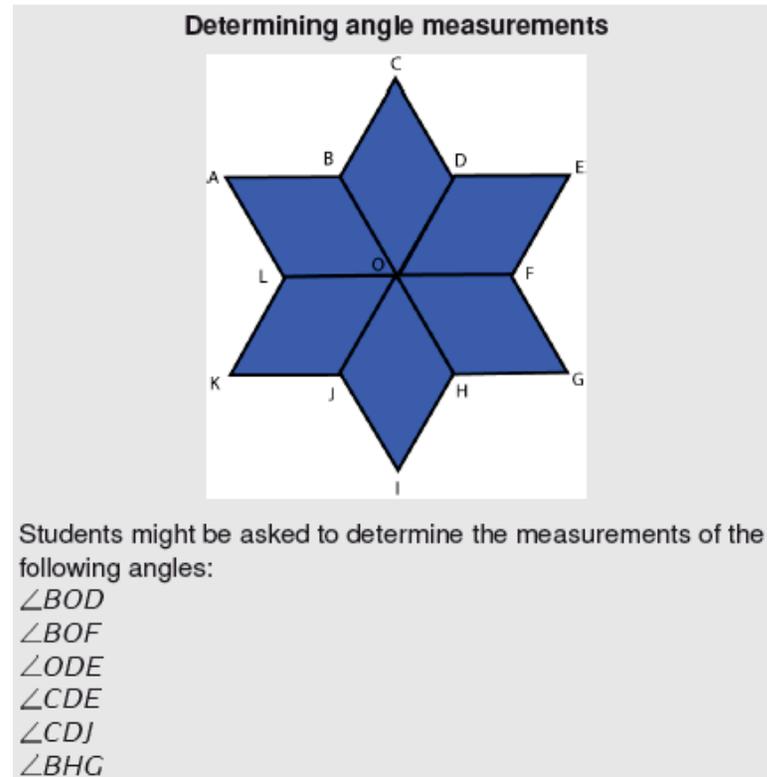
Students can develop more accurate and useful angle and angle measure concepts if presented with angles in a variety of situations. They learn to find the common features of superficially different situations such as turns in navigation, slopes, bends, corners, and openings. With guidance, they learn to represent an angle in any of these contexts as two rays, even when both rays are not explicitly represented in the context; for example, the horizontal or vertical in situations that involve slope (e.g., roads or ramps), or the angle determined by looking up from the horizon to a tree or mountain-top. Eventually they abstract the common attributes of the situations as angles (which are represented with rays and a vertex,) and angle measurements.

Determining angles in pattern blocks

Students might determine all the angles in the common "pattern block" shape set based on equilateral triangles. Placing six equilateral triangles so that they share a common vertex (as shown in part a), students can figure out that because the sum of the angles at this vertex is 360° , each angle which shares this vertex must have measure 60° . Because they are congruent, all the angles of the equilateral triangles must have measure 60° (again, to ensure they develop a firm foundation, students can verify these for themselves with a protractor). Because each angle of the regular hexagon (part b) is composed of two angles from equilateral triangles, the hexagon's angles each measure 120° . Similarly, in a pattern block set, two of the smaller angles from tan rhombi compose an equilateral triangle's angle, so each of the smaller rhombus angles has measure 30° .

(Progressions for the CCSSM, Geometric Measurement, CCSS Writing Team, June 2012, page 24)

Students with an accurate conception of angle can recognize that angle measure is *additive*. As with length, area, and volume, when an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Students can then solve interesting and challenging addition and subtraction problems to find the measurements of unknown angles on a diagram in real world and mathematical problems. For example, they can find the measurements of angles formed a pair of intersecting lines, as illustrated above, or given a diagram showing the measurement of one angle, find the measurement of its complement. They can use a protractor to check, not to check their reasoning, but to ensure that they develop full understanding of the mathematics and mental images for important benchmark angles (e.g., 30° , 45° , 60° , and 90°).



(Progressions for the CCSSM, Geometric Measurement, CCSS Writing Team, June 2012, page 24)

Common Core Standard	Unpacking What do these standards mean a child will know and be able to do?
<p>4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p>	<p>This standard asks students to draw two-dimensional geometric objects and to also identify them in two-dimensional figures. This is the first time that students are exposed to rays, angles, and perpendicular and parallel lines. Examples of points, line segments, lines, angles, parallelism, and perpendicularity can be seen daily. Students may not easily identify lines and rays because they are more abstract.</p> <div style="display: flex; flex-direction: column; align-items: center; gap: 10px;"> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">right angle</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">acute angle</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">obtuse angle</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">straight angle</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">segment</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">line</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">ray</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">parallel lines</div>  </div> <div style="display: flex; align-items: center; gap: 20px;"> <div style="text-align: right;">perpendicular lines</div>  </div> </div> <p>Student should be able to use side length to classify triangles as equilateral, equiangular, isosceles, or scalene; and can use angle size to classify them as acute, right, or obtuse. They then learn to cross-classify, for example, naming a shape as a right isosceles triangle. Thus, students develop explicit awareness of and vocabulary for many concepts they have been developing, including points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Such mathematical terms are useful in communicating geometric ideas, but more important is that constructing examples of these concepts, such as drawing angles and triangles</p>

that are acute, obtuse, and right, help students form richer concept images connected to verbal definitions. That is, students have more complete and accurate mental images and associated vocabulary for geometric ideas (e.g., they understand that angles can be larger than 90 and their concept images for angles include many images of such obtuse angles). Similarly, students see points and lines as abstract objects: Lines are infinite in extent and points have location but no dimension. Grids are made of points and lines and do not end at the edge of the paper.

Students also learn to apply these concepts in varied contexts. For example, they learn to represent angles that occur in various contexts as two rays, explicitly including the reference line, e.g., a horizontal or vertical line when considering slope or a “line of sight” in turn contexts. They understand the size of the angle as a rotation of a ray on the reference line to a line depicting slope or as the “line of sight” in computer environments.

Analyzing the shapes in order to construct them requires students to explicitly formulate their ideas about the shapes. For instance, what series of commands would produce a square? How many degrees are the angles? What is the measure of the resulting angle? What would be the commands for an equilateral triangle? How many degrees are the angles? What is the measure of the resulting angle? Such experiences help students connect what are often initially isolated ideas about the concept of angle.

(Progressions for the CCSSM, Geometry, CCSS Writing Team, June 2012, page 14)

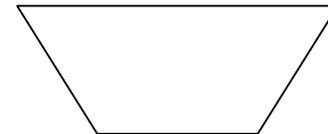
Example:

Draw two different types of quadrilaterals that have two pairs of parallel sides?

Is it possible to have an acute right triangle? Justify your reasoning using pictures and words.

Example:

How many acute, obtuse and right angles are in this shape?



Draw and list the properties of a parallelogram. Draw and list the properties of a rectangle. How are your drawings and lists alike? How are they different? Be ready to share your thinking with the class.

4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right

Two-dimensional figures may be classified using different characteristics such as, parallel or perpendicular lines or by angle measurement.

Parallel or Perpendicular Lines:

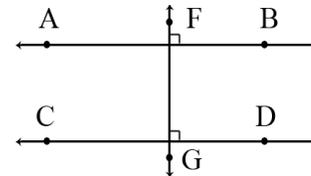
Students should become familiar with the concept of parallel and perpendicular lines. Two lines are parallel if they never intersect and are always equidistant. Two lines are perpendicular if they intersect in right angles (90°).

triangles.

Students may use transparencies with lines to arrange two lines in different ways to determine that the 2 lines might intersect in one point or may never intersect. Further investigations may be initiated using geometry software. These types of explorations may lead to a discussion on angles.

A **kite** is a quadrilateral whose four sides can be grouped into two pairs of equal-length sides that are beside (*adjacent to*) each other.

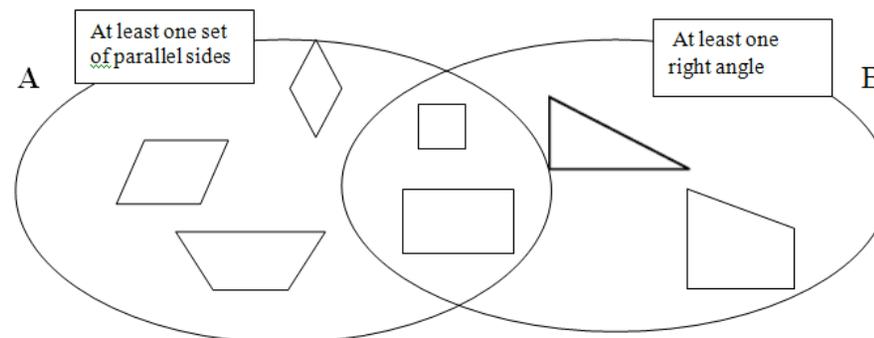
Parallel and perpendicular lines are shown below:



This standard calls for students to sort objects based on parallelism, perpendicularity and angle types.

Example:

Which figure in the Venn diagram below is in the wrong place, explain how do you know?



Do you agree with the label on each of the circles in the Venn diagram above? Describe why some shapes fall in the overlapping sections of the circles.

Example:

Draw and name a figure that has two parallel sides and exactly 2 right angles.

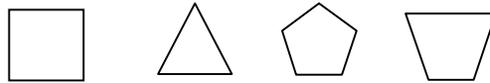
Example:

For each of the following, sketch an example if it is possible. If it is impossible, say so, and explain why or show a counter example.

- A parallelogram with exactly one right angle.
- An isosceles right triangle.
- A rectangle that is *not* a parallelogram. (*impossible*)
- Every square is a quadrilateral.
- Every trapezoid is a parallelogram.

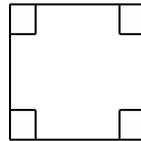
Example:

Identify which of these shapes have perpendicular or parallel sides and justify your selection.



A possible justification that students might give is:

The square has perpendicular lines because the sides meet at a corner, forming right angles.



Angle Measurement:

This expectation is closely connected to 4.MD.5, 4.MD.6, and 4.G.1. Students' experiences with drawing and identifying right, acute, and obtuse angles support them in classifying two-dimensional figures based on specified angle measurements. They use the benchmark angles of 90° , 180° , and 360° to approximate the measurement of angles.

Right triangles can be a category for classification. A right triangle has one right angle. There are different types of right triangles. An isosceles right triangle has two or more congruent sides and a scalene right triangle has no congruent sides.

Guess My Rule

Students can be shown the two groups of shapes in part a and asked “Where does the shape on the left belong?” They might surmise that it belongs with the other triangles at the bottom. When the teacher moves it to the top, students must search for a different rule that fits all the cases.

Later (part b), students may induce the rule: “Shapes with at least one right angle are at the top.” Students with rich visual images of right angles and good visualization skills would conclude that the shape at the left (even though it looks vaguely like another one already at the bottom) has one right angle, thus belongs at the top.

(Progressions for the CCSSM, Geometry, CCSS Writing Team, June 2012, page 15)

The notion of congruence (“same size and same shape”) may be part of classroom conversation but the concepts of congruence and similarity do **not** appear until middle school.

TEACHER NOTE: In the U.S., the term “trapezoid” may have two different meanings. Research identifies these as inclusive and exclusive definitions. The inclusive definition states: A trapezoid is a quadrilateral with *at least* one pair of parallel sides. The exclusive definition states: **A trapezoid is a quadrilateral with exactly one pair of parallel sides.** With this definition, a parallelogram is not a trapezoid. North Carolina has adopted the exclusive definition. *(Progressions for the CCSSM: Geometry, The Common Core Standards Writing Team, June 2012.)*

4.G.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

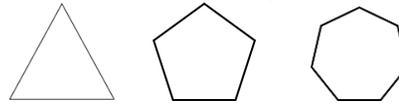
Students need experiences with figures which are symmetrical and non-symmetrical. Figures include both regular and non-regular polygons. Folding cut-out figures will help students determine whether a figure has one or more lines of symmetry.

This standard only includes line symmetry not rotational symmetry.

Example:

For each figure, draw all of the lines of symmetry. What pattern do you notice? How many lines of symmetry do you think there would be for regular polygons with 9 and 11 sides. Sketch each figure and check your predictions.

Polygons with an odd number of sides have lines of symmetry that go from a midpoint of a side through a vertex.



Some examples used in this document are from the Arizona Mathematics Education Department

Glossary

Table 1 Common addition and subtraction situations¹

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$
	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$
	Total Unknown	Addend Unknown	Both Addends Unknown²
Put Together/ Take Apart³	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5, 5 - 3 = ?$	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5, 5 = 5 + 0$ $5 = 1 + 4, 5 = 4 + 1$ $5 = 2 + 3, 5 = 3 + 2$
		Difference Unknown	Bigger Unknown
Compare⁴	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5, 5 - 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?, 3 + 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?, ? + 3 = 5$

²These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean makes or results in but always does mean is the same number as.

³Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.

⁴For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.

¹Adapted from Box 2-4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp. 32, 33).

Table 2 Common multiplication and division situations¹

	Unknown Product $3 \times 6 = ?$	Group Size Unknown ("How many in each group?" Division) $3 \times ? = 18$, and $18 \div 3 = ?$	Number of Groups Unknown ("How many groups?" Division) $? \times 6 = 18$, and $18 \div 6 = ?$
Equal Groups	<p>There are 3 bags with 6 plums in each bag. How many plums are there in all?</p> <p><i>Measurement example.</i> You need 3 lengths of string, each 6 inches long. How much string will you need altogether?</p>	<p>If 18 plums are shared equally into 3 bags, then how many plums will be in each bag?</p> <p><i>Measurement example.</i> You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?</p>	<p>If 18 plums are to be packed 6 to a bag, then how many bags are needed?</p> <p><i>Measurement example.</i> You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?</p>
Arrays,² Area³	<p>There are 3 rows of apples with 6 apples in each row. How many apples are there?</p> <p><i>Area example.</i> What is the area of a 3 cm by 6 cm rectangle?</p>	<p>If 18 apples are arranged into 3 equal rows, how many apples will be in each row?</p> <p><i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?</p>	<p>If 18 apples are arranged into equal rows of 6 apples, how many rows will there be?</p> <p><i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?</p>
Compare	<p>A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost?</p> <p><i>Measurement example.</i> A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?</p>	<p>A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost?</p> <p><i>Measurement example.</i> A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?</p>	<p>A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat?</p> <p><i>Measurement example.</i> A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?</p>
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$

²The language in the array examples shows the easiest form of array problems. A harder form is to use the terms rows and columns: The apples in the grocery window are in 3 rows and 6 columns. How many apples are in there? Both forms are valuable.

³Area involves arrays of squares that have been pushed together so that there are no gaps or overlaps, so array problems include these especially important measurement situations.

¹The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.

Table 3 The properties of operations

Here a , b and c stand for arbitrary numbers in a given number system. The properties of operations apply to the rational number system, the real number system, and the complex number system.

<i>Associative property of addition</i>	$(a + b) + c = a + (b + c)$
<i>Commutative property of addition</i>	$a + b = b + a$
<i>Additive identity property of 0</i>	$a + 0 = 0 + a = a$
<i>Associative property of multiplication</i>	$(a \times b) \times c = a \times (b \times c)$
<i>Commutative property of multiplication</i>	$a \times b = b \times a$
<i>Multiplicative identity property of 1</i>	$a \times 1 = 1 \times a = a$
<i>Distributive property of multiplication over addition</i>	$a \times (b + c) = a \times b + a \times c$

REFERENCES

- Common Core Standards Writing Team (Bill McCullum, lead author). *Progressions for the common core state standards in mathematics: Geometry* (draft). June 23, 2012. Retrieved from: www.commoncoretools.wordpress.com.
- Common Core Standards Writing Team (Bill McCullum, lead author). *Progressions for the common core state standards in mathematics: Geometric measurement* (draft). June 23, 2012. Retrieved from: www.commoncoretools.wordpress.com.
- Common Core Standards Writing Team (Bill McCullum, lead author). *Progressions for the common core state standards in mathematics: K-3, Categorical data; Grades 2-5, Measurement Data* (draft). June 20, 2011. Retrieved from: www.commoncoretools.wordpress.com.
- Common Core Standards Writing Team (Bill McCullum, lead author). *Progressions for the common core state standards in mathematics: K, Counting and cardinality; K-5, operations and algebraic thinking* (draft). May 29, 2011. Retrieved from: www.commoncoretools.wordpress.com.
- Common Core Standards Writing Team (Bill McCullum, lead author). *Progressions for the common core state standards in mathematics: K-5, Number and operations in base ten* (draft). April 7, 2011. Retrieved from: www.commoncoretools.wordpress.com.
- Common Core Standards Writing Team (Bill McCullum, lead author). *Progressions for the common core state standards in mathematics: 3-5 Number and operations - fractions* (draft). July 12, 2011. Retrieved from: www.commoncoretools.wordpress.com.
- Copley, J. (2010). *The young child and mathematics*. Washington DC: NAEYC.
- Fosnot, C. & Dolk, M. (2001). *Young mathematicians at work: Constructing number sense, addition, and subtraction*. Portsmouth: Heinemann.
- Fosnot, C. & Dolk, M. (2001). *Young mathematicians at work: Constructing multiplication and division*. Portsmouth: Heinemann.
- Fosnot, C. & Dolk, M. (2001). *Young mathematicians at work: Constructing fractions, decimals, and percents*. Portsmouth: Heinemann.
- Chapin, S. & Johnson, A. (2006). *Math matters: Grade K-8 understanding the math you teach*. Sausalito: Math Solution Publications.
- Van de Walle, J., Lovin, L. (2006). *Teaching student-centered mathematics 3-5*. Boston: Pearson.

Content Integration 2016-2017



Grade



CANYONS
School District

Table of Contents

Introduction	page 1
General Instructions	page 2
SALTA Materials Content Integration	page 3
Science Exemplars	pages 4-56
Scope & Sequence At-A-Glance	page 57
Detailed Scope & Sequence	pages 58-80
Interactive Notebook Resources	pages 81-100
Social Studies Resources	pages 101-102
Science Resources	pages 103-106

CONTENT INTEGRATION (SOCIAL STUDIES & SCIENCE) CURRICULUM MAP CANYONS SCHOOL DISTRICT

Curriculum Mapping Purpose

Canyons School District's Content Integration curriculum maps are standards-based maps driven by the Utah Core Standards. Student achievement is increased when both teachers and students know where they are going, why they are going there, and what is required of them to get there.

Curriculum Maps are a tool for:

- **ALIGNMENT:** Provides support and coordination between concepts, skills, standards, curriculum, and assessments
- **COMMUNICATION:** Articulates expectations and learning goals for students
- **PLANNING:** Focuses instruction and targets critical information
- **COLLABORATION:** Promotes professionalism and fosters dialogue between colleagues about best practices pertaining to sequencing, unit emphasis and length, integration, and review strategies
- **SCAFFOLDED INSTRUCTION AND GROUPING STRUCTURES:** The organization of a scaffolded classroom includes whole group, small group (e.g., teacher-led skill-based, cooperative learning), partner, and independent work where students are provided support towards mastery. As students assume more responsibility for the learning, gradual support is decreased in order to shift the responsibility for learning from the teacher to the students.

General Instructions

Pacing

This curriculum map provides guidance for intertwining the Utah Core Standards for Social Studies and Science with the Reading Street content. Following the map will allow students to access all core standards by the end of the year. To support students' mastery of the standards, a scope and sequence was developed to address content areas. Attending to these standards will allow teachers to focus instruction for the given unit and better assess students' understanding of each standard.

Units

The scope and sequence was correlated to the Reading Street Unit Theme and Question where applicable. There are five units that are to be covered over the course of the school year, as students will do a keyboarding unit at the beginning of the year. Each unit represents six weeks of instruction. In most cases, there are science and social studies standards that are taught in each unit.

Content Integration Instruction

During the Science and Social Studies content integration block, students will have the opportunity to learn about and experience science and social studies as directed by the Utah State Core curriculum. "Elementary school students learn science and social studies best when; they are involved in first-hand exploration and investigation and inquiry/process skills are nurtured, instruction builds directly on the student's conceptual framework, and when mathematics and communication skills are an integral part of instruction."

The Content integration time in the ELA Block deals with integration of science and social studies content to understand key concepts, principles, generalizations, and theories through the integration of the English Language Arts Standards. The Utah Core states: "By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students can only gain this foundation when the curriculum is intentionally and coherently structured to develop rich content knowledge within and across grades. Students also acquire the habits of reading independently and closely, which are essential to their future success."

Optimally, this portion of the day involves students reading, writing, listening and speaking about the topics they are learning about in science and social studies instruction time. Teachers can use this time to provide background knowledge and learning activities to prepare their students for their Science/Social Studies instruction. Ideas and resources for integration can be found in your Content Integration Map.

Scheduling Suggestions

Ideally, the Science and Social Studies block will be schedule back-to-back with the Content Integration time in the ELA block for a fluid flow from building background knowledge in the ELA block to the experiential learning in the Science and Social Studies block. If schedule back-to-back, this block of time can be adjusted so that laboratories, modeling, simulations, and other activities that take extended amounts of time can be incorporated in the day.

Example Performance Assessment

Example performance assessments have been included in the map as ideas on different types of assessments to determine mastery. An example has been listed for every objective from the Utah Science and Social Studies core.

Guidance for Integration

Ideas for how to incorporate literacy, math, art, and other standards with the Social Studies and Science standards have been included in this portion of the map. Links on where to find resources and lesson plans have been provided.

SALTA Materials Content Integration

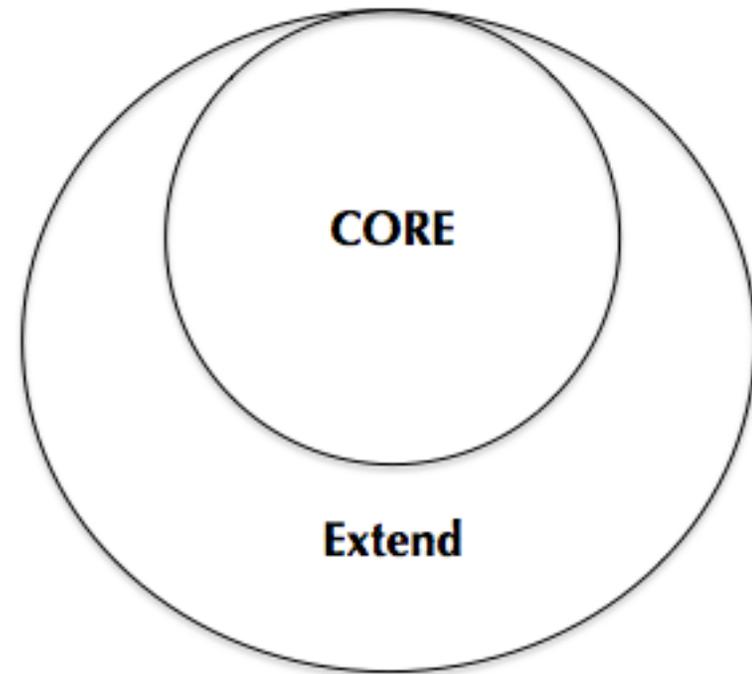
CORE

All SALTA students are taught the Utah **Core** standards. Core standards are evidence-based, aligned with expectations for success in college and the workplace, and will allow students to compete internationally. The new standards stress rigor, depth, clarity, coherence, and 21st century skills, to prepare students for college and careers.

EXTEND

Extension of core standards provides students with activities that are added to **CORE** to enlarge or deepen understanding. Examples of **EXTEND** include:

- Science Exemplars





Exemplars has helped schools and districts in 50 states and 25 foreign countries to meet the challenges of national, state and local standards.

What Is Exemplars?

Increasingly, schools, districts and states are adopting new standards and revising their science curriculums. Teachers, curriculum coordinators and administrators are grappling with how to incorporate them, along with new authentic assessments and instructional strategies into an already challenging classroom schedule.

We started *Exemplars* to respond to the many teachers we have worked with who have told us how badly they want to implement standards-based assessment and instruction in their classrooms and how challenging it is.

The goal of *Exemplars* is to provide performance assessment inquiry tasks, scoring rubrics, benchmark papers and tips to make it more manageable for educators to implement new standards and this approach to assessment.

Exemplars began in 1993 with authentic assessment in mathematics for grades K–8 to help teachers, schools and districts implement the NCTM standards. It was created with the help of classroom teachers, drawn nationwide from model practitioners – teachers who have been through the process of setting standards, designing authentic inquiry tasks and using rubrics to assess student performance. It has helped schools and districts in 50 states and 25 foreign countries to meet the challenges of national, state and local standards. Response to this teacher-developed, classroom-tested model has been enthusiastic. It is viewed as “so user friendly and non-threatening” that teachers enjoy working with it.

In 1993, *Exemplars* added Mathematics 9–12, and in 1995 we added Science, K–8. RWR (Reading, Writing and Research in the Content Areas) was published for grades 5–8 in 1999. Our newest products include Developing Writers and Spanish *Exemplars*.



Our state and provincial alignments can be viewed online at <http://www.exemplars.com/resources/alignments/index.html>

Science Exemplars

Science Exemplars is based on national standards and is aligned to state and provincial standards; Benchmarks for Science Literacy (Project 2061 of the American Association for the Advancement of Science); National Science Education Standards (National Research Council); and The New Standards Project Science Performance Standards. Our state and provincial alignments can be viewed online at <http://www.exemplars.com/resources/alignments/index.html>

Science Exemplars is focused on the big ideas of science beginning at the K–2 level and is concerned with content as well as process. (See the description of *Exemplars Inquiry Tasks and Rubric* on pages 6-18.)

Science Exemplars is a vehicle for improving assessment and instruction. It improves assessment by providing:

- Inquiry-based assessment tasks
- Rubrics that are aligned to state and national standards in science
- Benchmark papers exemplifying four levels of science performance; Novice, Apprentice, Practitioner and Expert

It improves instruction by:

- Making standards clear to students
- Encouraging students to self-assess
- Giving students the opportunity to work as scientists on interesting investigations and inquiry tasks
- Providing teachers with support by relating each task to the big ideas of science; the context for the problem; interdisciplinary links; and possible solutions

How Do People Use Exemplars?

People use *Exemplars* in many different ways.

- Teachers use *Exemplars* for both assessment and instruction, depending on the circumstances. The tasks in *Exemplars* are inquiry-based performance assessments. They can be used to help **teach** students skills and concepts and to **assess** students' understanding of skills and concepts.

Exemplars include:

- **Preassessments** – given at the beginning of a unit to assess what students already know
- **Formative assessments** – given to inform instruction and assess how students are progressing
- **Culminating or Summative assessments** – given at the end of the unit to assess student understanding
- *Exemplars* engaging inquiry tasks with rubrics tied to national, state and provincial standards, and benchmark papers at Novice, Apprentice, Practitioner and Expert levels make *Exemplars* an ideal vehicle for **professional development**.
- Administrators have found *Exemplars* to be a powerful way of reporting student performance based on national, state and provincial standards to their communities.
- Students use *Exemplars* to learn the practice of science and the process of self-assessment.
- Principals, curriculum coordinators, content area supervisors and staff developers have found *Exemplars* to be an effective way of helping teachers begin to understand standards and performance assessment.



Teachers use *Exemplars* for both assessment and instruction. The tasks in *Exemplars* are inquiry-based performance assessments. They can be used to help **teach** students skills and concepts and to **assess** students' understanding of skills and concepts.



Many teachers will find unifying concepts a useful way to connect one lesson or unit to others throughout the year.

A Guide for Exemplars Science Inquiry Tasks

Exemplars tasks are designed for different developmental levels, and they have been grouped by grades K–2, 3–5 and 6–8. Each task is written with one of these developmental levels in mind. Often, for many tasks, adaptations (in materials, data collection procedures and tools, representations used, data analysis, etc.) can be made for students with more or less sophisticated levels of skills and understanding. Student work samples are benchmarked for the identified grade levels and the tasks as written.

Each task includes the following:

- **Inquiry Task and Essential Question to be Answered**
Describes what science concepts this investigation explores and which science process skills are reinforced during the task. The Essential Question provides the lesson focus or the question students are trying to answer.
- **Big Ideas and Unifying Concepts**
While no single lesson can address the “big ideas” of science, we have included some unifying concepts toward which particular tasks can help build an understanding in relation to other science lessons. Many teachers will find this a useful way to connect one lesson or unit to others throughout the year. Unifying concepts, identified by the national science standards, include:
 - Change-Constancy
 - Cause-Effect
 - Order and Organization
 - Models
 - Systems
 - Interdependence
 - Evolution and Equilibrium
 - Form and Function
 - Design
 - Patterns
 - Scale

- **Science Content**

Science content areas that are addressed and assessed through *Exemplars* Science Inquiry Tasks are identified under five broad headings:

- **Physical Science Concepts** – properties of matter, motion and forces, transfer and transformation of energy
- **Life Science Concepts** – structure and function, reproduction and heredity, regulation and behavior, population and ecosystems, evolution, diversity and adaptations
- **Design Technology** – use of tools, invention, design constraints and advantages, impact on human and other resources
- **Science in Personal and Societal Perspectives** – personal health; populations, resources and environments; natural hazards; risks and benefits; and science, technology and society
- **Earth Science** – earth systems; earth’s history; solar system; and natural resource management

- **Time Required for the Task**

Time is estimated and is based upon the teacher’s field test.

- **Context**

Describes what the students have already been doing in science to lay the groundwork for this activity and what prior knowledge and skills they might draw upon to accomplish the task.

- **What the Task Accomplishes**

Describes how this investigation task will teach, reinforce, and assess the skills and knowledge identified in the corresponding science standards.

- **How the Student Will Investigate**

Describes how students will be engaged during the task. Includes how the teacher might guide exploration, ask questions, and model skills needed for successful completion of the task.

- **Interdisciplinary Links and Extensions**

Includes suggested topics and activities that can extend the learning from this activity to other content areas



Children are natural inquirers, they still need to be taught the specific skills of inquiry so that they can begin to think and act as scientists do.

- **Teaching Tips and Guiding Questions**

Includes ideas to guide the inquiry process during the lesson(s). While the children engage in exploration, suggested questions are provided to guide their thinking and lead them to the big ideas. Good questions ensure that students build understanding while they manipulate materials and record information. Questions should move from the specific (How is... different from...?) to the general (Can you state a “rule” about...? Do all materials... in the same way?)

- **Concepts to be Assessed**

Identifies unifying concepts (big ideas) and science concepts to be assessed using the *Science Exemplars* Rubric criterion: Science Concepts and Related Content. This brief overview calls attention to what conceptual knowledge and scientific terminology students will demonstrate an understanding and use of in their work samples.

For example:

- Observing and explaining reactions of bending and not bending (cause-effect);
- Observing and comparing physical properties of matter (comparing the weight, size, and flexibility of solids);
- Classifying materials according to properties, etc.

- **Skills to be Developed**

Identifies specific science process skills to be assessed using the *Science Exemplars* Rubric (under the criteria: Scientific Procedures and Reasoning Strategies and Scientific Communication/Using Data). This brief overview calls attention to scientific skills students will demonstrate an understanding and use of in their work samples. For example: Observing, Predicting, Classifying, Recording, Communicating, Measuring, etc. needed to complete the task.

- **Links to Science (and other) Standards**

Identifies connections to science (and sometimes mathematics) standards.

For example:

- *Scientific Method*: Students describe, predict, investigate and explain phenomena.
- *Scientific Theory*: Students look for evidence that explains why things happen, and modify explanations when new observations are made.
- *Physical Science – Properties of Matter*: Students describe and sort objects and materials according to observations of similarities, and differences of their physical properties (size, weight, color, shape, texture and flexibility).

Exemplars

- **Suggested Materials**
Suggests any advanced preparation and materials needed for the inquiry task to be carried out successfully.
- **Possible Solutions**
Describes possible student solutions – what they should demonstrate; the ways they should organize their data; and possible conclusions they could make.
- **Rubric and Benchmarks**
Describes what is required to achieve each level of performance for a particular task and annotated samples of student work for each of the four performance levels: Novice, Apprentice, Practitioner and Expert. Descriptions attempt to point to the distinctions to look for when using the *Science Exemplars* Rubric to assess different levels of student learning and understanding.

About Student Self-Assessment



You can find copies of *Exemplars* rubrics in your subscriptions or on your CDs. Rubrics may also be downloaded from our web site at www.exemplars.com/resources/rubrics/index.html

As teachers begin to use the *Science Exemplars* Rubric (pgs. 14–15) to assess their students' work, we encourage them to teach their students how to assess their own progress and performance through student rubrics. These rubrics simplify the language of the teacher's rubric, so that students can understand the criteria and become more involved in monitoring their own progress, leading them to become more self-directed learners.

The **primary student version** (pg. 16) of the *Science Exemplars* Rubric uses "friendly" visual representations to help limited readers understand the criteria for performance. The language in the rubric describes (in a positive way) what is happening, rather than what is not happening. For example, the Novice level states that, "I did not use tools YET." This implies that it can and will happen and gives some credit for early efforts. Primary students can use this rubric when conferencing with the teacher and peers about their work as they progress through a task. It can also be used with parents when students take work home to share.

The **intermediate version** (pgs. 17–18) of the student rubric – in worksheet form is presented in a different format than the teacher's rubric. It provides the four criteria, a description of expectations for each criterion, and a space where students are asked to provide evidence that they have met each criterion. This rubric also provides the opportunity for students to customize the rubric for each different inquiry task by filling in the specific tools to be used, the vocabulary and terms that are important, etc. Rather than having students simply state that they have met the criteria, this rubric asks them to note where the **evidence** can be found. Some teachers have students color code each criterion (blue dot for Tools, red dot for Reasoning, etc.) or use a shape (star for Tools, triangle for Reasoning, etc.) and place that code in their lab reports / science journals. Other teachers ask that students write the page or place where the evidence can be found. This process has a double benefit: students spend time documenting their own evidence for meeting standards and teachers save time in looking for it, shifting the responsibility to the student. This rubric is also effective for parent and peer conferencing.

It has been our experience, that students at all grade levels can learn to self-assess, using both work samples from other students (peers and/or student work samples from *Exemplars*) and their own work. The key to student self-assessment is clear consistent criteria, written with descriptive rather than evaluative language, which is presented at an appropriate time during the learning process.

Introducing Rubrics

A rubric is an assessment guide that reflects content standards and performance standards. An assessment rubric tells us what is important,

defines what work meets a standard, and allows us to distinguish between different levels of performance.

Students need to understand the rubric that is being used to assess their performance. Teachers often begin this understanding by developing rubrics with students that **do not** address science. Together, they develop rubrics around classroom management, playground behavior, homework, lunchroom behavior, following criteria with a substitute teacher, etc. Developing rubrics with students to assess the best chocolate chip cookie, sneaker, crayon, etc. is also an informative activity that helps students understand performance levels. After building a number of rubrics with students, a teacher can introduce the *Exemplars Science* rubric (pages 15–16). Since the students will have an understanding of what an assessment guide is, they will be ready to focus on the science criteria and performance levels of the rubric.

We have included a sample rubric (page 13) developed by a teacher which assesses lunchroom behavior. It is very important to have your students develop their own rubric first. Sharing, adjusting, or using the rubric on page 13 can be done after your students have experienced the process for themselves.

The rubrics on pages 52–55 can be used by individual teachers or teams of teachers assessing student work. In the left-hand column the teacher records the evidence they see in the student work that justifies placing the work at that particular level. In the right-hand column the teacher would record the action(s) that can be taken to help the student move to the next performance level.

Guidelines for Using Student Rubrics

- **A Picture is Worth a Thousand Words:** Introduce rubric criteria and descriptions with examples of student work or demonstrations of what performance might look like. Provide several possible ways to meet the standards if they do exist. Guide students to think through the assessment process, looking for evidence. You may choose to introduce one or two criteria at a time before moving on, or introduce all of them at once.
- **Practice Makes Perfect:** Provide opportunities for students to use rubrics to conference with peers, teachers and parents about their work and the work of others. Assessment (and self-assessment) will become a positive experience if students begin to feel that they have control over correcting and revising work to meet standards.
- **Be Open to Suggestions From Students:** The more students understand the criteria, the more they will offer suggestions for other assessments. Guide them to use descriptive rather than evaluative language (avoid words like good, nice, poor) that clearly states what is happening.
- **Be Consistent:** We suggest that you introduce clear criteria and post them in the room as a reminder throughout the year of what good inquiry-based science involves. Students should have their own copies of student rubrics to refer to, so they can track their progress in each criterion as part of their science portfolios for the year.



Assessment (and self-assessment) will become a positive experience if students begin to feel that they have control over correcting and revising work to meet standards.



After building a number of rubrics with students, a teacher can introduce the *Exemplars Science* rubric. Since the students will have an understanding of what an assessment guide is, they will be ready to focus on the science criteria and performance levels of the rubric.



Students, teachers and parents all benefit from peer and self assessment.

What are the Benefits of Peer and Self-Assessment?

- **Students internalize the criteria for high-quality work.**
Students who see clear models of work that meet the standards and understand why the work meets the standards will begin to make comparisons between their performance and the *Exemplars* presented. As science inquiry tasks become more complex and open ended, it is essential that more than one model be provided to assure that students understand several possible ways to meet the standards.
- **Students understand the process of getting to the standard.**
Rubrics should show students where they have been, where they are now, and where they need to be at the end of the task. Describing progressive levels of performance becomes a guide for the journey, rather than a blind walk through an assessment maze.
- **Teachers involve students in the monitoring process and shift some of the responsibility for documenting and justifying learning to the students.**
Research has demonstrated that high-performing learners do the following:
 - self-monitor,
 - self-correct, and
 - use feedback from peers to guide their learning process.Student rubrics, written to identify the essence of the expected learning, can be an excellent vehicle for reflective thinking and peer conferencing.
- **Parents understand expectations and assessment criteria.**
When students can articulate to their parents (before, during and at the end of the task), what the standards of performance are, a clear and positive message is received. Parents generally want to support their child's learning and feel helpless, sometimes, because they are unsure of what open-ended tasks are intended to teach. Student rubrics remove the educational jargon yet still describe meaningful learning. Many teachers find rubrics useful during parent conferences as they review science work samples.
- **Students understand that standards are "real" – achievable – and that exceeding the standard is both possible and desirable.**
Traditionally, many "good students" have done only what has been asked of them. The *Science Exemplars* rubrics define high-quality performance at the Practitioner level but also suggest that more learning is possible. Excellence is not quite as subjective as it has been in the past and students are encouraged to begin to define why their work exceeds the standards.

LUNCHROOM RUBRIC—BEHAVIOR

Criteria	Level 1	Level 2	Level 3
Waiting-in-Line	Outside voice Touching, pushing, shoving Frontsies/backsies	Inside voice Occasional holding spots for an individual or cuts in line	Stage whispers Stays in space Joins line at end as enters cafeteria
Table Manners	<u>Rude</u> Stealing seat Eating off other's plate Poking/grabbing Throwing food Singing Wandering off	<u>Family</u> Kind words Elbows allowed Using fingers Eating at spot but standing	<u>Restaurant</u> Using please, thank you, excuse me No elbows No singing Chews with mouth closed Using utensils Staying in seat
Noise Level	Outside voice	Inside voice	Quiet inside voice (just above a whisper called a "Stage whisper")
Dismissal Prep	Dirty table/floor No recycling	Mostly clean table Mostly clean floor Some recycling	Clean table Clean floor Correct recycling

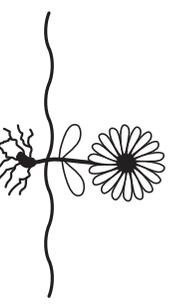
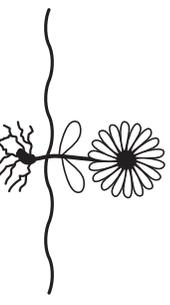
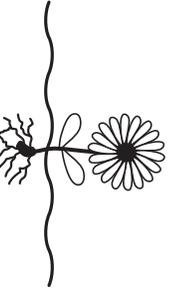
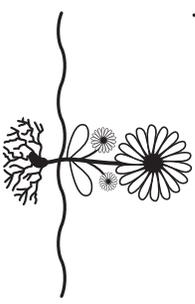
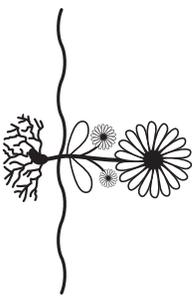
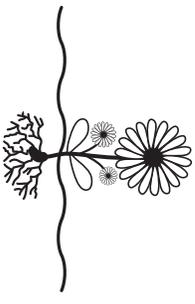
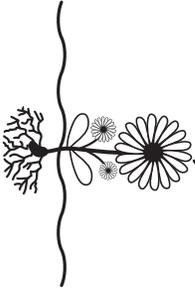
Exemplars Science Rubric

Level	Scientific Tools and Technologies	Scientific Procedures and Reasoning Strategies	Scientific Communication/ Using Data	Scientific Concepts and Related Content
Novice	<ul style="list-style-type: none"> Did not use appropriate scientific tools or technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather data (via measuring and observing). 	<ul style="list-style-type: none"> No evidence of a strategy or procedure, or used a strategy that did not bring about successful completion of task/investigation. No evidence of scientific reasoning used. There were so many errors in the process of investigation that the task could not be completed. 	<ul style="list-style-type: none"> No explanation, or the explanation could not be understood, or was unrelated to the task/investigation. Did not use, or inappropriately used scientific representations and notation (e.g. symbols, diagrams, graphs, tables, etc.). No conclusion stated, or no data recorded. 	<ul style="list-style-type: none"> No use, or mostly inappropriate use, of scientific terminology. No mention or inappropriate references to relevant scientific concepts, principles, or theories (big ideas). Some evidence of understanding observable characteristics and properties of objects, organisms, and/or materials used.
Apprentice	<ul style="list-style-type: none"> Attempted to use appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather data (via measuring and observing) but some information was inaccurate or incomplete. 	<ul style="list-style-type: none"> Used a strategy that was somewhat useful, leading to partial completion of the task/investigation. Some evidence of scientific reasoning used. Attempted but could not completely carry out testing a question, recording all data and stating conclusions. 	<ul style="list-style-type: none"> An incomplete explanation or explanation not clearly presented (e.g., out of sequence, missing step). Attempted to use appropriate scientific representations and notations, but were incomplete (e.g., no labels on chart). Conclusions not supported or were only partly supported by data. 	<ul style="list-style-type: none"> Used some relevant scientific terminology. Minimal reference to relevant scientific concepts, principles, or theories (big ideas). Evidence of understanding observable characteristics and properties of objects, organisms, and/or materials used.

Exemplars Science Rubric

Level	Scientific Tools and Technologies	Scientific Procedures and Reasoning Strategies	Scientific Communication/ Using Data	Scientific Concepts and Related Content
Practitioner	<ul style="list-style-type: none"> Effectively used some appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather and analyze data, with only minor errors. 	<ul style="list-style-type: none"> Used a strategy that led to completion of the investigation / task. Recorded all data. Used effective scientific reasoning. Framed or used testable questions, conducted experiment, and supported results with data. 	<ul style="list-style-type: none"> A clear explanation was presented. Effectively used scientific representations and notations to organize and display information. Appropriately used data to support conclusions. 	<ul style="list-style-type: none"> Appropriately used scientific terminology. Provided evidence of understanding of relevant scientific concepts, principles or theories (big ideas). Evidence of understanding observable characteristics and properties of objects, organisms, and/or materials used.
Expert	<ul style="list-style-type: none"> Accurately and proficiently used all appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather and analyze data. 	<ul style="list-style-type: none"> Used a sophisticated strategy and revised strategy where appropriate to complete the task. Employed refined and complex reasoning and demonstrated understanding of cause and effect. Applied scientific method accurately: (framed testable questions, designed experiment, gathered and recorded data, analyzed data, and verified results). 	<ul style="list-style-type: none"> Provided clear, effective explanation detailing how the task was carried out. The reader does not need to infer how and why decisions were made. Precisely and appropriately used multiple scientific representations and notations to organize and display information. Interpretation of data supported conclusions, and raised new questions or was applied to new contexts. Disagreements with data resolved when appropriate. 	<ul style="list-style-type: none"> Precisely and appropriately used scientific terminology. Provided evidence of in-depth, sophisticated understanding of relevant scientific concepts, principles or theories (big ideas). Revised prior misconceptions when appropriate. Observable characteristics and properties of objects, organisms, and/or materials used went beyond the task / investigation to make other connections or extend thinking.

Exemplars® Primary Science Rubric

Level	Science Tools	Science Concepts	Reasoning Strategies	Communication
Novice Getting started No or little understanding	I did not use science tools yet. I have no data. 	I do not get it yet. 	I mixed up my steps. 	I did not record or share my ideas. 
Apprentice Almost Student has some understanding	I tried to use some science tools. My data is started. 	I get some of it. 	I took steps. 	I started to record and share my ideas. 
Practitioner Got it! Strong understanding Meets the standard	I used science tools. My data is complete. 	I get all of it. 	I used organized steps. I made more connections. 	I recorded and shared my ideas. 
Expert Wow, awesome! Exceptional understanding Exceeds the standard	I made excellent use of all science tools. My data is complete. I can demonstrate. 	I get all of it. I can teach it to a friend. My ideas shine! 	I used organized steps. I made more connections. 	I recorded and shared my ideas. I also recorded details and asked questions. 

© Exemplars, 2007

Intermediate Student Rubric

Criteria	What I Need To Do	Evidence of What I Did
<p>Scientific Communication/ Using Data</p>	<p>My data will be in a chart, table, graph, or And will be labeled.</p> <p>My data needs to prove my exploration.</p> <p>Someone can read my explanation and Understand it.</p>	
<p>Scientific Concepts And related content</p>	<p>Terms I should use and understand:</p> <p>Things I need to be sure to observe or pay attention to:</p> <p>A "Big Idea" that might help me to connect my learning to other things I know or want to learn more about.</p>	

Intermediate Student Rubric

Criteria	To Meet the Standard: What I need To Do	Evidence of what I Did
Scientific Tools and Technologies	These are the tools I need to use to collect data and do the task: I need to check for mistakes.	
Scientific Procedures and Reasoning Strategies	My hypothesis is: To complete the task I need to follow these steps: I need to record these dates:	



When planning, teaching or assessing a science unit, it is important for teachers to consider the varying stages of development in children so that appropriate activities and assessments can be chosen.

Science Education and Developmental Stages of Children Ages 5–11

The information that follows describes the mental development of children between the ages of five and 11. It must be remembered that although children go through these stages in the same order, they do not go through them at the same rates. Some children achieve the later stages at an early age. Some children stay in the early stages for quite a time. All children experience an overlap of stages. Whereas a child may operate in a later stage in one area, he/she may operate in an earlier stage in another area. The stages illustrated conform to current research about children's thinking (learning). When planning, teaching or assessing a science unit, it is important for teachers to consider these stages so that developmentally appropriate activities and assessments are designed for students. Suggestions on how to do this are included along with descriptions of the various developmental levels of children.

Science Education and Developmental Stages of Children Grades K–1

Characteristics

Implications and Appropriate Learning Activities

Pre-operations Stage – Period of Representational and Pre-logical Thought Ages 5–7

- Reasoning is confined to appearance, or what the child sees happening
- Reasoning is not based on adult logic
- Learning is still largely perceptual
- Lacks the concepts of reversibility and conservation of matter
- Discovers that some things can stand for other things – The child's thinking is no longer tied to external actions and is now internalized
- This period is dominated by representational activity and a rapid development of spoken language
- Willingness to ask questions
- Willingness to handle both living and non-living materials
- Enjoyment in using all the senses for exploring and discriminating
- Willingness to collect material for observation or investigation
- Awareness of changes which take place as time passes
- Based on concrete experiences and the immediate environment
- Involve a variety of integrated experiences
- Short exploratory activities

Science Education and Developmental Stages of Children Grades 2–5

Characteristics

Implications and Appropriate Learning Activities

Concrete Operational Stage – Period of Concrete Logical Thought

Ages 7–11

- May include the characteristics of the younger age group
- Learns in concrete terms and obtains concrete information through manipulation of materials and equipment
- Can organize, test and express his/her results in words, pictures or number symbols
- Is capable of demonstrating logical thinking in relation to physical objects
- Is able to mentally hold two or more variables at a time when studying objects
- Has acquired the capacity of reversibility which allows him/her to mentally reverse an action that he/she had previously only done physically
- Is more sociocentric
- Is able to conserve certain properties of objects
- Is able to classify and order objects using one variable
- Is able to think of physically absent things that are based on vivid images of past experience – The child's thinking is restricted to concrete things rather than ideas
- Uses trial and error to draw conclusions about variables
- Desire to find out things for himself/herself
- Willingness to participate in group work
- Appreciation of the need to participate in group work.
- Awareness that there are various ways of testing out ideas and making observations
- Willingness to wait and to keep records in order to observe changes in things
- Enjoys exploring the variety of learning things in the environment
- Interested in discussing things
- Based on concrete experiences and a variety of hands-on materials
- Variety of integrated experiences
- May include cooperative groupings
- Units of study should have more depth than in K–1
- Journals or logs should be used to record information, observations, and to promote critical thinking
- Group discussion should be used to promote involvement and critical thinking
- Should include more discovery along with teacher lecture

Getting Started with Science Portfolios

Ideas for Tracking Performance Over Time

Science Exemplars is designed to make it possible for individual teachers to get started with excellent standards-based, performance assessment and instruction. Each science inquiry task leads teachers through the process of assessing their students, linking assessments to science (and sometimes mathematics) standards, and making sense of the results. While searching the *Science Exemplars* CD-Rom makes it easy for teachers to find problems that fit with particular units of study, we have not yet addressed effective ways to track individual and class performance over time. This section will focus on different aspects of how to successfully implement science portfolios in your classroom.

A portfolio is more than a container to hold and organize student work. Rather, it is a collection of work samples and evidence of learning over time. Without ways to manage and reflect upon what goes into the portfolio, even the best intentions for portfolios can be lost in the busy, day-to-day activity of a science classroom.

Portfolios should:

- Involve students in self- and peer-assessment;
- Provide multiple opportunities (and modes) for students to show evidence of learning and conceptual understanding;
- Guide students to reflect upon ways to improve performance; and
- Be based on some predetermined criteria for collecting that evidence.

Many teachers already use a variety of creative and effective ways to organize student work in science – science journals, learning logs, activity folders, etc. There is no reason to discontinue using anything that works for you now. What we will do is provide you with assessment guidelines; assessment tasks that can be used several times during the year; and management strategies, using the four broad criteria on the *Science Exemplars* Rubric (pgs. 14–15), to track and reflect upon progress and learning over time.

For an example of an assessment task used throughout the year to chart students' progress, please refer to the task *What Is Science?*. This lesson can be found on *The Best of Science Exemplars* CD.



A portfolio is more than a container to hold and organize student work. Rather, it is a collection of work samples and evidence of learning over time.

Effective Classroom Assessment Practices and Guidelines

We suggest four broad guidelines to act as a framework for all of your classroom assessment practices, including the use of science portfolios. They are defined by areas on which to place more or less emphasis and incorporate best practices for science instruction.

1. Clearly define and communicate expectations and standards for assessment.

More of...	Less of...
<ul style="list-style-type: none"> • Focus on quality, excellence, and meaningful content • Clear, specific language describing desired learning outcomes, process and products • Clear links to national, state, and district standards for content learning and process skills • Activities are selected to help students demonstrate learning/meeting standards • Student and parent involvement in the assessment process as part of instruction and learning (e.g., before, during and after assignments) • Defining progressive developmental levels, with benchmarks, from Novice level to a level that exceeds the standard • Open posting of standards, benchmarks and assessment criteria 	<ul style="list-style-type: none"> • Focus on perfection and “right” answers • Vague, evaluative, subjective language (e.g. words like: poor, good or assigning letter grades without consistency) • Activities are the means and the ends • Evaluation criteria developed solely by and known only by the teacher/text developer

2. Use formal and informal assessment strategies/methods to evaluate and ensure the continuous development of every learner and to communicate student progress knowledgeably.

More of...	Less of...
<ul style="list-style-type: none"> • Use of variety of modes and artifacts for communicating understanding to teachers, peers, and self • Collect work samples over time that demonstrate learning and conceptual understanding • Application of prior learning to new tasks/situations and real-world problems • Solving of student-generated problems/researchable questions to demonstrate learning and understanding • Products developed through cooperative learning groups with expectations for individual accountability • On-going assessment of all stages of the inquiry process including, thorough teacher observations and questioning; graphic organizers; peer feedback; student self-assessment of learning logs, etc. • Use of manipulative and appropriate scientific instruments and technologies to assess student skills and understanding in collecting and analyzing data 	<ul style="list-style-type: none"> • Only verbal/written modes accepted • Use of a single assessment or a single type of assessment for an entire unit of study, usually at the end • Use of formulas and procedures out of context • Sole use of teacher/text-generated problems to be solved • Individual products and performances as sole means of evaluating learning • End-of-chapter tests, short answer tests, etc. as sole means for evaluating progress • Sole use of pencil and paper tests

3. Use assessment strategies to involve learners in self-assessment activities.

More of...	Less of...
<ul style="list-style-type: none"> • Teacher modeling of self-assessment; “thinking aloud” with students; using benchmark work to teach students to assess • Learners monitoring individual and group progress over time • Use of performance standards as the basis for peer conferencing and self-reflection activities • Student-centered language in assessment tools and practices; descriptive rather than subjective • Discourse between students and teachers regarding quality of work – before, during, and after assignments to promote continuous learning • Student input in defining standards and expectations and designing assessment tools • Encouragement for student understanding of strengths, needs and past performances to set personal learning goals 	<ul style="list-style-type: none"> • Teacher providing all/the only feedback to students on performance/ products • Lack of continuity between assessments of skills and concepts • Educational jargon in assessment tools • Non-specific feedback on progress (e.g., “nice work”) which does not guide improvement or reflection • Adults setting all learning goals for students

4. Use a variety of assessment methods in order to continually monitor, reflect upon and adapt instructional practices to meet learner needs.

More of...	Less of...
<ul style="list-style-type: none">• Student learning/ performance results drive instructional decisions• Use of on-going assessments to structure flexible groupings and mini lessons for those who need them• Use of embedded assessments as part of the instructional process• Use of conferencing with students to develop standards and identify needs	<ul style="list-style-type: none">• Use of assessments solely for grading, ranking and reporting



The *Science Exemplars* rubric is designed as an analytic rubric that can be used both holistically and analytically. The annotated work samples that we provide with the tasks are scored **holistically**, that is to say that we use all four criteria to determine one level of performance: Novice, Apprentice, Practitioner or Expert.

Analytic and Holistic Scoring Rubrics: What is the Difference?

The *Science Exemplars* rubric (pgs. 14-15) identifies four criteria for assessing student performance.

Dimensions of the rubric include:

- Scientific Tools and Technologies
- Scientific Procedures and Reasoning Strategies
- Scientific Communication
- Scientific Concepts and Related Science Content

Science Exemplars tasks focus on scientific investigation and inquiry. Students are encouraged to develop strategies to test their ideas; to use scientific tools of technology to gather and analyze data; to communicate their understanding by explaining, organizing data and/or drawing conclusions; to use scientific terms and facts appropriately; and to connect scientific terms and facts to the “big ideas” of science – science concepts. The annotated work samples that we provide with the tasks are scored **holistically**, that is to say that we use all four criteria to determine one level of performance: Novice, Apprentice, Practitioner or Expert.

Levels of Performance describe how students might typically demonstrate their understanding of the inquiry task or how they approach the investigation. It is possible for a student to score higher on one criterion than another while working through a complex task. This often causes teachers to question scoring a piece of work holistically.

The greatest advantages to holistic scoring are:

1. To be placed at a particular performance level, the student needs to demonstrate a minimum of mastery of all four criteria for that level; and
2. There is greater scoring reliability between different teachers using the same rubric to score the same student work.

The greatest disadvantage with holistic scoring is that students are sometimes unclear about how to improve their performance.



Analytic scoring takes each of the four criteria and assesses it as separate from the rest. For example, a student could be at a Novice level in use of tools, but at the Apprentice level for scientific procedures. Both students and teachers can use the descriptions in the analytic rubric, throughout the learning process, to determine how to improve performance in each of the four areas (Scientific Tools and Technologies, Scientific Procedures and Reasoning Strategies, Scientific Communication and Scientific Concepts and Related Science Content).

The advantages to scoring analytically are:

1. Teachers can focus instruction and assessment on one (or a few) criterion at a time;
2. Feedback to students is specific enough to assist students in improving performance; and
3. Patterns of strengths and weaknesses can be seen more easily.

The disadvantages might be:

1. It may take longer to assess each criterion separately if all are addressed in a complex task.

The *Science Exemplars* rubric is designed as an analytic rubric that can be used both holistically and analytically. We suggest continuing to use the holistically-scored student work samples in *Science Exemplars* to inform instructional and assessment practices in your classroom. Because portfolios track progress over time, we suggest using a management tool that allows you to record student progress analytically. (We have included two versions on the following pages.)

Each student would have a page like one of these in his/her science portfolio. As tasks are completed, the date/topic (e.g., “9/14/98 – Insect Homes”) and the performance levels (Novice–Expert) are recorded. A brief conference is held with the student to fill in the “Areas to Work On” section. (Even an Expert can improve, so use this to stress excellence, not perfection.) “Areas to Work On” can include: more practice with a measuring device (Scientific Tools), targeting specific process skills (Scientific Procedures), providing models for better data organization (Scientific Communication), and/or using a science vocabulary guide when writing conclusions (Scientific Concepts). The student’s current performance should drive these indicators.

At the end of the marking period, you, students and parents will have a map for identifying strengths and areas of need. Personal learning goals and meaningful practice can be developed once patterns have been identified. In time, peers should be able to conference in small groups to assist each other.

At the end of the marking period, you, students and parents will have a map for identifying strengths and areas of need. Personal learning goals and meaningful practice can be developed once patterns have been identified. In time, peers should be able to conference in small groups to assist each other.

Science Portfolio for _____

Dates _____

For each Science Inquiry task, your performance will be recorded for the four criteria at the top. We will conference about ways to improve and the progress you are making.

Levels achieved	Scientific Tools and Technologies	Scientific Procedures & Reasoning Strategies	Scientific Communication / Using data	Scientific Concepts & Related Content	Areas to Work on
Novice					
Apprentice					
Practitioner					
Expert					
Comments about progress					

Science Portfolio for _____ Dates _____

For each Science Inquiry task, your performance will be recorded for the four criteria at the top. We will conference about ways to improve and the progress you are making.

*NAPE N=Novice A=Apprentice P=Practitioner E=Expert

Task/Date	Scientific Tools and Technologies	Scientific Procedures & Reasoning Strategies	Scientific Communication/Using data	Scientific Concepts & Related Content	Areas to Work on
	N A P E	N A P E	N A P E	N A P E	N A P E
	N A P E	N A P E	N A P E	N A P E	N A P E
	N A P E	N A P E	N A P E	N A P E	N A P E
	N A P E	N A P E	N A P E	N A P E	N A P E
Comments about Progress					

Strategies for Successful Cooperative Inquiry

Providing structure, guidance, and ongoing team-building activities are essential as you begin to have your students work in teams, rather than just working in groups. In *Science Exemplars*, there are a variety of group inquiry tasks and group assessment ideas to get you started. We also encourage you to explore the numerous professional books available on cooperative learning to provide additional ideas for your science classroom.



Taking time early in the year to develop teaming skills yields rewards that last beyond your individual classroom.

Short-Term Inquiry Activities

For short-term inquiry activities (lasting one–three class sessions), teams can be formed randomly. Some creative ways might group students by birth month, colors of clothing, drawing names, counting off or perhaps matching “puzzle pieces” made from cut-up pictures. These teams need clearly defined roles and tasks, with opportunities for all students to practice each different role at some time during the school year. Having consistent and clearly defined roles will help students get right to the task at hand. Passing out individual role cards, posting roles on a large chart, or listing them on a team inquiry worksheet are useful ways to help remind students what their contribution to the task will be. (See Cooperative Inquiry worksheet on page 33.)

Assigning Roles

As you design a cooperative inquiry task, review the number of key roles (or number of members) who will be assigned to a team. Be sure that the task really can be done most efficiently with this many students. Otherwise, you will teach your students that it is easier to work alone than together! A few general guidelines about cooperative roles might be:

- Start with pairs and build to three or four – especially with young children. For pairs, reader-writer or writer-checker are good roles to start with. Pairs can take turns performing both roles during the task.
- Take some time to directly teach the skills of how to successfully perform a role. What will the person in that role do (take notes, keep track of time, clean up materials, etc.) and say (“Can you repeat that?” “That was a good idea.” “We need to start cleaning up.”)?
- Monitor roles while students are working and acknowledge when you see them being demonstrated successfully.
- Encourage self- and team-assessment. This can be done using a cooperative group rubric, a class-designed rubric, or checklist that encourages observation and reflection on performance.
- Many small groups are easier to manage than fewer large groups. For most investigations, three–five students per group will be the most productive.

Common Roles and Functions

Below are some of the most common roles you might consider using. For each role, you will see several different names for similar tasks. You may want to combine roles, depending on the task, or have students self-assign roles within their teams. Older students should eventually be able to review and break down a task, determine necessary roles and monitor team progress with little teacher intervention.

- **Task Master/Captain/Reader/Manager:** Keeps track of time, reads directions, keeps team on task, distributes information, makes sure that the team does not disturb others.
- **Checker/Gatekeeper/Coach/Tracker:** Makes sure everyone participates; makes sure everyone agrees before a decision is made; makes sure everyone has verified their information; asks questions to double check supplies, procedures and information.
- **Materials Monitor/Supplies Captain:** Listens to the task and lists materials and tools needed, gets and distributes or sets up supplies, supervises cleanup.
- **Recorder/Secretary/Writer:** Writes important information on charts or posters, makes sure all team members contribute information, asks for clarification before writing.
- **Artist/Illustrator/Graphic Designer:** Draws diagrams or illustrations, creates graphs and charts, prepares overheads and organizes visuals for group presentations.
- **Presenter/Speaker/Communicator:** Acts as main spokesperson for the team, works with the Recorder and Artist to be sure the information is clear for the presentation, checks to be sure that all information is accurate.
- **Traveler:** Acts as a messenger to move from team-to-team to get and share ideas between teams. (This can be helpful when some teams are getting bogged down or when an “extra” role is needed.)
- **Encourager/Cheerleader:** Makes sure that good ideas and full participation are appreciated, keeps the team going when they get bogged down, reminds team members to work together.

Teams Working on Longer Projects

Student teams working on longer investigation projects need to develop a sense of identity and set common goals for success. They need to learn how to actively listen to each other and how to share ideas. Teams also need to be given time to reflect on their progress as a team and set goals for the future. Too often, students are put together to work on projects without any direct teaching of how to make the team function as a team. Taking time early in the year to develop teaming skills yields rewards that last beyond your individual classroom.

Describing the Cooperative Inquiry

Using a planning worksheet, such as the one on the following page, to outline for students what they will be learning about, and how they will be investigating can save teachers time once teams begin to work. Depending on the investigation, both teacher and students may be filling in each of the sections:

Cooperative Inquiry: What is the essential question? What question is being tested? (“Why does water boil?” “How far will a ball roll?”)

Concepts and Skills: What skills are needed to complete the task? (observation, prediction, measuring, etc.) What science concepts are being learned? (Predator-Prey, physical properties, etc.)

Team Roles and Responsibilities: What are the tasks and who will do them?

Team Materials: What is needed to complete the task successfully? (measuring tools and technology, recording sheets, materials to test, etc.)

Procedures for Investigating: Are there guidelines for the inquiry task? (Do at least three trials. Verify results. Prepare a chart.)

The Cooperative Inquiry worksheet is also a great organizer for science portfolios. Each student would attach this sheet as a cover page to the data collected, observations, conclusions and assessment information (rubric, checklist, etc.).

?

cooperative inquiry

?

concepts and Skills

Team Roles and Responsibilities

Team Materials

Procedures for Investigating

Three Principles of Cooperative Inquiry

Successful teams should understand and demonstrate evidence of the three key principles below: Assessment can (and should) be done in all three areas.

Individual Accountability:

- Does each member complete his/her part of the task?
- Do they each work for the team's success, rather than their own individual success?
- Is each member motivated by a sense of responsibility to the team?

Positive Interdependence:

- Do the parts come together as a whole because members have relied on each other to contribute?
- Do they listen, share information and plan together?
- Does the success of the team depend on the success and contribution of each member?
- Does the team work together to complete the task effectively?
- How does the team share limited resources and materials?

Productivity and Learning:

- Is the final product of high quality?
- Has every member acquired the intended knowledge, skills and concepts?
- Could every member of the team explain what was learned through this project?
- Does the final product demonstrate a basic knowledge and understanding of science concepts that can be built upon later?

Cooperative-Inquiry Rubric

Here is one sample of a cooperative-inquiry rubric.

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> • The team is unable to complete the assignment as a team. • Some individuals do their portions, yet all do not contribute equally. • The final product either does not get completed or part of the team does all of the work. • Conceptual understanding cannot be assessed. 	<ul style="list-style-type: none"> • The task is completed, but is lacking in detail or evidence of thinking beyond the basic knowledge and comprehension levels. For example, diagrams may be labeled, colored and displayed, but the team has not gone beyond the minimum requirements of defining terms and/or displaying information. • There is evidence that the team members have been able to take responsibility for their parts of the task, yet the varying quality of individual parts is evident. • The success of a few has led to the team’s success, but not all members have contributed, learned, and/or performed equally. • In short, it is a good first effort with room for growth. 	<ul style="list-style-type: none"> • The team’s solution is complete and well written – all information is correct. • Drawings are labeled correctly and the information is organized. • Some connections to prior learning are evident and all members can articulate what was learned. • Quality of individuals is fairly consistent, contributing to a project that exceeds what one individual would do. • There is evidence that the team members have been able to take responsibility for their parts of the task. They have supported each other and solved problems along the way. 	<ul style="list-style-type: none"> • The team’s solution is complete, detailed and well written in that terms are accurately defined and all information is correct. • Organization and creative thinking are evidenced by such things as: original drawings, use of extended tools and technology and new questions raised for possible further study. • The overall organization of the project extends the thinking of the audience. • Team members did their jobs, but have redefined or extended them for a higher quality product or performance.



Inquiry science is student-centered and teacher-facilitated. It is in-depth and meaningful. Inquiry is the process to discovering, investigating and understanding the ideas and concepts of science.

The Process of Inquiry

What is Inquiry Science?

The tasks in *Science Exemplars* are inquiry based. For many teachers this term can be confusing. Does inquiry mean hands-on? Does it mean “doing” science activities? Or does it mean more than just those things? Yes, it does.

Inquiry science means that students are actively involved in doing hands-on science. By actively involved we mean that they are working collaboratively with others, posing questions, designing and carrying out investigations, solving problems, and reflecting on results and procedures. Inquiry science is hands-on, but it is also minds-on. Learning in an inquiry science classroom is seen as an active process in which students construct views of how the world works. During this process ideas and understandings are changed, modified and extended based upon the experiences the student has.

Inquiry science is student-centered and teacher-facilitated. It is in-depth and meaningful. Inquiry is the process to discovering, investigating and understanding the ideas and concepts of science.

The Process of Inquiry

Inquiry is a process. Many of the skills you will read about in this section will be familiar to you from your own school experiences. All of us have had to fill out “lab reports” at one time or another during middle and/or high school. For many of us, science was all about the lab reports and very little to do with the actual process of doing science. Inquiry science is much more than a lab report; it is a way of thinking, a way of learning and a way of exploring and investigating the world around us. The lab report can be a part of this, but it is not the sole purpose of inquiry.

Inquiry is not a linear process. It is cyclical in nature. As students explore, observe, question and investigate, new questions are formed, new observations are made and new investigations are begun. Through this process students’ understanding deepens and misconceptions are uncovered and examined.

One misconception that teachers often have is that inquiry science comes naturally to children. While this is partially true: children are natural inquirers, they still need to be taught the specific skills of inquiry so that they can begin to think and act as scientists do. Yet at the same time we do not want to dampen their natural curiosity and wonder by making science overly “skill based.” We also want to ensure that our students are learning the content outlined in our curriculums. In an inquiry science classroom, we can find a way to balance all these.

Preassessment

The process of inquiry should always begin with finding out what students already know. This **preassessment** is critical so that teachers can learn what students already know, what questions they have and what misconceptions they may hold. These will then help guide your unit of study. It is not necessary to teach an idea or concept if students already have an understanding of it. The questions that students have will help you plan what investigations are most worthwhile for students to conduct. You may also find that a number of students hold the same misconception, indicating that more time should be spent on those ideas. A more detailed explanation and some suggestions for preassessment are included in another section.

Exploration

Another critical aspect of inquiry is giving students time for **exploration**. When beginning a unit of study, students need ample time to explore the new materials and the ideas that these materials represent. During this exploration, many observations are made and many questions are posed. You will also find students beginning to conduct investigations as questions form in their minds. Their natural curiosity takes over and they want to find out what, and why and how. This exploration also allows students to become familiar with the materials and what they do. It is difficult to begin a unit with planned investigations if students are unfamiliar with materials and haven't had the opportunity to "play" with them. This "messaging about" with materials can be hard for teachers. It means giving up some control and having a bit of chaos in your classroom. Start small, perhaps by only putting out some of the materials first and then slowly adding to them. Ask students to help you come up with some guidelines for these explorations and discuss safety and respect with them as well.

Observation

Observation is an important inquiry skill. These explorations can give you the opportunity to teach students how to be careful observers, how to use their senses to observe and how to record these observations. Again, balance is the key. Let students explore and observe without any other expectations except sharing informally with others through scientist's meetings or class/group discussions what they have explored and observed. Then, when appropriate, you can discuss observation and its role in science and why it's important to observe things carefully and record what was observed so that others can understand.



The understanding and meaning that comes from students seeking answers to their own questions is the most powerful form of learning possible.

Scientist Meeting

The idea of a **scientist meeting** is an important piece of the process. It is an informal or formal gathering of students to share, discuss, debate, demonstrate, analyze and communicate what they are learning and to hear what others are learning. Scientist's meetings should happen on a regular basis and be an integral part of any science unit whether it's after an exploration, an observation, an investigation, a project or research. It can also take many shapes. As the teacher you can decide how to structure it depending upon your students, your topic and your teaching style.

Student Questions

From this exploration/observation as well as later investigations comes many questions. This is the heart of inquiry: **student questions**. Students have so many questions and our teaching should nurture these questions and allow students opportunities to find the answers to their questions. This can often be difficult because as teachers we have time constraints and curriculum to cover. But questioning is a skill that is used throughout our curriculum whether it's science, math, social studies, writing or reading. Therefore, having students raise questions and honoring those questions is never a waste of learning time. The understanding and meaning that comes from students seeking answers to their own questions is the most powerful form of learning possible. You may find that students raise questions whose answers fit nicely with your curriculum objectives. These questions that students raise can be embedded into the investigations you plan and/or be a part of independent research and investigations that students do on their own.

The questions that students raise can also be used for instruction. As students pose questions, record these somewhere for students to refer back to and to give answers to as they discover them. This is also a time when you can teach students how to raise testable questions. Not all questions that students raise are testable in the classroom. It is important for them to learn the types of questions and questioning words (who, what, where, when, how, why) and how they can answer each type of question.

Question might be classified as:

- **Classroom** (meaning we can test it here in the classroom or at home with the materials we have available),
- **Laboratory** (we could test these if we had the necessary equipment and materials, but maybe we could ask a scientist or even a high school science class to find out the answer for us), and
- **Research** (these questions can usually only be answered by looking it up in a book, an encyclopedia, or on the internet). Most if not all questions can be answered, you may not have time to find all the answers, but you will have given your students methods and tools for finding the answers.

Guided Inquiry

Another integral part of the inquiry process is **guided inquiry**. This instructional piece is critical to student learning and understanding. Guided inquiry can take many forms. It can be an opportunity to teach new skills, new concepts and new forms of communication. It can be an opportunity for students to practice skills, concepts and communication. And it can be an opportunity to ensure that your curriculum objectives are being taught as well as honoring student questions and giving them time to find the answers. Guided inquiry is the core of any science unit.



Guided inquiry is the core of any science unit.

The skills of inquiry include:

- Observing
- Questioning
- Predicting/hypothesizing
- Planning and conducting investigations
- Controlling variables
- Data collection, representation and analysis
- Drawing conclusions

All of these are skills that need to be taught. Students also need opportunities to practice these skills through meaningful investigations of questions and concepts and time to share their learning with others.

Guided inquiry can be conducted in a variety of ways. Here are just a few suggestions:

- Using questions posed by students, or questions from your curriculum or science program, have the whole class plan together ways to investigate the question. Discuss the components/skills of inquiry that need to be in place for investigation and then have students break into smaller groups to investigate. Come back as a whole group to share results and draw conclusions together.
- After exploring materials, have students share questions they have that they would like to investigate (remember to think about developing testable questions). As a whole group assist each group in planning their investigation. Once the smaller groups have investigated they can then share their results and conclusions with the whole class.
- As students begin to plan more of their own investigations, give them opportunities to share their plans before beginning, in order to receive feedback from you and/or the class. You can also have students use planning sheets to ensure that they have all the components in place.

- Select a skill that students seem to be struggling with, such as controlling variables. Find tasks/investigations that emphasize this skill and use these to teach the skill to students. After investigating, discuss how well the investigation went and how their results reflect their understanding of this skill.
- Choose investigations that emphasize specific concepts in your unit. Use these investigations to ensure that students are developing a deep understanding of the ideas. These investigations should also allow students to continue practicing the skills of inquiry.
- Drawing conclusions based upon data collected can be practiced not only through science investigations, but through math, reading and social studies. Provide many opportunities for students to collect different types of data and draw conclusions.
- Find tasks/investigations that allow you to teach a variety of ways to collect data. Discuss different representations (charts, tables, diagrams, graphs, etc.) with students. Ask students to think about representations that work best for different kinds of data. Practice these as a whole group, modeling different types, and then have students use these in their own investigations. This can also tie in with mathematical representation.
- Use samples of students' work from investigations to look at and discuss as a whole group. This is also an effective way to reinforce not only the skills being practiced but conceptual learning as well.

Student Directed Inquiry

Once students have had many guided inquiry experiences, they can begin to design and conduct their own investigations to answer their own questions. **Student directed inquiry** should be a part of every science unit. A rule of thumb for me is to give students this opportunity at least once during a unit of study. It usually is at the end of a unit, when students are ready and have a solid grasp of skills and concepts. I often use student directed inquiry as a culminating task and have students present their investigations more formally to the class. The major difference between guided inquiry and student directed inquiry is that students have the responsibility for all aspects of the investigation.

You may ask yourself, what about lectures and demonstrations? What if I have to use a program that my school purchased that isn't inquiry based? These are important questions. The key again is balance. I often use our scientist's meeting time to "lecture" or do a demonstration. I usually wait until students have first explored and investigated the topic and materials for themselves and then introduce appropriate vocabulary or more complex ideas. You will find these "teachable moments" when students are ready for them.

Many schools already have wonderful programs in place for their science curriculum. The most important thing to remember is that no program can be truly inquiry based. It will always be missing the student-directed inquiry component. And many programs tend to be more cookbook in style, where students follow prescribed investigations to get certain results. If you are using such a program, there is much you can do to make it more inquiry based. The simplest thing to do is to allow students to make some of the decisions. For example, if an activity has a great question to investigate and all the steps are given for students to follow, give them only the question and have them plan the steps of the investigation for themselves. Think about some of the suggestions for guided inquiry mentioned above. Use these in conjunction with your program.

Above all, remember that inquiry-based science teaches our students to think. It teaches them that their questions and their ideas are important. After all, this is exactly what real scientists do.

Guiding Students to Design and Conduct Investigations

There are numerous investigations that teach and assess. Here are some sample questions to ask students as they work through their investigations.

(Students can also use these questions and examples as a guide to plan, design and carry out a fair test investigation. The teacher and/or peers can also use this guide to review each other's work and suggest ways to improve.)

Testable Questions

Can you answer this question only by experimenting?

(A Testable Question: Does a banana peel decay faster than an apple peel?)

(Not Testable: Why is the sky blue?)

- What are you curious about?
- What do you want to find out?
- What do you already know about this?
- What is your testable question:

Hypotheses and Making Predictions

What do you think will happen?

- What is your idea?
- What do you already know about this that makes you think so?
- Can you state your prediction to show what you think will happen or change? (When I do this _____, I think that _____ will be the result.)

Procedures

How will you test this? What materials will you need? What are the variables?

- What is your idea for an exploration? Write out each step so someone else could do it from your directions.
- What will you need? Try to be specific. Do not forget your tools for measuring.
- How will you be sure it is a fair test?
- What are the variables that will stay the same? What might change? What will you observe?

Collecting and Organizing Data

What actually happened?

- What did you see? Hear? Smell? Can you add details to your observations?
- What actually happened?
- What did you measure?
- What units of measure (minutes, inches, etc.) will you label in your data?
- Will your data be in a chart? Graph? How will you label the important headings?
- Are there important dates or times included with your data? How often did you record data?
- Can you make a drawing or drawings to clearly show and explain your results? What will be labeled?

Drawing Conclusions

What did you find out? What have you learned?

- Remember your prediction? Did you get the results you expected? Can you use examples from your data to support your results? Can you explain why this happened or extend your thinking about this now?
- Did anything go wrong along the way? Did you have to change your experiment along the way?
- Did anything surprise you?
- Do you have any new ideas or new questions?



You can use *Exemplars* web site to search for science tasks that align with your states' standards. Visit www.exemplars.com/resources/alignments/index.html

Implementing Exemplars in the Classroom

When planning units we recommend using the backwards-design process as a means to assist the teacher with ensuring that units of study are aligned with local or national science standards. This process will also help the teacher understand the necessary scaffolding of science concepts and skills.

The process is as follows:

1. **Select Standards.** These are the standards that you will assess during the course of the unit. It is important to choose a balance of content and skill standards for the unit. It is also important to limit the number of standards you select to three-five total standards for a typical four week unit of study. Select standards that embrace important ideas and skills for the students at your grade level and for the topic you are teaching. If you have a standards-based curriculum use the objectives listed for your grade level.
2. **Build Essential Questions.** Essential questions address the big ideas, concepts, skills and themes of the unit. These questions shape the unit; focus and intrigue students on the issues or ideas at hand; are open ended and no one obvious right answer. These questions should be important and relevant to the students and allow for several standards if not all of the standards selected to be addressed. These questions should engage a wide range of knowledge, skills and resources and pose opportunities for culminating tasks or projects where students can demonstrate how they have grappled with the question.
3. **Design Culminating Tasks.** This final task or project should encompass and help assess each of the standards selected and should enable students to answer or demonstrate understanding of the answer to the essential question. The task should be multi-faceted, allow for multiple points of entry and be performance based. It should allow students to apply their skills and knowledge learned in meaningful and in-depth ways. *Exemplars* tasks that match your standards can be powerful culminating tasks.
4. **Develop Learning and Teaching Activities.** These activities and tasks should address the standards selected and guide student learning towards what they need to know and be able to do in order to achieve the standards. Select relevant *Exemplars* tasks that assist with teaching appropriate content, skills and/or strategies.

There are four major types of learning and teaching activities:

- **Introductory Activities** are used to preassess students' prior knowledge and to generate student interest in the unit of study. These activities tend to be interactive, exploratory and stimulating.
- **Instructional Activities** are used to provide opportunities for students to learn and demonstrate specific skills, knowledge and habits of mind. These are usually sequenced and scaffolded, tied to specific standards and objectives, interesting, engaging, in-depth, active and interactive and can also be used for formative assessment during the course of the unit to measure student progress and inform instruction.
- **Assessment Activities and the Culminating Activity** are used to assess both students' progress towards attainment of the standards and for summative purposes at the end of the unit. These activities usually involve some type of product or performance by the student.

* *All activities selected, both Exemplars tasks and other activities, should be based upon their utility in helping students learn and demonstrate the knowledge and skills identified in the standards selected. Activities should accommodate a range of learning styles and multiple intelligences and be developmentally appropriate. Activities should also have a purposeful and logical progression for both knowledge and skill attainment.*

5. **Create Student Products and Performances.** Consider what criteria you will use to assess student learning both before, during and after the unit. Use the *Exemplars Science* rubric to assess relevant knowledge, skills or problem-solving strategies as students work on and complete *Exemplars* science tasks. Collect and use examples of student work that demonstrates the criteria selected and the different levels of performance. Allow opportunities for students to self-assess using the rubric.

An Example of the Backwards Design Process

Standards:

National Science Standards Grades K–4:

Develop abilities necessary to do scientific inquiry

- Ask questions about objects, organisms, events in the environment
- Plan and conduct simple investigations
- Employ simple equipment and tools to gather data and extend the senses
- Use data to construct a reasonable explanation
- Communicate investigations and explanations

Develop an understanding of position and motion of objects

- The position of an object can be described by locating it relative to another object or the background.
- An object's motion can be described by tracing and measuring its position over time.
- The position and motion of objects can be changed by a force (push or pull). The size of the change is related to the strength of the push or pull.

Essential Question: How do objects move? What forces affect an object's motion?

Culminating Task:

Can You Design a Marble Mover? (Best of Science Exemplars CD-Rom, grades 3–5)
In this task students are asked to consider inertia, gravity and friction to design a marble mover that will move a marble a certain distance. In order to do this task students will have had to have numerous opportunities to observe motion and investigate these major forces that affect motion. Students will also have needed to practice the skills of inquiry: questioning, predicting, designing and conducting an investigation, fair testing, collecting and recording data, analysis of that data and drawing conclusions. Students will then present their marble mover to the class. Students will use the *Science Exemplars* Rubric to self-assess their work.

Learning and Teaching Activities*

**This section includes both K–2 and 3–5 tasks. If you are teaching upper elementary students you can easily use the K–2 tasks by giving students more choices in the materials being used, the procedures being followed, or the amount of support you give for recording their investigations. Likewise, for primary grade teachers, you can give students more support with the 3–5 tasks.*

- **Introductory Activities:** These might include a K–W–L chart, exploration and observation of things that move around the classroom as well as other motion materials that are available, The task *What Can Motion Be?* (*The Best of Science Exemplars* CD, grades K–2) and the task *Observing Motion: What are some different ways that things can move?* (*Science Exemplars* Volume, 5 Spring 2001, grades K–2). These activities help students to begin to think about and explore the different ways that things move. It is also a time when students begin to form questions about motion.
- **Instructional Activities:** These will include more focused activities around the skills and concepts. It is important to build a foundation of knowledge so that students can understand first that objects can move in different ways, then progress to understanding that there are forces that can change an object’s motion and it’s position. Each of the tasks below provides these guided inquiry experiences. The tasks that are listed are scaffolded and help students to answer the essential questions.
- **Assessment Activities:**
During the course of the unit select two or three of the above tasks to use for formative assessment purposes. These will help inform instruction by providing information about how students are progressing towards the standards and about their understanding of the skills and concepts. This can also be an opportunity to teach students how to self-assess.

Exemplars

Task	Concepts and Skills
<p><i>How Do Things Move? (Exemplars Science, grades K–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push and pull) • Questioning • Predicting • Recording data • Drawing conclusions • Communicating
<p><i>What Can I Learn From Toys that Move? (Exemplars Science, grades K–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push and pull) • Predicting • Conducting simple investigations • Recording data • Drawing conclusions • Communicating
<p><i>Will it Roll or Slide (The Best of Science Exemplars CD-Rom, grades K–2)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, gravity, friction) • Predicting • Conducting simple investigations • Controlling variables • Recording data • Drawing conclusions • Communicating
<p><i>Wind up Toys, Part 1 and 2 (Exemplars Science, grades K–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push and pull) • Planning and conducting simple investigations • Controlling variables • Recording data • Drawing conclusions • Communicating
<p><i>How Do Ramps Work? (The Best of Science Exemplars CD-Rom, grades K–2)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, gravity, friction, inertia) • Predicting • Conducting simple investigations • Controlling variables • Recording data • Drawing conclusions • Communicating

Exemplars

<p><i>Which Ball Goes the Farthest? (The Best of Science Exemplars CD-Rom, grades K–2)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, gravity, friction, inertia) • Investigate the idea of mass and motion • Predicting • Planning and conducting simple investigations • Controlling variables • Recording data • Drawing conclusions • Communicating
<p><i>How Does Push Affect Distance? (Exemplars Science, grades K–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, gravity, and inertia) • Predicting • Planning and conducting simple investigations • Controlling Variables • Recording data • Drawing Conclusions • Communicating
<p><i>Rolling and Sliding: How Does Surface Affect Moving Objects? (Exemplars Science, grades K–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, and friction) • Predicting • Planning and conducting simple investigations • Controlling Variables • Recording data • Drawing Conclusions • Communicating
<p><i>How Far Can you Make a Toy Car Go? (The Best of Science Exemplars CD-Rom, grades 3–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, gravity, inertia and friction) • Investigating the idea of mass and motion • Predicting • Planning and conducting simple investigations • Controlling Variables • Recording data • Drawing Conclusions • Communicating

<p><i>How Does a Sail Affect the Motion of a Vehicle? (The Best of Science Exemplars CD-Rom, grades 3–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, inertia and friction) • Predicting • Planning and conducting simple investigations • Controlling Variables • Recording data • Drawing Conclusions • Communicating
<p><i>Weights Affect on Pendulum Motion (The Best of Science Exemplars CD-Rom, grades 3–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, gravity, inertia and friction) • Investigating the idea of weight and motion • Predicting • Planning and conducting simple investigations • Controlling variables • Recording data • Drawing conclusions • Communicating
<p><i>Questions about Inertia (The Best of Science Exemplars CD-Rom, grades 3–5)</i></p>	<ul style="list-style-type: none"> • Observing objects in motion • Applying forces to objects (push, pull, gravity, inertia and friction) • Investigating the idea of mass and motion • Questioning • Predicting • Planning and conducting simple investigations • Controlling variables • Recording data • Drawing conclusions • Communicating

After completing these tasks, students can then pose their own question about motion and forces to plan and conduct an investigation for.

You may have other favorite investigations to include. Think about where they should go in terms of scaffolding: what concepts do they help the student understand? What skills do they teach, practice or reinforce?

Vocabulary

Friction: Resistance to motion of surfaces that touch.

Inertia: Newton's 1st law of motion that states an object at rest tends to stay at rest and an object in motion tends to stay in motion unless they are acted upon by an unbalanced force.

Force: A push or a pull.

Gravity: A force that pulls things down towards the earth.

Mass: The amount of matter or stuff that something is made of

Products and Performances:

Student products and performances will include all work done from these investigations whether it is a recording sheet, a journal entry, a project or research.

The rubrics on the following pages (52–55) can be used by individual teachers or teams of teachers assessing student work. In the left-hand column the teacher records the evidence they see in the student work that justifies placing the work at that particular level. In the right-hand column the teacher would record the action(s) that can be taken to help the student move to the next performance level.

Exemplars Science Rubric Scientific Tools and Technologies

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> • Did not use appropriate scientific tools or technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather data (via measuring and observing). 	<ul style="list-style-type: none"> • Attempted to use appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather data (via measuring and observing) but some information was inaccurate or incomplete. 	<ul style="list-style-type: none"> • Effectively used some appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather and analyze data, with only minor errors. 	<ul style="list-style-type: none"> • Accurately and proficiently used all appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather and analyze data.

Exemplars Science Rubric
 Scientific Procedures and Reasoning Strategies

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> • No evidence of a strategy or procedure, or used a strategy that did not bring about successful completion of task/investigation. • No evidence of scientific reasoning used. • There were so many errors in the process of investigation 	<ul style="list-style-type: none"> • Used a strategy that was somewhat useful, leading to partial completion of task/investigation. • Some evidence of scientific reasoning used. • Attempted but could not completely carry out testing a question, recording all data and stating conclusions. 	<ul style="list-style-type: none"> • Used a strategy that led to completion of the investigation/task. • Recorded all data. • Used effective scientific reasoning. • Framed or used testable questions, conducted experiment, and supported results. 	<ul style="list-style-type: none"> • Used a sophisticated strategy and revised strategy where appropriate to complete the task. • Employed refined and complex reasoning and demonstrated understanding of cause and effect. • Applied scientific method accurately: (framed testable questions, designed experiment, gathered and, gathered and recorded data, analyzed data, and verified results).

**Exemplars Science Rubric
Scientific Communications/Using Data**

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> • No explanation, or the explanation could not be understood, or was unrelated to the task/investigation. • Did not use, or inappropriately used scientific representations and notations (e.g. symbols, diagrams, graphs, tables, etc). • No conclusion stated, or no data recorded. 	<ul style="list-style-type: none"> • An incomplete explanation or explanation not clearly presented (e.g. out of sequence, missing step). • Attempted to use appropriate scientific representations and notations, but were incomplete (e.g. no labels on chart). • Conclusions not supported or were only partly supported by data. 	<ul style="list-style-type: none"> • A clear explanation was presented. • Effectively used scientific representations and notations to organize and display information. • Appropriately used data to support conclusions. 	<ul style="list-style-type: none"> • Provided clear, effective explanations detailing how the task was carried out. The reader does not have to infer how and why decisions were made. • Precisely and appropriately used multiple scientific representations and notations to organize and display information. • Interpretation of data supported conclusions, and raised new questions or was applied to new contexts. • Disagreements with data

Exemplars Science Rubric Scientific Concepts and Content

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> • No use, or mostly inappropriate use, of scientific terminology. • No mention or inappropriate references to relevant scientific concepts, principles, or theories (big ideas). • No evidence of understanding observable characteristics and properties of objects, organisms, and/or materials used. 	<ul style="list-style-type: none"> • Used some relevant scientific terminology. • Minimal references to relevant scientific concepts, principles, or theories (big ideas). • Some evidence of understanding observable characteristics and properties of objects, organisms, and/or materials used. 	<ul style="list-style-type: none"> • Appropriately used scientific terminology. • Provided evidence of understanding of relevant scientific concepts, principles or theories (big ideas). • Evidence of understanding observable characteristics and properties of objects, organisms and/or materials used. 	<ul style="list-style-type: none"> • Precisely and appropriately used scientific terminology. • Provided evidence of in depth, sophisticated understanding of relevant scientific concepts, principles or theories (big ideas). • Revised prior misconceptions when appropriate. • Observable characteristics and properties of objects, organisms, and/or materials used went beyond the task/investigation to make other connections or extend thinking.

Criteria	What I Need to Do	Evidence of What I Did (This area provided for student work).
Scientific Communication Using Data	<p>My data will be in a chart, table, graph or other document and will be labeled.</p> <p>My data needs to prove my exploration.</p> <p>Someone can read my explanation and understand it.</p>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Scientific Concepts and Related Content	<p>Terms I should use and understand: (Student should create list).</p> <p>Things I need to be sure to observe or pay attention to: (Student should create list).</p> <p>A "Big Idea" that might help me to connect my learning to other things I know or want to learn more about.</p>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Scientific Tools and Technologies	<p>These are the tools I need to use to collect data and do the task: (Student should create list).</p> <p>I need to check for mistakes.</p>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
Scientific Procedures and Reasoning Strategies	<p>My hypothesis is:</p> <p>To complete the task I need to follow these steps:</p> <p>I need to record these dates:</p>	<hr/>

© Exemplars, 2007

4th Grade Content Integration Scope & Sequence

Pacing	Unit 1 6 Weeks	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Unit Theme	Turning Points	Teamwork	Patterns in Nature	Puzzles and Mysteries	Adventure by Land, Air, and Water	Reaching for Goals
Unit Question	What can we discover from new places and people?	What is the value of teamwork?	What are some patterns in nature?	Is there an explanation for everything?	What makes an adventure?	What does it take to achieve our goals and dreams?
Writing Focus	Narrative	Opinion	Informative	Narrative	Opinion	Informative
Science Core	Keyboarding Practice	Standard 1: Students will understand that water changes state as it moves through the water cycle.	Standard 2: The students will understand that the elements of weather can be observed, measured, and recorded to make predictions and determine simple weather patterns.	Standard 3: Students will understand the basic properties of rocks, the processes involve in the formation of soils, and the needs of plants provided by soil.	ALL SCIENCE UNIT Standard 4: Students will understand how fossils are formed, where they may be found in Utah, and how they can be used to make inferences.	ALL SOCIAL STUDIES UNIT Standard 1: Students will understand the relationship between the physical geography in Utah and human life. <i>Objective 1:</i> Classify major physical geographic attributes of Utah
Social Studies Core		Standard 3: Students will understand the roles of civic life, politics, and government in the lives of Utah citizens.	Standard 2: Students will understand how Utah's history has been shaped by many diverse people, events, and ideas. <i>Objective 1:</i> Describe the historical and current impact of various cultural groups on Utah.	Standard 2: Students will understand how Utah's history has been shaped by many diverse people, events, and ideas. <i>Objective 2:</i> Describe ways that Utah has changed over time. <i>Objective 3:</i> Investigate the development of the economy in Utah.	Standard 5: Students will understand the physical characteristics of Utah's wetlands, forests, and deserts and identify common organisms for each environment.	<i>Objective 2:</i> Analyze how physical geography affects human life in Utah. <i>Objective 3:</i> Analyze how human actions modify the physical environment.
Science Exemplars		733	256, 827	346, 347	St4: 334 St5: 212, 216, 534, 538	

Unit 2: Teamwork		
Reading Street Big Question: What is the value of teamwork?		
Content	Social Studies	Science
Essential Question	<ul style="list-style-type: none"> How do individuals influence others? 	<ul style="list-style-type: none"> How does heat energy drive the water cycle?
Student Learning Targets	<ul style="list-style-type: none"> I can compare and contrast the roles and responsibilities of state, county and local officials. I can understand how the rights and responsibilities of people have changed over time. 	<ul style="list-style-type: none"> I can describe the relationship between heat energy and the water cycle on Earth. I can diagram and explain the water cycle.
Example Performance Assessment	<ul style="list-style-type: none"> Opinion Writing: “Was the U.S. justified in using internment camps for Japanese-Americans?” (DOK 4—requires at least two sources) Students will complete a triple Venn diagram Compare the roles and responsibilities of state, county, and local officials. 	<ul style="list-style-type: none"> Create a diagram and a written description that demonstrates and explains the water cycle and the relationships between heat energy, evaporation, precipitation, and condensation. (DOK 3)
Content Standards	<p>Standard 3: Students will understand the roles of civic life, politics, and government in the lives of Utah citizens.</p> <p>Objective 1: Describe the responsibilities and rights of individuals in a representative government as well as in the school and community.</p> <ol style="list-style-type: none"> Identify rights of a citizen (e.g. voting, peaceful assembly, freedom of religion). Identify responsibilities of a citizen (e.g. jury duty, obeying the law, paying taxes). Determine how and why the rights and responsibilities of various groups have varied over time (e.g. Chinese railroad workers, Greek miners, women, children, Mormons, Japanese-Americans at Topaz, American Indians, African-Americans). How the influence and power of individuals is affected when they organize into groups. Describe and model ways that citizens can participate in civic responsibilities (e.g. current issue analysis, recycling, volunteering with civic organizations, letter writing). 	<p>Standard 1: Students will understand that water changes state as it moves through the water cycle.</p> <p>Objective 1: Describe the relationship between heat energy, evaporation and condensation of water on Earth.</p> <ol style="list-style-type: none"> Identify the relative amount and kind of water found in various locations on Earth (e.g., oceans have most of the water, glaciers and snowfields contain most fresh water). Identify the sun as the source of energy that evaporates water from the surface of Earth. Compare the processes of evaporation and condensation of water. Investigate and record temperature data to show the effects of heat energy on changing the states of water. <p>Objective 2: Describe the water cycle.</p> <ol style="list-style-type: none"> Locate examples of evaporation and condensation in the water cycle (e.g., water evaporates when heated and clouds or dew forms when vapor is cooled). Describe the processes of evaporation, condensation, and precipitation as they relate to the water cycle. Identify locations that hold water as it passes through

	<ul style="list-style-type: none"> f. Contribute to and practice classroom goals, rules and responsibilities. g. Recognize and demonstrate respect for United States and Utah symbols (i.e. Pledge of Allegiance, flag etiquette). <p>Objective 2: Analyze the different ways people have organized governments in Utah to meet community needs.</p> <ul style="list-style-type: none"> a. Identify the forms of government found in Utah in different eras (i.e. historic and current American Indian government, State of Deseret, Utah Territory, statehood era, present). b. Compare how these governments addressed community needs. c. Compare the roles and responsibilities of state, county, and local officials. 	<p>the water cycle (e.g., oceans, atmosphere, fresh surface water, snow, ice, and ground water).</p> <ul style="list-style-type: none"> d. Construct a model or diagram to show how water continuously moves through the water cycle over time. e. Describe how the water cycle relates to the water supply in your community.
<p>Essential Vocabulary</p>	<p>citizen, civic organizations, allegiance, representative, rights, responsibilities, government</p>	<p>vapor, precipitation, evaporation, clouds, dew, condensation, temperature, water cycle</p>

Suggested Unit Resources	<p>Standard 3: Objective 1 Voting (3.1a) http://www.congressforkids.net/Elections_voting.htm</p> <p>Being a Responsible Citizen (3.1b) http://www.eia.gov/kids/energy.cfm?page=environment_recycling-basics</p> <p>Japanese-Americans at Topaz (3.1c) www.topazmuseum.org http://www.ilovehistory.utah.gov/time/stories/topaz.html http://www.youtube.com/watch?v=Yr_fckAJ2_8</p> <p>Chinese Railroad (3.1c) http://cpr.org/Museum/Chinese.html</p> <p>Standard 3: Objective 2</p> <p>US and Utah Constitution Comparisons (3.2c) http://www.uen.org/Lessonplan/preview?LPid=25962</p> <p>Structures of Utah Government (http://www.ilovehistory.utah.gov/topics/government/index.html</p> <p>Utah History to Go http://historytogo.utah.gov</p> <p>Economy and the Gold Rush http://www.econedlink.org/lessons/index.php?lid=328&type=educator</p>	<ul style="list-style-type: none"> • UEN TRB 4:1 Investigation 1 - Where is Water Found? http://www.uen.org/Lessonplan/preview?LPid=9820 • UEN TRB 4:1 Investigation 2 - Why Does a Puddle Shrink? http://www.uen.org/Lessonplan/preview?LPid=9823 • UEN TRB 4:1 Investigation 3 – Condensation Chamber http://www.uen.org/Lessonplan/preview?LPid=9827 • UEN TRB 4:1 Investigation 4 – Heat Energy and Water http://www.uen.org/Lessonplan/preview?LPid=9830 • The Incredible Journey http://www.uen.org/Lessonplan/preview?LPid=31637
--------------------------	--	---

Other Resources	State Symbols http://www.utah.gov/about/symbols.html		<ul style="list-style-type: none"> • http://Discoverwater.org • http://www.discoverwater.org/resources/Water_Cycle_Educator_Resources.pdf 	
Integrated Ideas for Implementation	<p>Reading and Writing Standards: RI.4.1, RI.4.3, RI.4.9, W.4.1--Read students <i>Barbed Wire Baseball</i> by Marissa Moss and information from http://www.topazmuseum.org, http://historymatters.gmu.edu/d/5153/, or http://history.howstuffworks.com/history-vs-myth/japanese-internment-camp.htm and have students use the information selected to write an opinion essay about: "Was the U.S. justified in using internment camps for Japanese-Americans?"</p>		<p>Dance Standard 2.3 (The student will identify and demonstrate movement elements in performing dance) & Music Standard 1.1 & 1.2 (Singing: The student will develop the voice and body as instruments of musical expression.) Music Standard 3.1 (Creating: The student will create music through improvising, arranging, and composing.) Have students compose, sing and create motions to help them learn a Water Cycle Song. An example song can be found at: http://www.youtube.com/watch?v=Yw275056JtA</p> <p>4.MD.4 Create a line plot to display a data set of temperatures in fractions of a unit to signify the changing states of water (solid, liquid, gas).</p>	
Explicit Ties to Reading Street	Reading Street Connection	Content Integration	Reading Street Connection	Content Integration
	Week 5: So You Want to be President? Main Selection	<p>Week's Main Selection: While reading (p.301), have students take notes on the roles and responsibilities of the president.</p> <p>Compare and Contrast the roles and responsibilities of the president, state, county, and local officials.</p> <p>Have students write a paragraph on the similarities and differences amongst the government officials.</p>		

<p>Reading Street Online Readers</p>	<p>Voting Day (L490) Home of the Brave (G2) The United States Government (L810) The President's Promise (L390) A Nation of Many Colors (L1000) Operation Inspiration (L810) The Fourth Grade Election (G4) Mom the Mayor (L410) Changing Times: Women in the 20th Century (L710) Living in A Democracy (L650) It's Our Right (L920) Cesar Chavez: Friend of Farm Workers (L670) This is the Way We Go to School (L810) The Most Dangerous Woman in America (L870) The Woman's Movement (L860) We Shall Overcome (L900) The Power of the People (L810) The Power of Our People (L810) Mayor Mom (L410) Abby Takes a Stand (G4) Equality in American Schools (L1010) Amazing Female Athletes (L880) From Territory to Statehood (L770) All About Schools (L1000) From a Small Town to a Big City (G3) Journey to Statehood (L770) A Citizen of the United States (L700) Make a Difference (G6) We Are Part of This Place (L460) What it Means to be a Citizen (L560) Strength of Spirit (G5) Law Making in the United States (L810) A Citizen of the United States (L700) Its the Law (L610) We Are Part of This Place (L460) What it Means to be a Citizen (L560)</p>	<p>Earth's Hydrosphere (L870) Earth's Water (L750) Follow a Raindrop (L860) How Clouds Are Made (L580) Water (L440) Water Cycle and Weather (L710) Water On Earth (L670) The Water Cycle of Africa (L960)</p>
<p>REACH Connections</p>		<p>Unit 4 Part 2 Power of Nature "Water the Blue Gold"</p>
<p>Science Exemplars</p>	<p>Water Testing: What Makes Water Good? (733) <i>Vocabulary: pH, acidic, alkaline, neutral</i></p>	

Unit 3: Patterns in Nature
Reading Street Big Question: What are some patterns in nature?

Content	Social Studies	Science
Essential Question	<ul style="list-style-type: none"> How has Utah’s history been impacted by the experiences, actions, and influences of individuals and groups? 	<ul style="list-style-type: none"> How do scientists gather, classify, sequence, and interpret information and visual data?
Student Learning Targets	<ul style="list-style-type: none"> I can compare the cultural influences from various groups in Utah’s past and today. 	<ul style="list-style-type: none"> I can observe, measure, and record the basic elements of weather. I can interpret recorded weather data for simple patterns. I can evaluate weather predictions based upon observational data.
Example Performance Assessment	<ul style="list-style-type: none"> Using resources found at: http://uintahbasintah.org/utahnatives.htm, have students compare the cultural influences of two or more Utah native tribes, past and present. 	<ul style="list-style-type: none"> Provide students with a collection of weather data, for example http://pals.sri.com/tasks/k-4/Globe_IT_ATM1/directs.html and have them interpret the data and make weather predictions. Have students maintain a weather journal in which they record their observations and measurements of the elements of weather.
Content Standards	<p>Standard 2: Students will understand how Utah's history has been shaped by many diverse people, events, and ideas.</p> <p>Objective 1: Describe the historical and current impact of various cultural groups on Utah.</p> <ol style="list-style-type: none"> Chart the routes that diverse cultural groups took from their places of origin to Utah, using maps and other resources. Explore points of view about life in Utah from a variety of cultural groups using primary source documents. Explore cultural influences from various groups found in Utah today (e.g. food, music, religion, dress, festivals). Identify and describe leaders from various cultures who exemplify outstanding character and life skills. Explain the importance of preserving cultural prehistory and history, including archaeological sites and other historic sites and artifacts. 	<p>Standard 2: The students will understand that the elements of weather can be observed, measured, and recorded to make predictions and determine simple weather patterns.</p> <p>Objective 1: Observe, measure, and record the basic elements of weather.</p> <ol style="list-style-type: none"> Identify basic cloud types (i.e., cumulus, cirrus, stratus clouds). Observe, measure, and record data on the basic elements of weather over a period of time (i.e., precipitation, air temperature, wind speed and direction, and air pressure). Investigate evidence that air is a substance (e.g., takes up space, moves as wind, temperature can be measured). Compare the components of severe weather phenomena to normal weather conditions (e.g., thunderstorm with lightning and high winds compared to rainstorm with rain showers and breezes). <p>Objective 2: Interpret recorded weather data for simple patterns.</p> <ol style="list-style-type: none"> Observe and record effects of air temperature on precipitation (e.g., below freezing results in snow, above

		<p>freezing results in rain).</p> <p>b. Graph recorded data to show daily and seasonal patterns in weather.</p> <p>c. Infer relationships between wind and weather change (e.g., windy days often precede changes in the weather; south winds in Utah often precede a cold front coming from the north).</p> <p>Objective 3: Evaluate weather predictions based upon observational data.</p> <p>a. Identify and use the tools of a meteorologist (e.g., measure rainfall using rain gauge, measure air pressure using barometer, measure temperature using a thermometer).</p> <p>b. Describe how weather and forecasts affect people's lives.</p> <p>c. Predict weather and justify prediction with observable evidence.</p> <p>d. Evaluate the accuracy of student and professional weather forecasts.</p> <p>e. Relate weather forecast accuracy to evidence or tools used to make the forecast (e.g., feels like rain vs. barometer is dropping).</p>		
Essential Vocabulary	immigrant, culture, history, archaeological sites	atmosphere, meteorologist, freezing, cumulus, stratus, cirrus, air pressure, thermometer, air temperature, wind speed, forecast, severe, phenomena, precipitation, seasonal, accuracy, barometer, rain gauge, components		
Suggested Unit Resources	<p>S.S. Standard 2: Objective 1</p> <p><u>Cultural Influences</u> http://uintahbasintah.org/utahnatives.htm, Utah: Our Home (S.S. Textbook-2011) pgs. 232-241</p> <p>http://content.lib.utah.edu/utis/getfile/collection/USHSArchPub/id/7980/filename/8015.pdf</p>	FIND		
	Reading Street Connection	Content Integration	Reading Street Connection	Content Integration

Explicit Ties to Reading Street			<p>Week 1: <u>The Man Who Named the Clouds & My Weather Journal</u></p> <p>Concept Talk Main Selection Let's Think About Genre</p>	<p>Have students create a weather journal and record their observations about the weather (temperature, precipitation, wind speed, etc.) and types of clouds that they observe. They can use the diagram in the main selection to help determine the cloud types and the example weather journal to create their own.</p>
			<p>Week 4: <u>Eye of the Storm & Severe Weather Safety</u></p> <p>Concept Talk Main Selection</p>	<p>Watch a short video (like http://video.nationalgeographic.com/video/101-videos/hurricanes-101) While viewing the video, have them record facts about hurricanes that they learn and share in small groups their ideas to expand their notes. Then, as they read the main selection, have them identify additional facts that they learn. They can then write a short, one paragraph summary about some of the interesting facts they learned.</p>
Further Guidance for Integration	<p>Music Standard 1, Objective 3: Discover how songs, singing games, and dances relate to various cultures in the history of Utah.</p> <p>Reading Information 4.3, 4.5 & 4.7 Have students read an informational text and take notes on an article on immigrants of Utah, like http://www.uen.org/utah_history_encyclopedia/i/IMMIGRATION.html, and create a timeline representing the various immigrant groups and when they arrived in Utah.</p> <p>Music Standard 4.2 (Listening): The student will listen to, analyze, and describe music.) Students will study the music of other cultures and how it has affected that society. Resources can be found at: http://www.sbgmusic.com/html/teacher/reference/cultures.html</p>		<p>Music Standard 1, Objective 1: The student will develop the voice and body as instruments of musical expression. Using the "Wheel of Water" Song, from http://www.uen.org/Lessonplan/preview.cgi?LPid=25641, have students sing and create actions to align with the lyrics.</p> <p>Visual Art Standard 1.1 & 1.2 (Students will explore and refine the application of media, techniques, and artistic processes.) Students will create a collage depicting elements of weather. Sample lesson plan can be found at: http://theimaginationstation.weebly.com/visual-arts-lesson-plan.html</p>	
Reading Street Online Readers	<p>The Long Journey West (L680) Wagon Train (G2) East Meets West: Japan and America (L640)</p>		<p>How Clouds are Made (L580) Weather Patterns (L780) What is Weather (L250)</p>	

	<p>Laura Ingalls Wilder Pioneer Girl (L220) The Dog That Discovered the West (L280) Greetings from the Four Corners! (G6) Go West (L480) A Very Special Gift (L750) Restless Humanity (L1000) Community Friends (G4) A Nation of Many Colors (L1000) The Golden Spike (L800) Spreading Across the Continent (L1040) Heading West (L910) Crossing the Nation by Rail (L870) What is My Economy Like (L780) The Economy and How it Works (L850) It Started with Nails (G3) Following the Golden Dream (L1060) Westward Expansion (G5)</p>	<p>Climate and Weather (L780) Earth's Climate and Weather (L860) Earth's Weather (L590) Water Cycle and Weather (L710) Weather and Storms (L 690) Weather (L580) Water and Weather on Earth (L810) Weather and Currents (L960) Drought (L990) Hurricanes (L910) Severe Storms (L770) All Kinds of Weather (L130) Changing Weather (L860) How to Measure the Weather (L480) Forecasting the Weather (L990) Measuring the Weather (L480) Weather Forecasting (L990) Weather or Not (L540) Hurricane! (L500, L720) Surviving Hurricane Andrew (L650) Severe Weather: Storms (L950)</p>
REACH Connections	NA	Unit 4 Part 1 Power of Nature
Science Exemplars	<p>Can You Keep Ice From Melting? (256) <i>Vocabulary: control, variable, insulators, hypothesis, solid, liquid, gas, modify</i></p> <p>Weather Observations (827) <i>Vocabulary: compass directions, five senses</i> <i>*This exemplar is recommended for use as a preassessment for your weather unit</i></p>	

Unit 4: Puzzles and Mysteries
Reading Street Big Question: Is there an explanation for everything?

Content & Pacing	Social Studies	Science
Essential Question	<ul style="list-style-type: none"> How have various cultural groups had an impact on the development of Utah? 	<ul style="list-style-type: none"> Why should we understand how the Earth’s structure changes over time?
Student Learning Target	<ul style="list-style-type: none"> I can identify and describe ways in which Utah’s history has been shaped by many diverse people, events, and ideas. I can describe the motivation of people to migrate. 	<ul style="list-style-type: none"> I can identify basic properties of minerals and rocks I can explain how the process of weather and erosion change and move materials that become soil I can identify the components of soil and relate them to plant growth
Example Performance Assessments	<ul style="list-style-type: none"> Choose two Utah immigrant groups and compare and contrast their experiences, actions and influences and how they impacted Utah’s history. 	<ul style="list-style-type: none"> Sort and classify a variety of rocks by their appearance and types. Provide students with a diagram of the weathering process and have them label and write a summary of what is occurring. Conduct a soil erosion lab, similar to http://www.lapappadolce.net/science-experiment-on-soil-erosion-2/?lang=en , and have students write a conclusion about their findings about the experiment.
Content Standards	<p>Standard 2 Students will understand how Utah's history has been shaped by many diverse people, events, and ideas</p> <p>Objective 2: Describe ways that Utah has changed over time.</p> <ol style="list-style-type: none"> Identify key events and trends in Utah history and their significance (e.g. American Indian settlement, European exploration, Mormon settlement, westward expansion, American Indian relocation, statehood, development of industry, World War I and II). Compare the experiences faced by today’s immigrants with those faced by immigrants in Utah’s history. <p>Objective 3: Investigate the development of the economy in Utah.</p> <ol style="list-style-type: none"> Explain the relationship between supply and demand. Describe the role of producers and consumers. Identify examples of producers and consumers in the local community. 	<p>Standard 3: Students will understand the basic properties of rocks, the processes involve in the formation of soils, and the needs of plants provided by soil.</p> <p>Objective 1: Identify basic properties of minerals and rocks.</p> <ol style="list-style-type: none"> Describe the differences between minerals and rocks. Observe rocks using a magnifying glass and draw shapes and colors of the minerals. Sort rocks by appearance according to the three basic types: sedimentary, igneous and metamorphic (e.g., sedimentary–rounded-appearing mineral and rock particles that are cemented together, often in layers; igneous–with or without observable crystals that are not in layers or with or without air holes or glasslike; metamorphic –crystals/minerals, often in layers). Classify common rocks found in Utah as sedimentary (i.e., sandstone, conglomerate, shale), igneous (i.e., basalt,

	<p>d. Research the development of Utah's economy over time.</p> <p>e. Identify the factors which bring about economic changes (e.g. natural resource development, new technologies, new market development, globalization, global conflicts, education).</p> <p>f. Examine how economic development affects communities (e.g. dams, sports, tourism, power plants, mining, etc.).</p>	<p>granite, obsidian, pumice) and metamorphic (i.e., marble, gneiss, schist).</p> <p>Objective 2: Explain how the processes of weathering and erosion change and move materials that become soil.</p> <p>a. Identify the processes of physical weathering that break down rocks at Earth's surface (i.e., water movement, freezing, plant growth, wind).</p> <p>b. Distinguish between weathering (i.e., wearing down and breaking of rock surfaces) and erosion (i.e., the movement of materials).</p> <p>c. Model erosion of Earth materials and collection of these materials as part of the process that leads to soil (e.g., water moving sand in a playground area and depositing this sand in another area).</p> <p>d. Investigate layers of soil in the local area and predict the sources of the sand and rocks in the soil.</p> <p>Objective 3: Observe the basic components of soil and relate the components to plant growth.</p> <p>a. Observe and list the components of soil (i.e., minerals, rocks, air, water, living and dead organisms) and distinguish between the living, nonliving, and once living components of soil.</p> <p>b. Diagram or model a soil profile showing topsoil, subsoil, and bedrock, and how the layers differ in composition.</p> <p>c. Relate the components of soils to the growth of plants in soil (e.g., mineral nutrients, water).</p> <p>d. Explain how plants may help control the erosion of soil.</p> <p>e. Research and investigate ways to provide mineral nutrients for plants to grow without soil (e.g., grow plants in wet towels, grow plants in wet gravel, grow plants in water).</p>
<p>Essential Vocabulary</p>	<p>immigrants, supply, demand, producer, economy, consumer, technology, globalization</p>	<p>mineral, weathering, erosion, sedimentary, igneous, metamorphic, topsoil, subsoil, bedrock, organism, freeze, thaw, profile, nonliving, structural support, nutrients</p>
<p>Suggested Unit Resources</p>	<p>S.S. Standard 2: Objective 2</p> <p><u>Immigrant Groups</u> http://ilovehistory.utah.gov/people/index.html <i>Utah: Our Home</i> (S.S. Textbook-2011) pgs. 167-177, 232-241</p>	

	<p><u>Spanish Explorers</u> http://uintahbasintah.org/jdandemain.htm Biographies and maps of Escalante and Dominguez expedition <i>Utah: Our Home (S.S. Textbook--2011)</i> pgs. 142-147</p> <p><u>Statehood</u> <i>Utah: Our Home (S.S. Textbook-2011)</i> pgs. 242-249 http://www.ilovehistory.utah.gov/topics/statehood/index.html?utm_source=twitterfeed&utm_medium=twitter http://www.ilovehistory.utah.gov/time/stories/statehood.html http://archives.utah.gov/research/exhibits/Statehood/setroad.htm http://historytogo.utah.gov/utah_chapters/statehood_and_the_progressive_era/index.html http://historytogo.utah.gov/utah_chapters/statehood_and_the_progressive_era/struggleforstatehoodchronology.html</p>			
<p>Furthur Guidance for Integration</p>			<p>Math 4.NF.3A & Practice Standard: 4 Model with Mathematics Students will create a model of a soil profile using various food items, such as the model at: http://ell.tamucc.edu/files/module_8_activity.pdf (Google Soil Investigation Grade 3, if the link doesn't work). Students will record and label their model in their science notebook representing the various layers and components.</p>	
<p>Explicit Ties to Reading Street</p>	<p>Reading Street Connections</p> <p>Week 3: Navajo Code Talkers Concept Talk Main Selection</p>	<p>Content Integration</p> <p>After reading the main selection, have students read a text about the Utah Navajo Code Talkers, such as http://www.ksl.com/?sid=14317635 or http://www.navajonnsn.gov/history.htm. Have a class discussion about the contributions this culture has made to our nation and then have students write a short information piece about their contributions.</p>	<p>Reading Street Connections</p>	<p>Content Integrations</p>

<p>Reading Street Online Readers</p>	<p>From Spain to America (L790) The Dine (L850) Navajo Code Talkers (L1100) Ranches in the Southwest (L820) Ranching in the Great American Desert (L1000) The Long Journey West (L680) What do Archaeologists Do? (L1120) Pompeii, The Lost City (L910) Rails Across America (L830) The Transcontinental Railroad (L1010) Westward Expansion (L1140) Archaeologists Explore Early America (L1020)</p>	<p>Grandpa's Rock Kit (L390) Riches from the Earth (L880) Riches from Our Earth (L880) The Rock Kit (L390) Gemstones Around the World (L830) Rocks, Wind, and Water (L470) Changes to the Earth's Surface (L720) Changes on Earth (L590) Changing Surface of the Earth (L850) Crystals and Gems (L590) The Earth (L470) Minerals and Rocks (L740) Minerals and Rocks (L960) Rocks and Minerals (L750) Rocks and Minerals (L800) Rocks and Soil (L590) Rocks and Soil Beneath Us (L740) Down to Earth (L1000) Earth's Changing Surface (L790) Mountains of the World (L1020) Our Changing Earth (L870) The Earth (L470) Caves (L950) Ice (L840) Fertile Floods (L800) Rocks and Soil (L590) Rocks and Soil Around Us (G2) World of Rocks and Minerals (G4)</p>
<p>REACH Connections</p>	<p>Unit 3 Parts 1 & 2 Amazing Places Unit 6 Part 1 Treasure Hunters</p>	<p>Unit 4 Part 1 Power of Nature "Learn to Ask Questions" Pg. 220</p>
<p>Science Exemplars</p>	<p>Geology Part 1: Can You Categorize Different Types of Rocks? (346) Geology Part 2: What is the Mystery Rock? (347) <i>Vocabulary: hardness test, calcite, rocks vs. minerals, igneous, sedimentary, metamorphic, characteristics, properties, texture, layers, luster</i></p>	

Unit 5: Adventures by Land, Air, and Water
Reading Street Big Question: What makes an adventure?

Content & Pacing	Science Part 1	Science Part 2
Essential Question	<ul style="list-style-type: none"> How can fossil evidence be used to make inferences about past life, climate, geology, and environments? 	<ul style="list-style-type: none"> How does Utah's physical geography determine the wildlife found in these environments?
Student Learning Targets	<ul style="list-style-type: none"> I can describe Utah fossils and explain how they were formed. I can explain how fossils can be used to make inferences about the past. 	<ul style="list-style-type: none"> I can describe the physical characteristics of Utah's environment. http://utah.hometownlocator.com/features/ I can describe the common plants and animals found in Utah environments. https://sites.google.com/site/utahbiomesplantsanimals/wetlands/wetland-plants-animals I can use a simple scheme to classify Utah plants and animals.
Example Performance Assessment	<ul style="list-style-type: none"> Research locations where fossils are found in Utah and plot them on a map of Utah. http://geology.utah.gov/utahgeo/dinofossil/fosguide/dinotracks.htm#johnsonfarm http://www.uen.org/Lessonplan/preview?LPid=15084 Students will hypothesize what the environment may have looked like when these animals were living, and compare and contrast that environment with today's environment. 	<ul style="list-style-type: none"> Create a map of Utah that identifies where wetlands, forests, and deserts are located. Write descriptions, and provide an illustration with details of the physical characteristics of each area. https://sites.google.com/site/utahbiomesplantsanimals/forest/forest-plants-animals Have students create a food chain with common plants and animals found in a specific Utah environment. http://www.uen.org/Lessonplan/preview?LPid=9979 Use a classification guide to identify common species in Utah. http://www.uen.org/Lessonplan/preview?LPid=10299
Content Standards	<p>Standard 4: Students will understand how fossils are formed, where they may be found in Utah, and how they can be used to make inferences.</p> <p>Objective 1: Describe Utah fossils and explain how they were formed.</p> <ol style="list-style-type: none"> Identify features of fossils that can be used to compare them to living organisms that are familiar (e.g., shape, size and structure of skeleton, patterns of leaves). Describe three ways fossils are formed in sedimentary rock (i.e., preserved organisms, mineral replacement of organisms, impressions or tracks). Research locations where fossils are found in Utah and 	<p>Standard 5: Students will understand the physical characteristics of Utah's wetlands, forests, and deserts and identify common organisms for each environment.</p> <p>Objective 1: Describe the physical characteristics of Utah's wetlands, forests, and deserts.</p> <p>http://centralpt.com/upload/324/2193_ED_UTbiomes.pdf</p> <ol style="list-style-type: none"> Compare the physical characteristics (e.g., precipitation, temperature, and surface terrain) of Utah's wetlands, forests, and deserts. Describe Utah's wetlands (e.g., river, lake, stream, and marsh areas where water is a major feature of the environment) forests (e.g., oak, pine, aspen, juniper areas

	<p>construct a simple fossil map.</p> <p>Objective 2: Explain how fossils can be used to make inferences about past life, climate, geology, and environments.</p> <ol style="list-style-type: none"> Explain why fossils are usually found in sedimentary rock. Based on the fossils found in various locations, infer how Utah environments have changed over time (e.g., trilobite fossils indicate that Millard County was once covered by a large shallow ocean; dinosaur fossils and coal indicate that Emery and Uintah County were once tropical and swampy). Research information on two scientific explanations for the extinction of dinosaurs and other prehistoric organisms. Formulate questions that can be answered using information gathered on the extinction of dinosaurs. 	<p>where trees are a major feature of the environment), and deserts (e.g., areas where the lack of water provided an environment where plants needing little water are a major feature of the environment).</p> <ol style="list-style-type: none"> Locate examples of areas that have characteristics of wetlands, forests, or deserts in Utah. Based upon information gathered, classify areas of Utah that are generally identified as wetlands, forests, or deserts. Create models of wetlands, forests, and deserts. <p>Objective 2: Describe the common plants and animals found in Utah environments and how these organisms have adapted to the environment in which they live.</p> <ol style="list-style-type: none"> Identify common plants and animals that inhabit Utah's forests, wetlands, and deserts. Cite examples of physical features that allow particular plants and animals to live in specific environments (e.g., duck has webbed feet, cactus has waxy coating). Describe some of the interactions between animals and plants of a given environment (e.g., woodpecker eats insects that live on trees of a forest, brine shrimp of the Great Salt Lake eat algae and birds feed on brine shrimp). Identify the effect elevation has on types of plants and animals that live in a specific wetland, forest, or desert. Find examples of endangered Utah plants and animals and describe steps being taken to protect them. <p>Objective 3: Use a simple scheme to classify Utah plants and animals.</p> <ol style="list-style-type: none"> Explain how scientists use classification schemes. Use a simple classification system to classify unfamiliar Utah plants or animals (e.g., fish/amphibians/reptile/bird/mammal, invertebrate/vertebrate, tree/shrub/grass, deciduous/conifers). <p>Objective 4: Observe and record the behavior of Utah animals.</p> <ol style="list-style-type: none"> Observe and record the behavior of birds (e.g., caring for young, obtaining food, surviving winter). Describe how the behavior and adaptations of Utah mammals help them survive winter (e.g., obtaining food,
--	---	---

		<p>building homes, hibernation, migration).</p> <p>c. Research and report on the behavior of a species of Utah fish (e.g., feeding on the bottom or surface, time of year and movement of fish to spawn, types of food and how it is obtained).</p> <p>d. Compare the structure and behavior of Utah amphibians and reptiles.</p> <p>e. Use simple classification schemes to sort Utah's common insects and spiders.</p> <p>d.</p>
Essential Vocabulary	infer, environments, climate, dinosaur, preserved, extinct, extinction, impression, fossil, prehistoric, mineral, organism, replacement, trilobite, sedimentary, tropical	wetland, forest, desert, adaptation, deciduous, coniferous, invertebrate, vertebrate, bird, amphibian, reptile, fish, mammal, insect, hibernation, migration, jackrabbit, cottontail rabbit, red fox, coyote, mule deer, elk, moose, cougar, bobcat, deer mouse, kangaroo rat, muskrat, beaver, gopher, snake, rattlesnake, lizard, tortoise, frog, salamander, red-tailed hawk, barn owl, lark, robin, pinyon jay, magpie, crow, trout, catfish, carp, grasshopper, ant, moth, butterfly, housefly, bee, wasp, pill bug, millipede, sagebrush, pinyon pine, Utah juniper, spruce, fir, oak brush, quaking aspen, cottonwood, cattail, bulrush, prickly pear cactus
Suggested Unit Sequence		
Other Resources		
Further Guidance for Integration	<p>Math 4.MD.1 & Visual Art Standard 1.1 (making) the student will explore and refine the application of media, techniques, and artistic processes.</p> <p>Have students conduct the How Big is a Dinosaur Lab (http://www.uen.org/Lessonplan/preview?LPid=11146)</p> <p>Use the stegosaurus grid picture and measure in cm the size of each square on the grid. Estimate how many times larger a stegosaurus might be than the picture on the grid. Convert the cm measurement to meters. Break students into small groups, and give each student 1 square from the grid to recreate in a larger scale. Have all students place their grid on the wall in the appropriate place to create their larger stegosaurus.</p>	<p>Math -- Chart the population of an endangered species in Utah for the last several years.</p> <p>ELA SL.4.1 Engage effectively in a range of collaborative discussions(one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 4 topics and texts</i>, building on others' ideas and expressing their own clearly.</p> <p>Complete the June Sucker Simulation activity created to integrate ELA, Science and Social studies for Utah's 4th grade students. http://utahlake.gov/wp-content/uploads/2012/11/June_sucker_June_2012.complete.pdf</p>

Explicit Ties to Reading Street	Reading Street Connection	Content Integration	Reading Street Connection	Content Integration
		<u>None</u>		<u>None</u>
Reading Street Online Readers				
REACH Connections				
Science Exemplars	<p>Investigating Hermit Crabs: What Do They Eat? (334) <i>Vocabulary: carnivore, omnivore, insectivore, herbivore, classification, organism</i></p> <p>What Can You See When You Look At A Tree? (212) <i>*Year long observation task</i> <i>Vocabulary: life cycle, tree guide, identification guide, interdependence, ecosystem, circumference, gestalt, texture</i></p> <p>Salt Water and Freshwater: Is There a Difference? (216) <i>Vocabulary: inquiry, scientific method</i></p> <p>How Can Your Observations of Leaves Help You Identify Them? (534) <i>Vocabulary: habitat, general vs. specific, interdependence, decomposition</i></p> <p>How Much Diversity is There in This Habitat? (538) <i>Vocabulary: diversity, diagram, habitat, square meter</i> <i>*Year long task</i></p>			

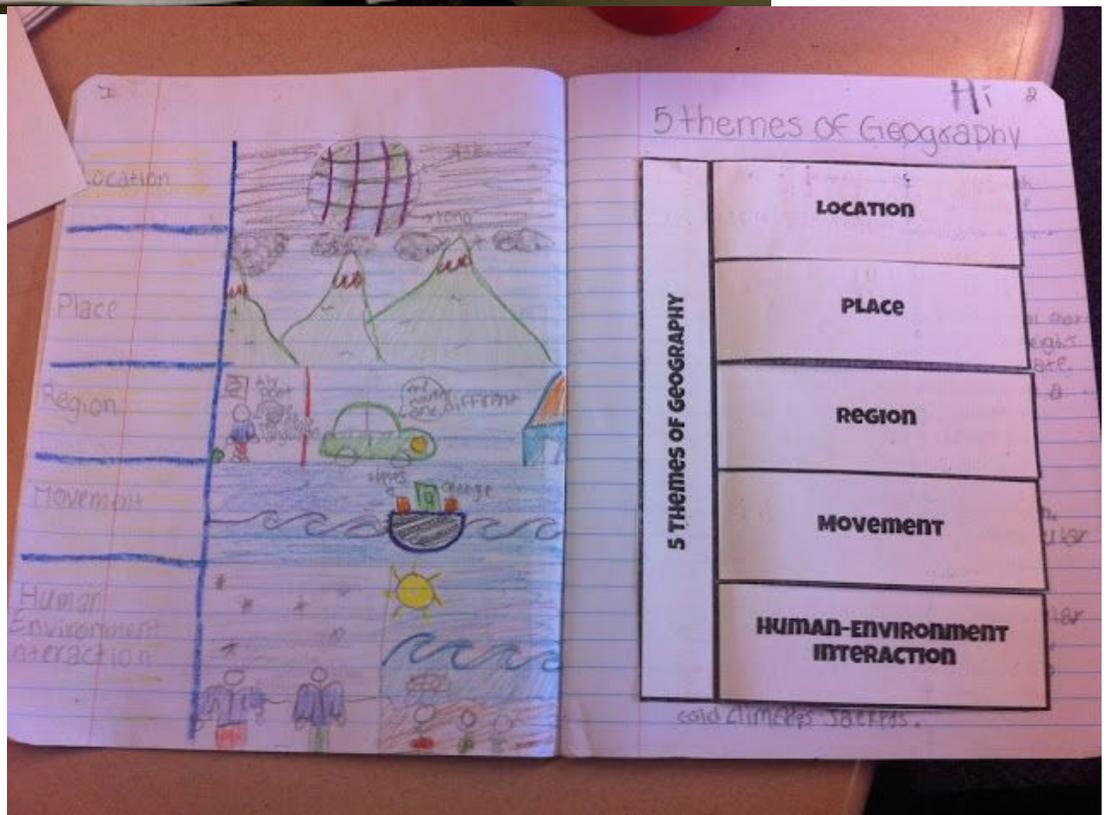
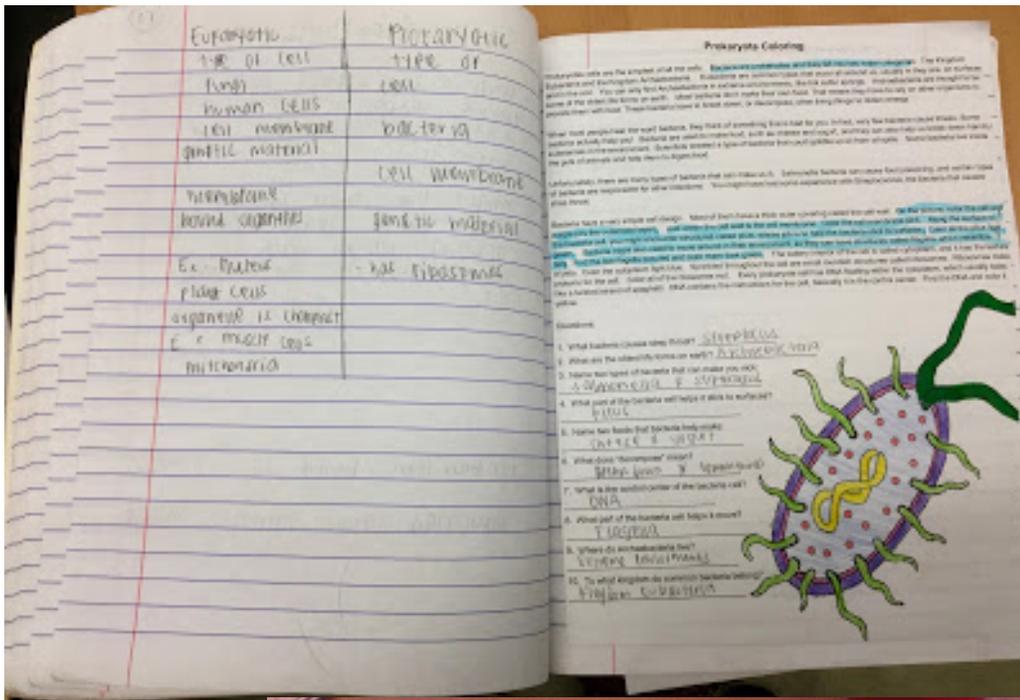
Unit 6: Reaching for Goals		
Reading Street Big Question: What does it take to achieve our goals and dreams?		
Content & Pacing	Social Studies Part 1	Social Studies Part 2
Essential Questions	<ul style="list-style-type: none"> How does the physical geography (land and water) affect human impact human life in Utah. 	<ul style="list-style-type: none"> How have humans altered Utah's physical environment to meet their needs, and what might the impact of this have on Utah's environment?
Student Learning Targets	<ul style="list-style-type: none"> I can list several major physical geographic attributes in Utah, and describe the forces that may have created them. 	<ul style="list-style-type: none"> I can analyze how human actions modify the physical environment. http://www.uen.org/Lessonplan/preview?LPid=13670 I can describe how and why humans have changed the physical environment of Utah to meet their needs (e.g. reservoirs, irrigation, climate, transportation systems and cities). I can make data-supported predictions about the future needs of Utahns and the natural resources that will be necessary to meet those needs.
Example Performance Assessment		<ul style="list-style-type: none"> Using the Utah map with identified wetlands, forests, etc. have students identify man made and natural features on their map. Write and discuss how humans have changed the physical environment to meet their needs. Using the Utah food chain that students created, students hypothesize about what might happen to a food chain if a specific species was eradicated. Write argumentative or opinion piece on whether species should be protected.
Content Standards	<p>Standard 1: Students will understand the relationship between the physical geography in Utah and human life.</p> <p>Objective 1: Classify major physical geographic attributes of Utah.</p> <ol style="list-style-type: none"> Identify Utah's latitude, longitude, hemisphere, climate, natural resources, landforms, and regions using a variety of geographic tools. Examine the forces at work in creating the physical geography of Utah (e.g. erosion, seismic activity, climate 	<p>Standard 1: Students will understand the relationship between the physical geography in Utah and human life.</p> <p>Objective 2: Analyze how physical geography affects human life in Utah.</p> <p>http://www.uen.org/Lessonplan/preview.cgi?LPid=23816</p> <ol style="list-style-type: none"> Identify population concentrations in the state and infer causal relationships between population and physical geography.

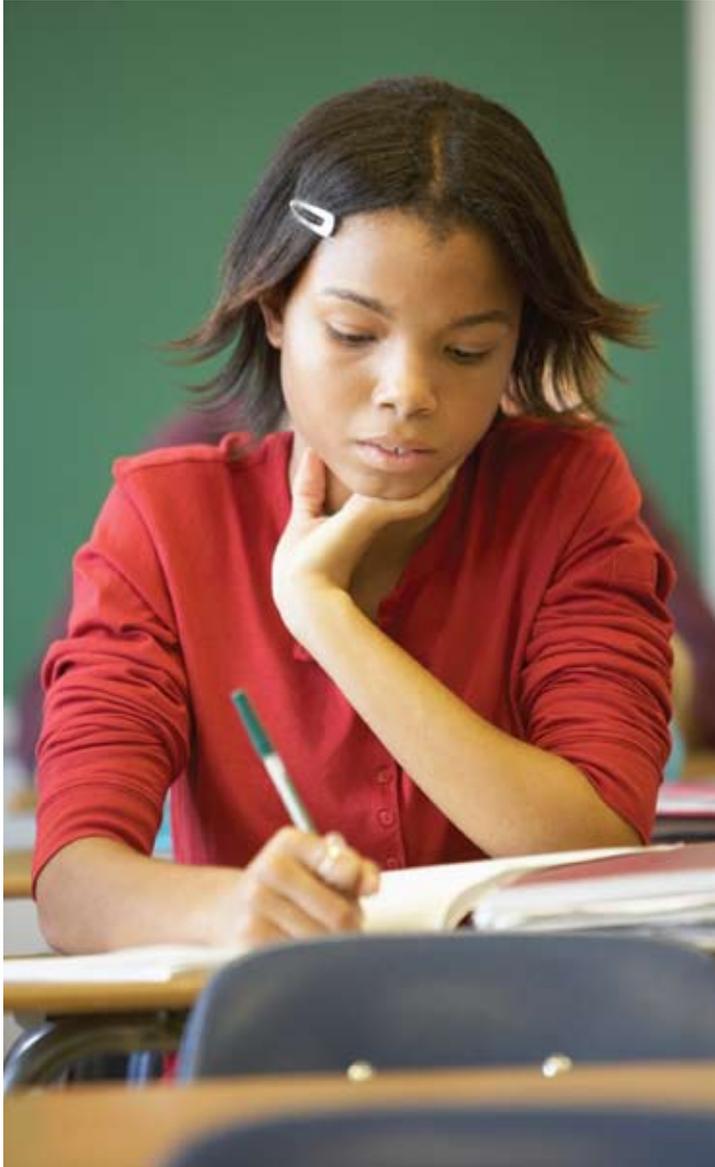
	<p>change).</p> <p>Objective 2: Analyze how physical geography affects human life in Utah.</p> <ul style="list-style-type: none"> b. Identify population concentrations in the state and infer causal relationships between population and physical geography. c. Classify the distribution and use of natural resources. d. Compare the development of industry and business in Utah as it relates to its physical geography (e.g. mining, oil, agriculture, tourism). e. Make inferences about the relationships between the physical geography of Utah and the state's communication and transportation systems (e.g. trails, roads, telegraph, rail lines). f. Examine the interactions between physical geography and public health and safety (e.g. inversions, earthquakes, flooding, fire). <p>Explain how archaeology informs about the past (e.g. artifacts, ruins, and excavations).</p>	<ul style="list-style-type: none"> b. Classify the distribution and use of natural resources. c. Compare the development of industry and business in Utah as it relates to its physical geography (e.g. mining, oil, agriculture, tourism). d. Make inferences about the relationships between the physical geography of Utah and the state's communication and transportation systems (e.g. trails, roads, telegraph, rail lines). e. Examine the interactions between physical geography and public health and safety (e.g. inversions, earthquakes, flooding, fire). f. Explain how archaeology informs about the past (e.g. artifacts, ruins, and excavations). <p>Objective 3: Analyze how human actions modify the physical environment.</p> <p>http://www.uen.org/Lessonplan/preview.cgi?LPid=23818</p> <ul style="list-style-type: none"> a. Describe how and why humans have changed the physical environment of Utah to meet their needs (e.g. reservoirs, irrigation, climate, transportation systems and cities). b. Explain viewpoints regarding environmental issues (e.g. species protection, land use, pollution controls, mass transit, water rights, and trust lands). c. Outline the development of recreation in Utah since 1900 (e.g. sports, tourism, state, and national parks). d. Make data-supported predictions about the future needs of Utahns and the natural resources that will be necessary to meet those needs.
<p>Essential Vocabulary</p>	<p>natural resources, landforms, regions, erosion, seismic activity, tourism, communication, transportation, archaeology, artifacts, excavations</p>	<p>natural resources, landforms, regions, erosion, seismic activity, tourism, communication, transportation, archaeology, artifacts, excavations</p>

Suggested Unit Sequence				
Other Resources				
Further Guidance for Integration			<p>Reading and Writing Standards:</p> <ul style="list-style-type: none"> • RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. • W.4.3 Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. <p>Write a personal narrative from the point of view from a student in Utah and a student in the other culture http://www.uen.org/Lessonplan/preview?LPid=13670,</p>	
Explicit Ties to Reading Street	Reading Street Connection	Content Integration	Reading Street Connection	Content Integration
	Week 1: <u>Smokejumps</u>			

	<p><u>Camp with Care</u></p> <p>Week 2: <u>Lost City</u></p> <p><u>Riding the Rails to Machu Picchu</u></p>			
<p>Reading Street Online Resources</p>		<p>All About Animals (L320) Animal Groups (L510) Classifying Living Organisms (G6) Insects and Spiders (L840) Plant and Animal Classification (L820) Reptile or Amphibian (L860) All About Animals (L320) Animal Eggs (L680) Animal Groups (L510) Animal Ways of Life (L740) The Cat Family (L830) Desert Plants (L640) Many Ecosystems (L790) Places (L270) Where Plants and Animals Live (L540) Landforms and Water Ways (L1160)</p>		
<p>REACH Connections</p>		<p>Unit 4 Part 1 Power of Nature, Unit 2 Part 1 and 2 Animal Intelligence</p>		

Using Interactive Notebooks as a tool to help organize Content Integration Time





Integrating Interactive Notebooks

A daily learning cycle to empower students for science

—Cheryl Waldman and Kent J. Crippen—

An interactive notebook can be a powerful instructional tool, allowing students to take control of their learning while processing information and engaging in self-reflection. The three-part learning cycle of an interactive notebook makes it easy to use and integrate into the science lesson. The basic idea has its roots in a number of programs (TCI 2000; AVID 2007), but applying knowledge about how students learn science can make this an even more effective tool.

At its best, an interactive notebook provides a varied set of strategies to create a personal, organized, and documented learning record. In addition to presenting techniques for design, implementation, and assessment, this article describes how interactive notebooks empower students for science achievement.

Design

Based upon the flow of information between teachers and students in a science lesson, the interactive notebook is composed of three types of activities. *In* activities provide a scaffold for class discussion by activating prior knowledge and motivating students immediately as they come into the classroom. *Through* activities allow the teacher to direct student learning from a fragmented conceptual knowledge to understanding. *Out* activities emphasize reflection on key concepts at the end of the lesson, before students go out of the classroom. The *in*, *through*, and *out* activities provide a daily rhythm of learning. *In* and *out* activities are prompted student responses; *through* activities are provided by the teacher.

Each class period begins with students completing an *in* activity that reviews a concept from the previous class, introduces the topic of the day, or probes their prior knowledge related to the topic at hand. Based on their own understanding and creativity, students direct this activity as they respond to teacher prompts or questions—resulting in an output of information. *In* activities take about 5 minutes to complete and can be done alone or in small groups. While circulating around the room, the teacher quickly provides individualized feedback and uses the activity to prompt discussion for the lesson to follow.

The daily lesson constitutes the *through* activity. This can include conducting lecture or discussion, engaging in a laboratory procedure, or viewing a film or documentary during class—all of which are initiated and directed by the teacher. In *through* activities, objective information (course concepts) is provided to students—resulting in an input of information.

An *out* activity occurs at the end of class. It closes the day's lesson with an emphasis on reviewing key concepts, using deliberate practice, or drawing connections among ideas. Like *in* activities, *out* activities are teacher-initiated, but student-directed. Teachers provide the prompts, but students produce the answers, diagrams, and so on—allowing them to reflect on their own learning.

Individual student work created from participating in the *in* and *out* activities is mapped onto the left page of a standard spiral-bound notebook; *through* activities are placed on the right-hand page. Students quickly become familiar with

this daily learning cycle and come to expect it each class (Figure 1). However, the cycle can be modified for extended projects or laboratory activities. Color and highlighting are used throughout the notebook to emphasize and reinforce learning. Students are expected to use color to emphasize main concepts and vocabulary, to indicate levels of questions they write, and to distinguish details of diagrams and concept maps.

The power of an interactive notebook lies in the *in* and *out* activities, while the *through* activity functions primarily as an informational element. The activities on the left side of an interactive notebook (*in* and *out*) are meant to

- ◆ engage students with the new information included on the right side of the page (*through*),
- ◆ assess student understanding both prior to and after instruction,
- ◆ emphasize their thinking about thinking (metacognition), and
- ◆ create representations of their understanding that demonstrate learning (Figure 2).

In and *out* activities are distinguished by their purpose, not by the types of strategy employed. In fact, depending on the lesson goals, the *in* and *out* activities might use the same strategies. For example, students may be asked to review concepts from a previous lesson by contrasting and comparing during an *in* activity (e.g., mitochondria versus chloroplasts). Or, they may be asked to contrast and compare an *out* activity following a *through* lesson (e.g., plant versus animal cell structure).

Interactive notebooks are designed to foster thinking, writing, and documenting science in a variety of

FIGURE 1

Structural overview of an interactive notebook.

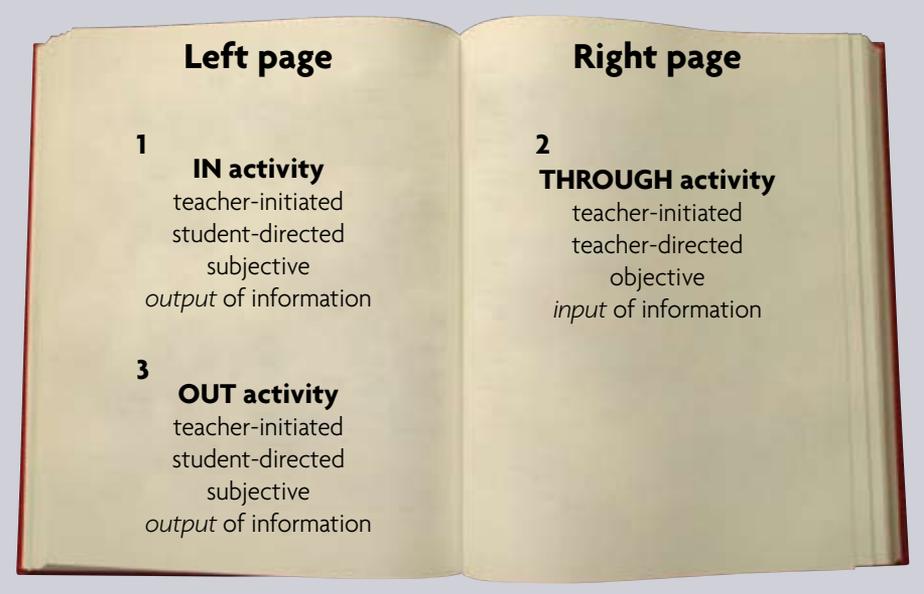


FIGURE 2

Example interactive notebook activities.

Left side

Examples of student-directed *in* and *out* activities:

- ◆ A drawing, photo, or magazine picture that illustrates a new concept or idea
- ◆ Questions, opinions, and personal reflections about the new information
- ◆ Predictions, contradictions, or quotations relating to the *through* activity
- ◆ Practice problems or inquiry activities
- ◆ Metaphors, analogies, acronyms, poems, songs, or cartoons that capture the new information or issue
- ◆ Connections between the information, and the student's life, another course, or the world
- ◆ Reflections on and summary of activities

Right side

Examples of teacher-directed *through* activities:

- ◆ Lecture, discussion, or reading notes
- ◆ Laboratory procedure or rough draft
- ◆ Film, video, and documentary facts or notes
- ◆ Small- or large-group discussion notes
- ◆ Collaborative group process summary
- ◆ Excerpts of a news or journal article
- ◆ Vocabulary exercises
- ◆ Worksheets and activities

formats. Most current, high-level strategies for inquiry science are easily adapted to the pages of an interactive notebook. These include Vee maps (Coffman and Riggs 2006; Roehrig, Luft, and Edwards 2001) or the science writing heuristic (Hand and Keys 1999), as well as note-taking systems such as Cornell notes (Pauk 2006).

Empowerment

At professional development programs across our large school district, we hear teachers speak of the interactive notebook being successfully implemented in all forms of high school science (e.g., biology, chemistry, physics, Earth science) at various levels (e.g., introductory, honors, advanced placement). While the depth, breadth, and general requirements of the strategies vary based on classroom and curricular factors, the cycle of *in-through-out* activities is consistent among all classes that have used it successfully.

Our personal classroom research indicates that interactive notebooks contribute to learning; students perceive them as tools that positively impact their ability to learn science; and the notebook increases their ability to organize the materials associated with learning. Figure 3 (p. 54) illustrates the positive relationship between student notebook scores and final course grades for a group of students over one quarter of instruction. Student grades increase proportionally to their notebook scores—we believe the interactive notebook accounts for a significant amount of increased student learning.

Interactive notebooks can empower students for learning science because they

- ◆ require active engagement with course concepts;
- ◆ incorporate self-reflection;
- ◆ allow students to express their personal values,

experiences, and feelings;

- ◆ teach organizational skills;
- ◆ create pride in and ownership of class work; and
- ◆ help students visualize and demonstrate understanding as evidence of self-regulation.

The *in* and *out* activities of the interactive notebook require students to actively engage with the language, concepts, and skills of the curriculum. Active learning requires self-reflection and the explicit integration of new knowledge and experiences. Learning environments that include these components demonstrate a strong relationship with student achievement (Tuan, Chin, and Shieh 2005).

Emphasizing self-reflection affords students the opportunity to identify weaknesses in their understanding and to establish the personal relevance of ideas presented in the *through* activities. The interactive notebook also provides opportunities for students to engage in self-reflective and collaborative experiences that allow for meaningful negotiations between peers and the teacher. Students within a group may differ in their interpretation of and subsequent conclusions about data. At this point, the teacher may act as facilitator to ensure that student consensus occurs.

While acquiring and integrating new knowledge and skills, students come to view the notebook as a personal, organized, and documented record of their understanding. Each student's notebook becomes a unique expression of their effort and creativity, as well as a demonstration of their pride in and ownership of their work. Working within the interactive notebook, students become aware of the knowledge and skills required to control their learning—an understanding that can contribute to confidence and feelings of empowerment (Pajares 1996).

Student perception of the notebook's importance for success is often based on the organizational components of the process (e.g., numbered pages, a table of contents, handouts affixed to pages, and left- and right-side activities). By knowing where to locate the materials needed for learning, students feel more confident in their ability to learn science. The following student quotation, representative of most student comments from our classroom research, highlights how a student's perception changes with use of an interactive notebook: "This is the only class I am organized in. I feel more organized than I ever have before."

Implementation

In the first days of the school year, each student is provided with (or must obtain) an identical spiral notebook. Once students have their interactive notebooks, the learning cycle begins and quickly becomes the daily routine. The structure of the *in* and *out* activities creates positive learning actions focused on sensemaking.

A strict format for introducing these tools should be designed in advance and followed closely. Our script includes the following rules:

- ◆ The process of an interactive notebook should be thoroughly explained to students, and a follow-up explanatory letter should be sent to parents.
- ◆ Only spiral bound notebooks should be used so the notebook can fold in half (no three-ring binders or bound-composition notebooks).
- ◆ A spiral notebook of about 70–100 pages is typically

needed for one semester of work.

- ◆ Notebooks are taken home or securely stored in the classroom.
- ◆ All students should number their pages the same way (left side: even, right side: odd).
- ◆ Pages should not be torn out of the notebook.
- ◆ Students should write only with pencil, as use of ink pens promotes the tearing out of pages when mistakes are made. If pens are allowed, the teacher must strongly enforce the rule on not tearing out pages.
- ◆ Glue or tape is used to attach handouts or photocopies to the spiral-bound pages.
- ◆ Covers and inside pages should be designed to reflect defined criteria such as laboratory format, instructions for equipment use, author page, grading rubrics, or assignment types.
- ◆ At the beginning of the notebook, pages are set aside for reference handouts and a table of contents.
- ◆ Score sheets, grading rubrics, and assignment types should be affixed to the same place in all notebooks.
- ◆ Colored pencils, scissors, and glue sticks or tape (double-sided works best) are required daily supplies that need to be brought to class or supplied by the teacher.

If multiple sheets need to be affixed to notebook pages at the beginning of a new unit, then students participate in a "glue festival" to

attach handouts, labs, note outlines, and so on. For efficiency, students are given a limited amount of time (e.g., approximately 10 minutes). Trimming papers, gluing and coloring the various diagrams, and responding to the *in* and *out* prompts contribute to the degree of personal ownership and on-task behavior related to this learning strategy.

Assessment

Since nearly all student work is completed in the notebook, assessment is simplified. However, the teacher is not required to take home and read hundreds of notebooks. Figure 4 summarizes a variety of easily adaptable grading techniques. Scores can be recorded on a seating chart,

FIGURE 3

The impact of student notebooks.

Some exams included extra credit questions that resulted in final grade percentages higher than 100%.

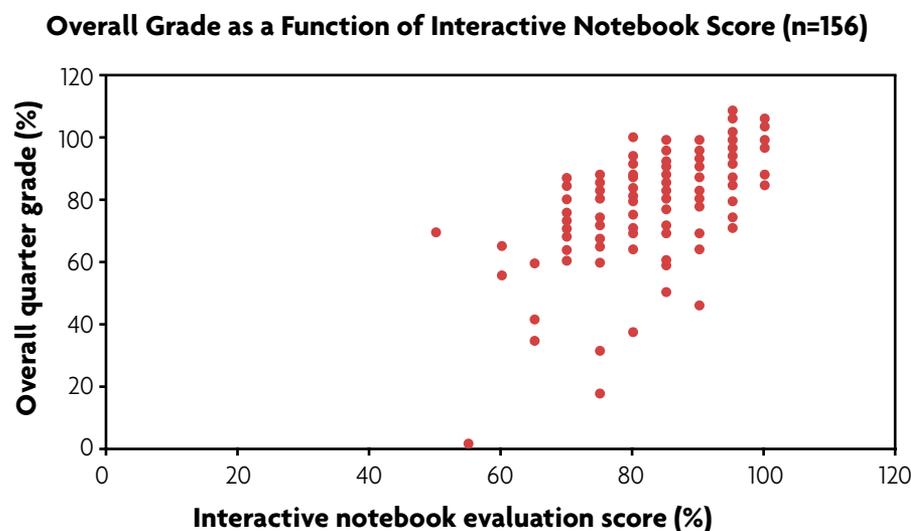


FIGURE 4

Assessment strategies for an interactive notebook.

Quick grades for *in* and *out* activities:

- ✓ The teacher walks around the room or students hold up notebooks for a visual inspection.
- ✓ The teacher uses the seating chart to record scores or stamps student notebooks individually to verify assignment completion.
- ✓ Students complete a simple teacher-designed self-evaluation form and hand it in.
- ✓ A 3-point rating scale is used for feedback (Wow = 3, What is expected = 2, Made an attempt = 1).

Summative evaluations:

- ✓ Completeness is evaluated two to four times a semester.
- ✓ Rubrics are created and used for grading paragraphs, summaries, and other more complex student work.
- ✓ At the end of semester, rubrics with a standard numerical score are used to measure quality, depth, effort, completeness, organization, and improvement.

within each student's notebook, or summarized on small slips of paper.

Conclusion

The power of an interactive notebook resides in students' engagement with sensemaking, metacognitive activities. Oftentimes students arrive to class and immediately launch into challenging new material, without setting the context by reflecting on previous classes. Similarly, classes sometimes end in midstream, finishing with the closing bell rather than with a reflection on the big ideas learned that day. *In* and *out* activities help teachers avoid these situations and provide an opportunity for students to reflect on their learning. While we suggest that the format of the interactive notebook be strictly defined, the utility of the design allows for the inclusion of a wide range of existing classroom activities.

Over the past few years, a good number of teachers from across our school district have been using action research in their classrooms to evaluate the impact of the interactive notebook. The response we hear is universally positive: These strategies are helping students engage in and learn science. Workshops for teachers on using the interactive notebook are very popular, and participating teachers who go on to implement interac-

Students treasure their interactive notebooks because they are personal and reflective; teachers value them because they represent a simple yet powerful method for helping students learn science.

tive notebooks comment that they will never go back to their previous strategies. Although the results of this research are incomplete, we find the endorsement by respected colleagues to be encouraging.

Working with the interactive notebook, students come to value sensemaking and become aware of the knowledge and skills required to control their learning. This in turn empowers students to become confident and focused, thereby improving their achievement. Students treasure their interactive notebooks because they are personal and reflective; teachers value them because they represent a simple yet powerful method for helping students learn science. ■

Cheryl Waldman (cawaldman@interact.ccsd.net) is a science teacher and department chair at Palo Verde High School in Las Vegas, Nevada; *Kent J. Crippen* (kcrippen@unlv.nevada.edu) is an associate professor of science education and technology at the University of Nevada in Las Vegas.

References

- Advancement via Individual Determination (AVID). 2007. AVID online. www.avidcenter.org.
- Coffman, C., and L. Riggs. 2006. The virtual Vee map: A template for internet inquiry. *Journal of College Science Teaching* 36(1): 32–39.
- Hand, B., and C. Keys. 1999. Inquiry investigation. *The Science Teacher* 66(4): 27–29.
- Pajares, F. 1996. Self-efficacy beliefs in academic settings. *Review of Educational Research* 66(4): 543–578.
- Pauk, W. 2006. *How to study in college*. 8th. ed. Boston, MA: Houghton Mifflin.
- Roehrig, G.H., J.A. Luft, and M. Edwards. 2001. Versatile Vee maps. *The Science Teacher* 68(1): 28–31.
- Teachers' Curriculum Institute (TCI). 2000. History alive! Interactive student notebook. www.teachtci.com/forum/isn.aspx
- Tuan, H.L., C.C. Chin, and S.H. Shieh. 2005. The development of a questionnaire to measure students' motivation towards science learning. *International Journal of Science Education* 27: 639–654.

Using Interactive Notebooks

Interactive notebooks are a tool to help organize science and social studies information for students as they go through the day. For instance, you may have students read an informational passage at one of the stations during the ELA block, and then have students write a summary of that information in the content integration time of the ELA block, and during science/social studies time, have students complete an activity related to the topic. Helping students organize the information from these 3 different parts of the day allows teachers to pull all pieces together for students, organize information for spiral review, and provide a record of student progress. Notebooks can be formatted in different ways, but should include 3 distinct sections: In, Out and Through.

In:

The “In” section is utilized to review concepts from previous lesson, introduce a new topic, or probe prior knowledge related to the new topic. You may choose to have students read a few paragraphs about a new topic, have them brainstorm with friends information related to a new topic, or have them summarize information that has been previously taught that might be related to a new topic.

Through:

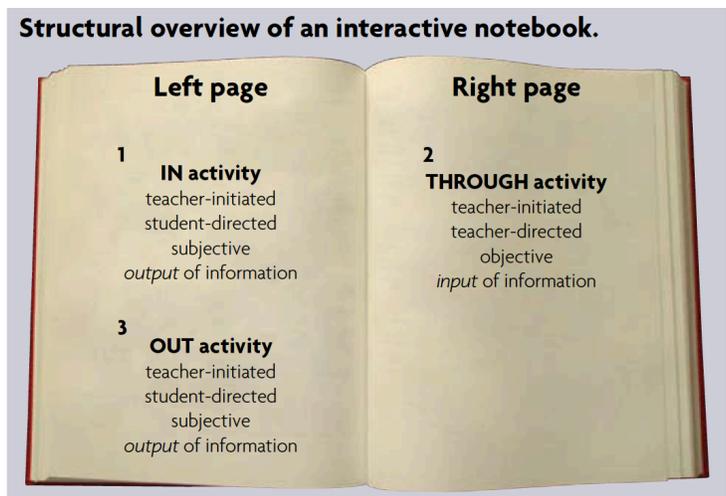
The daily lesson is the through activity. This can include explicit instruction or discussion, engaging in a laboratory procedure, or viewing a film or clip during class.

Out:

Out activities are teacher-initiated, but student directed. The teacher provides the prompt, but the students produce the answer, diagrams, and so on – allowing them to reflect on their learning. For example, after reviewing the water cycle, students might be asked to write about the journey of a water droplet through the water cycle in a narrative form. The more students process information, the more likely they are to understand and retain the information longer.

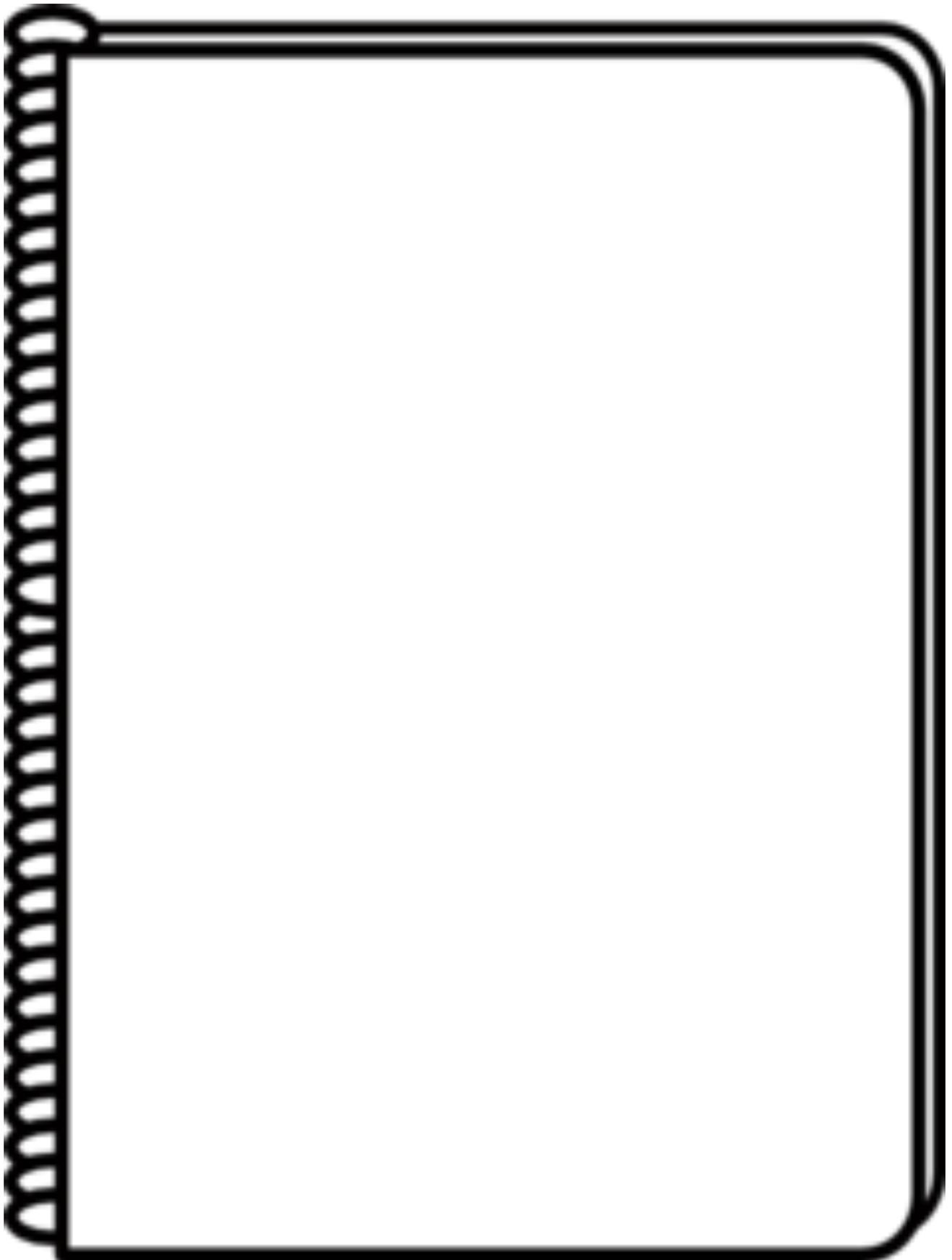
Important Things to Remember:

- Every notebook page should have a title, and should be recorded into the table of contents
- Number the pages sequentially, and ensure all students are numbering pages the same. When you go back to reference a topic, all students should be able to go back to the



same page number. (Students, turn to page 12, and review the diagram of the water cycle)

- Do not remove any pages.
- Both right and left pages should be numbered. The first pages are reserved for a table of contents and instructions. Other information will be included as appendices.
- Use color to help organize your information
- Handouts, foldables, and other papers should be glued or taped in place. No staples.
- Notebooks should be graded weekly using self, peer, and teacher rubrics.



Interactive Notebook Rubric

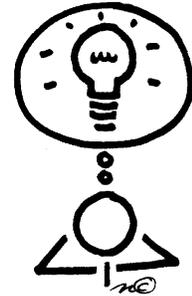
3	<ul style="list-style-type: none"> • Notebook contents are complete, dated, labeled, and organized • Information on right-side and left-side topics correct • Displays superior understanding of content material • Well developed processing assignments that use color and effective diagrams • In-depth reflections about the work done
2	<ul style="list-style-type: none"> • Notebook contents are almost complete, dated, labeled, and organized • Information on right-side and left-side topics are mostly correct • Displays limited concept of understanding of content material • Processing assignments incomplete or lack use of color and effective diagrams • Shows reflection about the work done
1	<ul style="list-style-type: none"> • Notebook contents are incomplete or not dated, labeled, or organized • Notes are Cornell style, with few or no questions • Information on right-side and left-side topics are partially correct • Displays superficial understanding of content materials • Processing assignments show minimal processing of information • Shows little reflection about the work done

Interactive Notebook Rubric

3	<ul style="list-style-type: none"> • Notebook contents are complete, dated, labeled, and organized • Information on right-side and left-side topics correct • Displays superior understanding of content material • Well developed processing assignments that use color and effective diagrams • In-depth reflections about the work done
2	<ul style="list-style-type: none"> • Notebook contents are almost complete, dated, labeled, and organized • Information on right-side and left-side topics are mostly correct • Displays limited concept of understanding of content material • Processing assignments incomplete or lack use of color and effective diagrams • Shows reflection about the work done
1	<ul style="list-style-type: none"> • Notebook contents are incomplete or not dated, labeled, or organized • Notes are Cornell style, with few or no questions • Information on right-side and left-side topics are partially correct • Displays superficial understanding of content materials • Processing assignments show minimal processing of information

The Left Side (In & Out Activities)

The left page demonstrates your understanding of the information from the right side of the page. You work with the input and interact with the information in creative, unique and individual ways. The left side incorporates and reflects how you learn science as well as what you learn in science.



OUTPUT GOES ON THE LEFT SIDE!

Left side items include:

- Brainstorming
- Concept maps
- Riddles
- Your questions
- Pictographs
- Cartoons
- Venn Diagrams
- Data and Graphs you generate
- Analysis writing
- Reflecting writing
- Quick write
- Four square
- Mnemonics
- Significant statements
- Flowchart
- Graphic organizers
- Drawing
- Writing prompts

Things to Know About Left Sides

- Every left side pages gets used
- Always use color . . . It helps the brain learn and organize information
- Quizzes and tests are left side items
- Homework problems are left sides

The Right Side (Through Activities)

The right page is a place where you put all information that we learn in class.



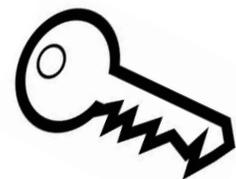
INPUT GOES ON THE RIGHT SIDE!

Right side items include:

- Notes
- Guest speaker Notes
- Vocabulary words and definitions
- Video and film Notes
- Teacher Questions
- Readings
- Sample Problems

Keys to Fantastic Right Sides

- Always start the page with the date and title at the top
- The right side is for writing down information you are given in class
- Use Cornell style notes for lecture, discussion, etc.
- Write up your student questions ASAP
- Write summaries at the bottom of each page of notes to reduce amount you have to study
- Use highlighting and color to make important info stand out



the

Unit Reflection:

At the end of each unit, you will be asked to reflect upon your work. This writing sample begins on the left side of the notebook and continues on the right. While there is no required length, high quality reflection uses 1-2 pages of the notebook. Attach the parent feedback form at the bottom of the right hand page as required.

High Quality Reflection:

Select up to 4 items that represent your best work, 2 from the left side, 2 from the right side. Address the specific reasons why you chose these items as your best work as well as what these assignments reflect about your skills as a scientist/engineer. Please note: Reasoning that it was “fun” or just that you liked it is NOT adequate reflection. Some ideas to consider include:

- What about the left side activities helped you better understand and recall the material?
- How did you use different levels of questions to help you reach a deeper level of understanding?
- What did you learn from the activity (both content-wise and learning-wise)?
- What aspects of the work were high quality and why?
- What you would do differently in the future and why?

Assessment of Skill Set:

High quality reflection also examines your skill as a student. Skills you might discuss are your organization, analysis, logic, creativity, thoroughness, accuracy of information, ability to put new information together, understanding new concepts, etc. What specific study skills have you employed to be successful in this class? What organizational strategies appear in the notebook helped you learn the most? Elaborate.

Assessment of Unit Work as a Whole:

Indicate your overall rating of your notebook based on the rubric. Justify your rating with specific examples. Has your notebook improved from past notebooks? Explain.

Looking to the Future:

What are your goals for improvement in this class? List specific areas in which you feel you need to improve or need help improving. What specific changes would you like to see in this class? Explain.

Dear Parent/Guardian:

This Interactive Notebook represents your student's learning to date and should contain the work your student has completed in science class. Please take some time to look at his or her Interactive Notebook, read the reflection written in the notebook, and respond to any of the following:

The work I found most interesting was _____because...

What does the notebook reveal about your student's learning habits or talents?

My student's biggest concern about this class is...

Parent/Guardian Signature: _____Date:_____

If you have immediate concerns, please feel free to contact me at:

Dear Parent/Guardian:

This Interactive Notebook represents your student's learning to date and should contain the work your student has completed in science class. Please take some time to look at his or her Interactive Notebook, read the reflection written in the notebook, and respond to any of the following:

The work I found most interesting was _____because...

What does the notebook reveal about your student's learning habits or talents?

My student's biggest concern about this class is...

Parent/Guardian Signature: _____Date:_____

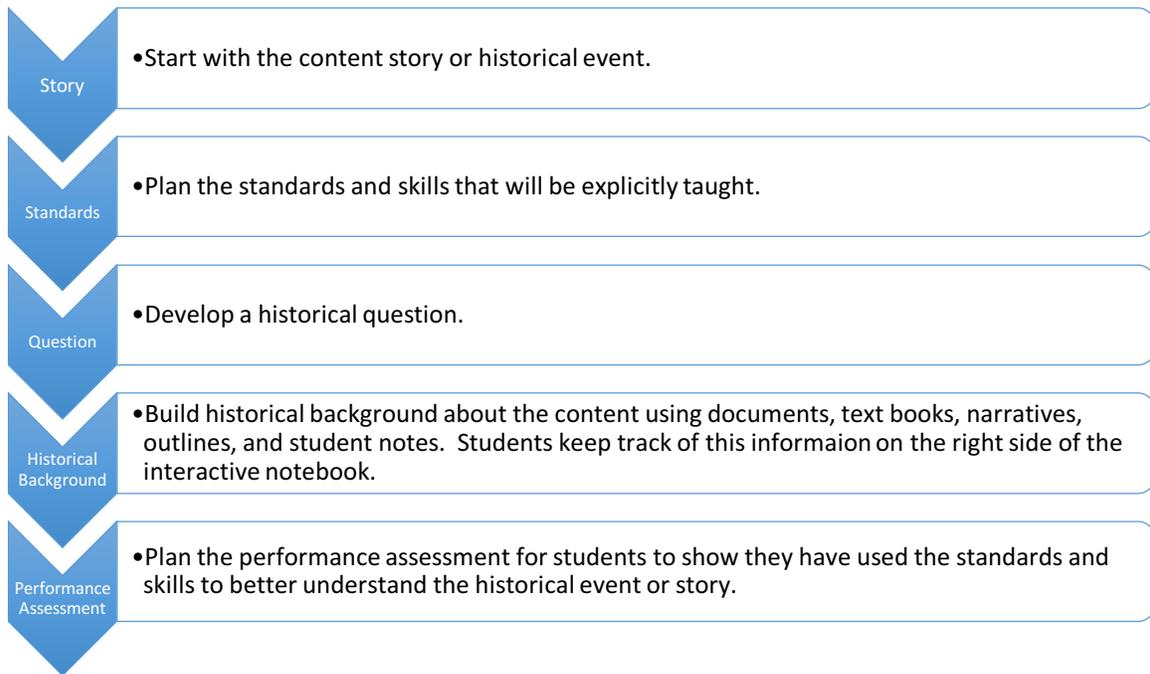
If you have immediate concerns, please feel free to contact me at:

Adult Input Page

To the adult: Completing this page will help your student to have a better understanding of the material learned in class. When a person teaches another, both learn, but the "teacher" often learns much more than the "student." Your student should discuss and teach you a concept covered in class. Please write down one or two sentences explaining what YOU LEARNED from the discussion and tutoring.

Date	What I LEARNED	Adult Signature

Steps to Create an Integrated Social Studies Lesson



Example

1. The story of Betsy Ross and what flags symbolize
2. Standards
 - a. Draw Conclusions
 - b. Social Studies: Basis for the patriotic and citizenship traditions we have today (Flags and Flag Etiquette)
3. What does a flag say about you?
4. Students build background knowledge about flags and Betsy Ross by:
 - a. Reading short passages about Betsy Ross, flags, and flag etiquette.
 - b. Take notes from teacher inputs on the right side of their interactive notebook.
 - c. Distribute photos of different flags and have students in small groups draw conclusions about what they think the colors and symbols mean.
 - d. Use the USA flag and one other flag to teach what the colors and symbols mean on those flags.
5. On the left side of the interactive notebook, have students create a flag using colors and symbols to represent themselves. Have students write a brief description about their flag. Let students view each others flag and draw conclusions about their classmates based on only looking at the flag they created.

Online Resources for Primary Sources

UEN. See image below

<http://onlinelibrary.uen.org/library>

Links to primary and secondary resources including the ones listed above as well as a couple others.

Library of congress

<https://www.loc.gov/>

National database of historical records including primary and secondary sources

Mountain West Digital Library

<http://mwdl.org/>

A central search portal for digital collections about the Mountain West region.

National Archives for Teachers

<http://www.archives.gov/education/>

Activities, tools, and a document search engine for using historical documents in lesson plans.

The screenshot shows the Utah's Online Library website interface. At the top left is the logo for Utah's Online Library, and at the top right is the UEN logo with the text "A SERVICE OF THE UEN UTAH EDUCATION NETWORK WWW.UEN.ORG". Below the logos is a blue and green horizontal bar. The main content area is divided into three columns:

- General Reference Collection:** CultureGrams, Digital Science Online, Digital Science Online - Spanish, EBSCO, eMedia, Gale Kids InfoBits Grades K-6, Gale Research in Context Grades 6-8, Gale Reference Collection Grades 9-12, LearningExpress Library, NoodleTools, Soundzabound, World Book Encyclopedia.
- Utah Collection:** Counties of Utah, Deseret Morning News, Open Educational Resources, Preschool Pioneer, The Salt Lake Tribune, Utah State Archives, Utah Collections Multimedia Encyclopedia, Utah Digital Newspapers, Utah's Local Newspapers.
- Additional Library Resources:** ALA Websites for Kids, DocsTeach, eThemes, **Library of Congress**, **Mountain West Digital Library**, **National Archives**, NROC HippoCampus, Spanish Resources, Thinkfinity.

The items "Library of Congress", "Mountain West Digital Library", and "National Archives" in the "Additional Library Resources" column are highlighted with a red rectangular box.

The Historical Thinking Skills of Sourcing and Corroboration

Sourcing

Sourcing is a skill historians use when they first encounter any type of document to determine who wrote the document, when it was written, as well as the circumstances of its creation.

Importance of Sourcing

Sourcing documents provides students important insights into primary or secondary sources before even reading it. The source of a document can change the entire meaning of what is behind the words, charts, graphs, or political cartoon. Before reading a document, students should ask

- Who wrote this?
- What is the author's perspective?
- Why was it written?
- When was it written?
- Where was it written?
- Is this source Reliable? Why? Why not?

Example



Source:

- Estelle Ishigo watercolor painting, "Home," Heart Mountain, December 1942
- Estelle Ishigo was a European American sent to Heart Mountain Relocation Camp due to her husband's Japanese heritage.

Possible Sourcing Questions about this painting.

1. Who created this painting?
2. Is the Artist a reliable source for what housing was like in the internment camps?
3. Why would this be an accurate depiction of an internment camp?
4. Where was she when this was created? Why is that important?

Corroboration

Corroboration asks students to consider details across multiple sources to determine points of agreement and disagreement. Anytime a student compares different sources that is considered to be corroboration. After reading or viewing two or more documents on the same subject students answer the following questions:

- After reading the first document, what does the other document say?
- Do these documents agree? Why or why not?
- Is one document more reliable than the other document?

Core Standards for Corroboration:

- **4th Grade:**
 - [CCSS.ELA-LITERACY.RI.4.6](#)
Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided
 - [CCSS.ELA-LITERACY.RI.4.9](#)
Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
- **5th Grade:**
 - [CCSS.ELA-LITERACY.RI.5.6](#)
Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
 - [CCSS.ELA-LITERACY.RI.5.9](#)
Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

The 5 E Learning Cycle Model

An Inquiry Approach to Science Learning

Engagement	Object, event or question used to engage students. Connections facilitated between what students know and can do.
Exploration	Objects and phenomena are explored. Hands-on/lab-based activities with guidance.
Explanation	Students explain their understanding of their findings. Teacher elaborates on their findings with explicit instruction.
Elaboration	Activities allow students to apply concepts in context, and build on or extend understanding and skill.
Evaluation	Students assess their knowledge, skills and abilities. Activities permit evaluation of student development and lesson effectiveness.

Engage: Learner has a need to know, therefore, defines questions, issues or problems that relate to his/her world.

Learner	Teacher
Calls upon prior knowledge	Poses problems
Identifies problems to solve, decisions to be made, conflict to be resolved	Ask questions
Writes questions, problems, etc.	Assess prior knowledge

Explore: Learner gathers, organizes, interprets, analyzes, and evaluates data.

Learner	Teacher
Hypothesizes and Predicts	Shows students how to use new tools
Explores resources and materials	Guide students in taking more and more responsibility in investigations
Design and carry out investigations with care	Help design and carry out skills of recording, document, and drawing conclusions
Analyze data and draw conclusions	Help students form tentative explanations

Explain and Clarify: Learner clarifies understandings discovered, reaches conclusions or generalizations and communicates in varying modes and forms.

Learner	Teacher
Express ideas in a variety of ways: Interactive Notebooks	Provides feedback
Share understandings and feedback, while working collaboratively with other students	Explicitly teaches the new content/objective ensure student understanding
Offer explanations	
Tie findings from investigations to material explicitly taught by teacher	

Expand: Learner applies these conclusions or generalizations to solve problems, make decisions, perform tasks, resolve conflicts or make meaning

Learner	Teacher
Applies new knowledge	Provides feedback
Solves problems	Makes open suggestions
Seek further clarification	Asks new questions
Reflect with adults and peers	Ensures student reflection

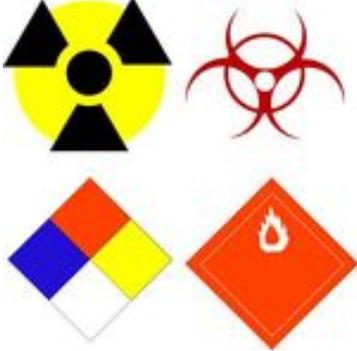
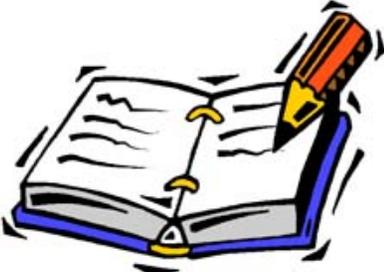
CSD ELEMENTARY LAB REPORT EXPECTATIONS

Introduction	<p>TITLE Appropriately title your lab as per teacher instruction.</p>
	<p>PURPOSE This section should describe the purpose or the problem and be in paragraph form. A purpose should include any research information on the subject. It should also include relevant background information and why the lab activity is important. References should be cited when applicable.</p>
	<p>VARIABLES A variable is anything that you can change in an experiment. Only 1 variable should be changed during an experiment. The rest of the variables should be controlled.</p> <p>For example, if you are trying to determine which amount of fertilizer helps plants grow the tallest, your variable is the amount of fertilizer. The controls would be the amount of water, the type of plants, etc.</p>
	<p>HYPOTHESIS To construct a hypothesis, express what you think will be the effect of the independent variable on the dependent variable. This should be a cause and effect statement like the one below: <i>As the <u>independent variable</u> describe how you change it, the <u>dependent variable</u> will describe the effect.</i></p> <p>Example: As the diameter of a cars tires increase, the maximum speed of the car will decrease.</p>
	<p>PROCEDURE This section should include a short paragraph describing the steps involved in the lab. Steps must be written in sentence form (no lists) and must not contain “we,” “I,” “us,” etc.</p>
Data & Observations	<p>DATA COLLECTION This section should include all data collected. In most cases, data should be presented in a table. Make sure that all column headings include units for all data and calculations. Any qualitative (descriptive) observations should be written in complete sentences.</p> <p>Students should collect enough data to confidently say if their hypothesis is correct or incorrect. If data points are inconsistent (25, 3, 35) students shouldn’t just take an average of those 3 numbers and draw a conclusion. Instead, they should notice that the 3 doesn’t belong, and that they should continue to collect data until they see a pattern. 3 data points usually isn’t enough data to determine an appropriate conclusion.</p>
	<p>DATA & GRAPHS This section should include graphs representing the data set, or graphs representing averages of the data set in a visual format. There are many types of graphs that could be used, such as bar graphs, histograms, scatter plots, line graphs, pie charts, etc. Graphs should have an appropriate title, labeled axes, and display an appropriate scale.</p>
Conclusion	<p>This section of your lab report is the concluding statement of your argument. It should be written in paragraph formatting and include the following:</p> <ul style="list-style-type: none"> • Restatement of the purpose of the lab • A brief account of what you did and how it came out • State whether hypothesis was correct or incorrect <ul style="list-style-type: none"> ○ Use data from the lab to support your claim ○ Describe relationships that were observed • Discuss problems encountered in the experiment if appropriate • List suggestions for further study

ELEMENTARY LAB REPORT RUBRIC

Title	1 Point		0 Points	
	Appropriate title included in report.		No title included in report	
Introduction	3 Points	2 Points	1 Point	0 Points
	Introduction is in paragraph form, describes purpose, gives hypothesis, and shares detailed background information (at least 3 pieces).	Introduction is in paragraph form, describes purpose, and gives hypothesis, but does not provide enough background information.	Introduction is in paragraph form and either describes purpose or give hypothesis.	Introduction shares no relevant information or is not in paragraph form.
Procedure	3 Points	2 Points	1 Point	0 Points
	Steps are in paragraph form and written as full sentences (no listing), and there are no "I" statements.	Steps are in paragraph form and written as full sentences (no listing).	Steps are in paragraph form, but some procedures are listed.	Procedure exists entirely in list form, or lacks specificity.
Data	5 Points	3 Points	1 Point	0 Points
	Data tables and graph are included with all aspects labeled; information graphed is relevant, neat, and concise.	Data tables and graphs are included, but have missing labels, or lack of relevance and neatness.	Data table or graph not included.	No table or graphs included.
Conclusion	3 Points	2 Points	1 Point	0 Points
	Conclusion is in paragraph form with description of hypothesis result, reasons/explanation why results occurred using data points as evidence	Conclusion is in paragraph form with description of hypothesis results, reason results were occurred doesn't include appropriate data points	Conclusion is in paragraph form with description of hypothesis result included.	No appropriate conclusion given.

Science Lab Group Member Responsibilities
Assigned jobs should rotate between members of the lab group

<p>Lead Engineer</p> 	<p>Assistant Engineer</p> 	<p>Safety Manager</p> 	<p>Materials Manager</p> 
<p>Lead Engineer</p> 	<p>Assistant Engineer</p> 	<p>Safety Manager</p> 	<p>Materials Manager</p> 

<p style="text-align: center;">Materials Manager Responsibilities</p> <ul style="list-style-type: none"> • Responsible for the pre-lab check-out and the post-lab check-in of all lab materials • Ensure work area is clean • Appoint team members to help with cleanup when needed 	<p style="text-align: center;">Safety Manager Responsibilities</p> <ul style="list-style-type: none"> • Report any safety incidents or broken lab equipment to teacher • Ensure all group members are following lab safety procedures • Report any group problems to teacher 	<p style="text-align: center;">Assistant Engineer Responsibilities</p> <ul style="list-style-type: none"> • Check lab reports of other group members to ensure completion • Assist with group discussions about lab, hypotheses, processes, results, etc. 	<p style="text-align: center;">Lead Engineer Responsibilities</p> <ul style="list-style-type: none"> • Keep group on-task • Share summary of group work/results with the class • Guide group members to arrive at appropriate conclusion based on lab hypothesis, processes, results, etc.
<p style="text-align: center;">Materials Manager Responsibilities</p> <ul style="list-style-type: none"> • Responsible for the pre-lab check-out and the post-lab check-in of all lab materials • Ensure work area is clean • Appoint team members to help with cleanup when needed 	<p style="text-align: center;">Safety Manager Responsibilities</p> <ul style="list-style-type: none"> • Report any safety incidents or broken lab equipment to teacher • Ensure all group members are following lab safety procedures • Report any group problems to teacher 	<p style="text-align: center;">Assistant Engineer Responsibilities</p> <ul style="list-style-type: none"> • Check lab reports of other group members to ensure completion • Assist with group discussions about lab, hypotheses, processes, results, etc. 	<p style="text-align: center;">Lead Engineer Responsibilities</p> <ul style="list-style-type: none"> • Keep group on-task • Share summary of group work/results with the class • Guide group members to arrive at appropriate conclusion based on lab hypothesis, processes, results, etc.

Standards-Based Reporting



I-CANYONS
STUDENTS REPORTS

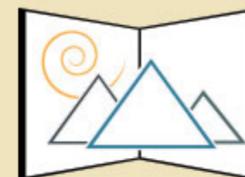
PRACTICE

PROGRESS

ACHIEVE

4th

Grade



CANYONS
School District

TABLE OF CONTENTS

Introduction	page 2
Report Card	pages 3-4
How to Mark the Report Card	page 5
Learning Skills Rubric	pages 6-7
Standards Based Reporting Teacher Resource Guide	page 8
Canvas Course Access Elementary Standards Based	page 9
Grading 15 Fixes for Broken Grades	page 10
Hashtag Guidelines	page 11
ELA Standards	pages 12-14
ELA Progressions	pages 15-23
Math Standards	page 24
Math Progressions Standards	pages 25-38

Purpose of the I-CANyons Student Reports

The purpose is to communicate with parents and students about academic achievements, process of learning, and rate of progress. It is intended to inform students and parents or guardians about learning successes and to guide improvements when needed.

This report card is designed to communicate:

- Growth over time toward on grade level standards in language arts and math
- Mastery of academic standards in language arts and math
- Learning Skills that support academic success

The report card will consist of standards that students will be taught over the course of the school year and expected to master. Not all standards will be reported, only standards that are critical for communication with parents. Mastery can be achieved at any point during the school year.

Students will demonstrate their application of skills and understanding through class assessments, assignments, and projects.

Mastery of the standards is achieved when students demonstrate acquisition and application of knowledge and skills consistently over time to support future learning. A focus on mastery increases the likelihood of all students meeting high learning expectations.



Student Information

Student Name: **REPORT TEST**
 Student ID: 9999999
 Academic Year: 2016-17
 Grade: 04

I-CANyons Student Reports

2016 - 2017

School Information

School: ELEMENTARY
 Principal: PRINCIPAL
 Phone #: (801) 555-5555
 Teacher: Teacher

Attendance

	PR1	PR2	EYS
Days in Term	0	0	0
Absent	0	0	0
Tardy	0	0	0

Key

PR1 : Progress Report 1
 PR2 : Progress Report 2
 EYS : End of Year Summary

Learning Skills Legend

C = Consistently U = Usually S = Sometimes R = Rarely

Learning Skills

- Actively engaged in learning
- Respects rights, opinions, and property of others
- Cooperates with others
- Follows rules and procedures
- Completes tasks on time
- Works well independently
- Listens

PR1 PR2 EYS

	PR1	PR2	EYS

Parent Information

This Report Card is designed to communicate:

- Mastery of academic standards in language arts, math and science;
- Learning skills that support academic success; and
- Growth over time on grade-level benchmarks in reading and math.

Mastery of the standards is achieved when students demonstrate that they can apply acquired knowledge and skills consistently over time to support future learning.

Students will demonstrate their application of skills and understanding through class assessments, assignments, projects and other indicators.

On the back page of this Report Card you will find the standards students will be taught and expected to master by the end of the year. Your child's progress toward mastery will be reported in November and March. The end of year summary in June will report if mastery has been achieved.

Clarifying Remarks (optional)

PR1 Comments

Progress Report 1 (PR1) & Progress Report 2 (PR2)

3 : On Track at this Time - Student is on track to master this standard by the end of the school year.

2 : Progressing - Student is making progress toward meeting the standard at this time; sometimes demonstrating skills needed to meet standards, at other times showing a lack of understanding or ability to apply the concept or skills.

1 : Insufficient Progress - Student is showing risk of not mastering the standard by the end of the year and is receiving intervention support.

* : Early Mastery - Student has already mastered this standard and is receiving support to extend learning.

Year End Summary (EYS)

3M : Mastered - Student has mastered this standard.

2NYM : Not Yet Mastered - Student has mastered some but not all of the skills necessary to consistently apply this standard to future learning.

1NYM : Not Yet Mastered - Student will require on-going intervention to master this standard.

Additional Information

: Modified Standard - Please see the attached report for additional information.

Blank : Not Yet Assessed

Language Arts



PR1 PR2 EYS

Speaking and Listening: I can...

- Engage effectively in conversations by coming prepared, following discussion rules, building upon other's ideas, asking for clarification, and summarizing key ideas

--	--	--

Reading Literature and Informational Texts: I can...

- Ask and answer questions to demonstrate understanding referring to the text and drawing inferences
- Identify and summarize the main idea and key details
- Recognize the structure (e.g., sequence, dialogue, charts)
- Compare and contrast point of view

Foundational Skills: I can...

- Recognize and apply grade-level phonics in multisyllable words

--	--	--

- Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension

--	--	--

Writing: I can...

- Write opinion pieces using organized reasons supported by facts and details
- Write informational texts to convey ideas with supporting details, quotations, and specific vocabulary
- Write narrative text to develop real or imagined experiences with a well-developed conclusion
- Use technology to produce and publish writing

Language: I can...

- Use grammar skills when writing or speaking
- Apply grade level spelling when writing
- Use context clues, affixes, and roots to determine the meaning of vocabulary words and phrases

Mathematics



PR1 PR2 EYS

Operation and Algebraic Thinking: I can...

- Solve multi-step word problems using the four operations
- Create and analyze patterns

--	--	--

Numbers and Operations Base Ten: I can...

- Identify the power of ten in place value
- Read, write, and compare multi-digit numbers
- Fluently add multi-digit whole numbers
- Fluently subtract multi-digit whole numbers
- Illustrate and multiply whole numbers up to four digits
- Illustrate and divide whole numbers up to four digits

Numbers and Operations - Fractions: I can...

- Identify and create equivalent fractions
- Compare fractions
- Add and subtract fractions with common denominators
- Solve word problems with fractions using addition and subtraction
- Multiply fractions by a whole number
- Understand fraction and decimal relationships

Measurement and Data: I can...

- Know and use measurement conversions
- Apply the area and perimeter formulas
- Make line plots and use them to solve addition and subtraction problems
- Understand and measure angles

Geometry: I can...

- Draw and identify lines and angles
- Classify 2D shapes by their properties

--	--	--

Science



PR1 PR2 EYS

Physical Science: I can...

- Describe the relationship between heat energy, evaporation and condensation of water on Earth through the water cycle

--	--	--

Life Science: I can...

- Identify the characteristics of Utah's wetlands, forests, and deserts and common organisms for each

--	--	--

Earth Science: I can...

- Describe, observe, measure, and record weather and use data to predict weather patterns
- Explain the properties of rocks, the processes involved in the formation of soils, and the needs of plants provided by soil
- Explain how fossils are formed, where they may be found in Utah, and how they can be used to make inferences

Progress Report 1 (PR1) & Progress Report 2 (PR2)

3 : On Track at this Time - Student is on track to master this standard by the end of the school year.

2 : Progressing - Student is making progress toward meeting the standard at this time; sometimes demonstrating skills needed to meet standards, at other times showing a lack of understanding or ability to apply the concept or skills.

1 : Insufficient Progress - Student is showing risk of not mastering the standard by the end of the year and is receiving intervention support.

* : Early Mastery - Student has already mastered this standard and is receiving support to extend learning.

Year End Summary (EYS)

3M : Mastered - Student has mastered this standard.

2NYM : Not Yet Mastered - Student has mastered some but not all of the skills necessary to consistently apply this standard to future learning.

1NYM : Not Yet Mastered - Student will require on-going intervention to master this standard.

Additional Information

: Modified Standard - Please see the attached report for additional information.

Blank : Not Yet Assessed

Language Arts 

PR1 PR2 EYS

Speaking and Listening: I can...

- Engage effectively in conversations by coming prepared, following discussion rules, building upon other's ideas, asking for clarification, and summarizing key ideas

✓	✓	✓
---	---	---

Reading Literature and Informational Texts: I can...

- Ask and answer questions to demonstrate understanding referring to the text and drawing inferences
- Identify and summarize the main idea and key details
- Recognize the structure (e.g., sequence, dialogue, charts)
- Compare and contrast point of view

✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓

Foundational Skills: I can...

- Recognize and apply grade-level phonics in multisyllable words

✓	✓	✓
---	---	---

- Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension

✓	✓	✓
---	---	---

Writing: I can...

- Write opinion pieces using organized reasons supported by facts and details
- Write informational texts to convey ideas with supporting details, quotations, and specific vocabulary
- Write narrative text to develop real or imagined experiences with a well-developed conclusion
- Use technology to produce and publish writing

✓	✓	✓
	✓	✓
✓	✓	✓
✓	✓	✓

Language: I can...

- Use grammar skills when writing or speaking
- Apply grade level spelling when writing
- Use context clues, affixes, and roots to determine the meaning of vocabulary words and phrases

✓	✓	✓
✓	✓	✓
✓	✓	✓

Mathematics 

PR1 PR2 EYS

Operation and Algebraic Thinking: I can...

- Solve multi-step word problems using the four operations
- Create and analyze patterns

	✓	✓
		✓

Numbers and Operations Base Ten: I can...

- Identify the power of ten in place value
- Read, write, and compare multi-digit numbers
- Fluently add multi-digit whole numbers
- Fluently subtract multi-digit whole numbers
- Illustrate and multiply whole numbers up to four digits
- Illustrate and divide whole numbers up to four digits

✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
	✓	✓

Numbers and Operations - Fractions: I can...

- Identify and create equivalent fractions
- Compare fractions
- Add and subtract fractions with common denominators
- Solve word problems with fractions using addition and subtraction
- Multiply fractions by a whole number
- Understand fraction and decimal relationships

	✓	✓
	✓	✓
	✓	✓
	✓	✓
		✓
		✓

Measurement and Data: I can...

- Know and use measurement conversions
- Apply the area and perimeter formulas
- Make line plots and use them to solve addition and subtraction problems
- Understand and measure angles

		✓
		✓
		✓

Geometry: I can...

- Draw and identify lines and angles
- Classify 2D shapes by their properties

		✓
		✓

Science 

PR1 PR2 EYS

Physical Science: I can...

- Describe the relationship between heat energy, evaporation and condensation of water on Earth through the water cycle

--	--	--

Life Science: I can...

- Identify the characteristics of Utah's wetlands, forests, and deserts and common organisms for each environment

--	--	--

Earth Science: I can...

- Describe, observe, measure, and record weather and use data to predict weather patterns
- Explain the properties of rocks, the processes involved in the formation of soils, and the needs of plants provided by soil
- Explain how fossils are formed, where they may be found in Utah, and how they can be used to make inferences

How to Mark the Report Card:

Yellow boxes indicate caution. The standard may not be ready to be assessed.

Checkmarks indicate standards are ready to be assessed and marked.

Learning Skills Rubric

Indicator	Consistently	Usually	Sometimes	Rarely
Actively engaged in learning	<p>≥95% of the time, the student can:</p> <ul style="list-style-type: none"> Participate interactively (saying, writing, doing) Show attention by listening (see below) and reacting appropriately 	<p>≥80% of the time, the student can:</p> <ul style="list-style-type: none"> Participate interactively (saying, writing, doing) Show attention by listening (see below) and reacting appropriately 	<p>≥60% of the time, the student can:</p> <ul style="list-style-type: none"> Participate interactively (saying, writing, doing) Show attention by listening (see below) and reacting appropriately 	<p>≤59% of the time, the student can:</p> <ul style="list-style-type: none"> Participate interactively (saying, writing, doing) Show attention by listening (see below) and reacting appropriately
Respects rights, opinions, and property of others	<p>≥95% of the time, the student can:</p> <ul style="list-style-type: none"> Keep my hands and feet to myself Be polite Value others' opinions Use materials appropriately 	<p>≥80% of the time, the student can:</p> <ul style="list-style-type: none"> Keep my hands and feet to myself Be polite Value others' opinions Use materials appropriately 	<p>≥60% of the time, the student can:</p> <ul style="list-style-type: none"> Keep my hands and feet to myself Be polite Value others' opinions Use materials appropriately 	<p>≤59% of the time, the student can:</p> <ul style="list-style-type: none"> Keep my hands and feet to myself Be polite Value others' opinions Use materials appropriately
Cooperates with others	<p>≥95% of the time, the student can:</p> <ul style="list-style-type: none"> Work together in a positive manner for a common purpose Compromise when needed to benefit the task Seek input from others to understand their point of view (e.g., taking turns, sharing, asking questions, listening to the response) 	<p>≥80% of the time, the student can:</p> <ul style="list-style-type: none"> Work together in a positive manner for a common purpose Compromise when needed to benefit the task Seek input from others to understand their point of view (e.g., taking turns, asking questions, listening to the response) 	<p>≥60% of the time, the student can:</p> <ul style="list-style-type: none"> Work together in a positive manner for a common purpose Compromise when needed to benefit the task Seek input from others to understand their point of view (e.g., taking turns, asking questions, listening to the response) 	<p>≤59% of the time, the student can:</p> <ul style="list-style-type: none"> Work together in a positive manner for a common purpose Compromise when needed to benefit the task Seek input from others to understand their point of view (e.g., taking turns, asking questions, listening to the response)
Follows rules and procedures	<p>≥95% of the time, the student can follow:</p> <ul style="list-style-type: none"> Directions the first time given 	<p>≥80% of the time, the student can follow:</p> <ul style="list-style-type: none"> Directions the first time given 	<p>≥60% of the time, the student can follow:</p> <ul style="list-style-type: none"> Directions the first time given 	<p>≤59% of the time, the student can follow:</p> <ul style="list-style-type: none"> Directions the first time given

Learning Skills Rubric

	<ul style="list-style-type: none"> • <i>Class rules</i> • <i>School rules</i> 	<ul style="list-style-type: none"> • <i>Class rules</i> • <i>School rules</i> 	<ul style="list-style-type: none"> • <i>Class rules</i> • <i>School rules</i> 	<ul style="list-style-type: none"> • <i>Class rules</i> • <i>School rules</i>
Indicator	Consistently	Usually	Sometimes	Rarely
Completes tasks on time	<p>≥95% of the time, the student can complete in a timely manner:</p> <ul style="list-style-type: none"> • <i>Assignments</i> • <i>Classroom activities</i> • <i>Homework</i> 	<p>≥80% of the time, the student can complete in a timely manner:</p> <ul style="list-style-type: none"> • <i>Assignments</i> • <i>Classroom activities</i> • <i>Homework</i> 	<p>≥60% of the time, the student can complete in a timely manner:</p> <ul style="list-style-type: none"> • <i>Assignments</i> • <i>Classroom activities</i> • <i>Homework</i> 	<p>≤59% of the time, the student/ can complete in a timely manner:</p> <ul style="list-style-type: none"> • <i>Assignments</i> • <i>Classroom activities</i> • <i>Homework</i>
Works well independently	<p>≥95% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Self monitor for understanding.</i> • <i>Ask for help when needed.</i> • <i>Work on my own, undistracted</i> 	<p>≥80% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Self monitor for understanding.</i> • <i>Clarify assignment, if needed.</i> • <i>Work on my own, undistracted</i> 	<p>≥60% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Self monitor for understanding.</i> • <i>Clarify assignment, if needed.</i> • <i>Work on my own, undistracted</i> 	<p>≤59% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Self monitor for understanding.</i> • <i>Clarify assignment, if needed.</i> • <i>Work on my own, undistracted</i>
Listens	<p>≥95% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Sit up</i> • <i>Lean forward</i> • <i>Act interested/ask questions</i> • <i>Nod/note taking</i> • <i>Track the speaker with your eyes</i> 	<p>≥80% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Sit up</i> • <i>Lean forward</i> • <i>Act interested/ask questions</i> • <i>Nod/note taking</i> • <i>Track the speaker with your eyes</i> 	<p>≥60% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Sit up</i> • <i>Lean forward</i> • <i>Act interested/ask questions</i> • <i>Nod/note taking</i> • <i>Track the speaker with your eyes</i> 	<p>≤59% of the time, I can:</p> <ul style="list-style-type: none"> • <i>Sit up</i> • <i>Lean forward</i> • <i>Act interested/ask questions</i> • <i>Nod/note taking</i> • <i>Track the speaker with your eyes</i>

Standards Based Reporting Teacher Resource Guide

There are a variety of resources available to elementary teachers to support Standards Based Grading. Each document provides ease in monitoring student achievement.

<p>Reading Street Standards Alignment Document:</p> <ul style="list-style-type: none"> Alignment of report card standards with skill description for weekly and unit assessments Identifies the number of test questions used to assess the skill. Details the alignment of test question(s) with the skill and standard. 	<p style="text-align: center;">Weekly Test Item Analysis—Grade 3</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>TEST</th> <th>SECTION</th> <th>ITEMS</th> <th>SKILL</th> <th>COMMON CORE STATE STANDARD</th> </tr> </thead> <tbody> <tr> <td rowspan="5" style="writing-mode: vertical-rl; transform: rotate(180deg);">Weekly Test 9</td> <td>Vocabulary</td> <td>1–7</td> <td>Understand and use new vocabulary</td> <td>Language 4.a.</td> </tr> <tr> <td>Phonics</td> <td>8–12</td> <td>Consonant blends (<i>squ, spl, thr, str</i>)</td> <td>Foundational Skills 3.</td> </tr> <tr> <td rowspan="3">Comprehension</td> <td>13–15, 19, 20</td> <td>Ⓒ Author's purpose</td> <td>Informational Text 6.</td> </tr> <tr> <td>16, 18</td> <td>Fact and opinion, Generalize</td> <td>Informational Text 1.</td> </tr> <tr> <td>17</td> <td>Ⓓ Compare and contrast</td> <td>Informational Text 6.</td> </tr> <tr> <td>Written Response</td> <td>Look Back and Write</td> <td>Respond to literature</td> <td>Literature 3. (Also Literature 1., Writing 4., 5., 10., Language 1., 2.)</td> </tr> </tbody> </table>	TEST	SECTION	ITEMS	SKILL	COMMON CORE STATE STANDARD	Weekly Test 9	Vocabulary	1–7	Understand and use new vocabulary	Language 4.a.	Phonics	8–12	Consonant blends (<i>squ, spl, thr, str</i>)	Foundational Skills 3.	Comprehension	13–15, 19, 20	Ⓒ Author's purpose	Informational Text 6.	16, 18	Fact and opinion, Generalize	Informational Text 1.	17	Ⓓ Compare and contrast	Informational Text 6.	Written Response	Look Back and Write	Respond to literature	Literature 3. (Also Literature 1., Writing 4., 5., 10., Language 1., 2.)
TEST	SECTION	ITEMS	SKILL	COMMON CORE STATE STANDARD																									
Weekly Test 9	Vocabulary	1–7	Understand and use new vocabulary	Language 4.a.																									
	Phonics	8–12	Consonant blends (<i>squ, spl, thr, str</i>)	Foundational Skills 3.																									
	Comprehension	13–15, 19, 20	Ⓒ Author's purpose	Informational Text 6.																									
		16, 18	Fact and opinion, Generalize	Informational Text 1.																									
		17	Ⓓ Compare and contrast	Informational Text 6.																									
Written Response	Look Back and Write	Respond to literature	Literature 3. (Also Literature 1., Writing 4., 5., 10., Language 1., 2.)																										
<p>envision 2.0 Standard Alignment Document:</p> <ul style="list-style-type: none"> Alignment of report card standards with topics. Details the alignment of test question(s) with the skill and standard. Connections are identified Topic-Lesson (ie. 13-3 =Topic 13-Lesson 3) 	<p style="text-align: center;">3rd Grade Math District-Wide Standards-Based Benchmark</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">Operations & Algebraic Thinking</th> <th>Description</th> <th># of items</th> <th>Questions</th> </tr> </thead> <tbody> <tr> <td>Understand and represent multiplication (3.OA.1,3,4,5) (1.NBT.3)</td> <td>1</td> <td>14</td> </tr> <tr> <td>Understand and represent division (3.OA.2-6)</td> <td></td> <td></td> </tr> <tr> <td>Fluently multiply two one-digit numbers within 100 (3.OA.7)</td> <td></td> <td></td> </tr> <tr> <td>Fluently divide two one-digit numbers within 100 (3.OA.7)</td> <td>1</td> <td>15</td> </tr> <tr> <td>Solve two-step word problems involving addition and subtraction (3.OA.8 & 9)</td> <td></td> <td></td> </tr> <tr> <td>Solve two-step word problems involving addition and subtraction (3.OA.8 & 9)</td> <td></td> <td></td> </tr> </tbody> </table>	Operations & Algebraic Thinking	Description	# of items	Questions	Understand and represent multiplication (3.OA.1,3,4,5) (1.NBT.3)	1	14	Understand and represent division (3.OA.2-6)			Fluently multiply two one-digit numbers within 100 (3.OA.7)			Fluently divide two one-digit numbers within 100 (3.OA.7)	1	15	Solve two-step word problems involving addition and subtraction (3.OA.8 & 9)			Solve two-step word problems involving addition and subtraction (3.OA.8 & 9)								
Operations & Algebraic Thinking	Description		# of items	Questions																									
	Understand and represent multiplication (3.OA.1,3,4,5) (1.NBT.3)	1	14																										
Understand and represent division (3.OA.2-6)																													
Fluently multiply two one-digit numbers within 100 (3.OA.7)																													
Fluently divide two one-digit numbers within 100 (3.OA.7)	1	15																											
Solve two-step word problems involving addition and subtraction (3.OA.8 & 9)																													
Solve two-step word problems involving addition and subtraction (3.OA.8 & 9)																													
<p>Marking a Report Card:</p> <ul style="list-style-type: none"> Aligned to standards & skills in curriculum maps. Yellow boxes indicate caution; the standards may not be ready to be assessed. Checkmarks indicate standards that are ready to be assessed and marked. 	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">Mathematics</p> <p style="text-align: center;">PR1 PR2 EYS</p> <p>Operation and Algebraic Thinking: I can...</p> <ul style="list-style-type: none"> - Understand and represent multiplication - Understand and represent division - Fluently multiply two one-digit numbers within 100 - Fluently divide two one-digit numbers within 100 - Solve two-step word problems using addition and subtraction - Solve two-step word problems using multiplication and division <p>Numbers and Operations Base Ten: I can...</p> <ul style="list-style-type: none"> - Fluently add within 1000 - Fluently subtract within 1000 - Multiply numbers by multiples of 10 </div> <div style="width: 45%;"> <p>Numbers and Operations - Fractions: I can...</p> <ul style="list-style-type: none"> - Understand and represent that a fraction is part of a whole - Understand and represent fractions on a number line - Understand equivalent fractions - Compare fractions <p>Measurement and Data: I can...</p> <ul style="list-style-type: none"> - Solve problems involving time intervals to the nearest minute - Solve problems involving volume and mass - Generate, represent, and interpret data using scaled graphs and line plots - Understand and apply area and perimeter <p>Geometry: I can...</p> <ul style="list-style-type: none"> - Understand quadrilaterals and their attributes - Divide shapes into equal areas </div> </div>																												
<p>Progressions ELA & Math:</p> <ul style="list-style-type: none"> Demonstrates the progression of specific standards over the course of the school year. Mark a 3 on the report card if the student is on track to master the skill and standard at this time. Mark 3* for early mastery. 	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9ead3;"> <th colspan="4">Numbers and Operations Base Ten</th> </tr> <tr> <th>Standard</th> <th>Term 1</th> <th>Term 2</th> <th>Term 3</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;"> Fluently add within 1000 3.NBT.2 </td> <td style="text-align: left;"> • Fluently add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. </td> <td style="text-align: left;"> • Maintain mastery of Term 1 skills and standards. </td> <td style="text-align: left;"> • Maintain mastery of Term 1 and Term 2 skills and standards. </td> </tr> </tbody> </table>	Numbers and Operations Base Ten				Standard	Term 1	Term 2	Term 3	Fluently add within 1000 3.NBT.2	• Fluently add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	• Maintain mastery of Term 1 skills and standards.	• Maintain mastery of Term 1 and Term 2 skills and standards.																
Numbers and Operations Base Ten																													
Standard	Term 1	Term 2	Term 3																										
Fluently add within 1000 3.NBT.2	• Fluently add within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	• Maintain mastery of Term 1 skills and standards.	• Maintain mastery of Term 1 and Term 2 skills and standards.																										

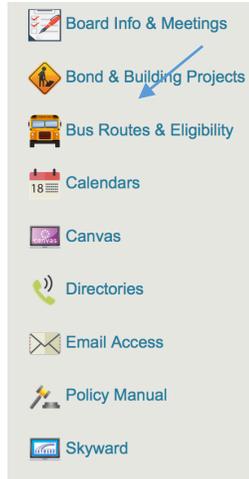
Canvas Course Access Elementary Standards Based Grading

Log into Canvas: <https://canyons.instructure.com>

District Home Page:

Please request to be added to the course through your school Ed Tech or email Monica.Lewis@canyonsdistrict.org

Login: CSD email username and password



Course Contents

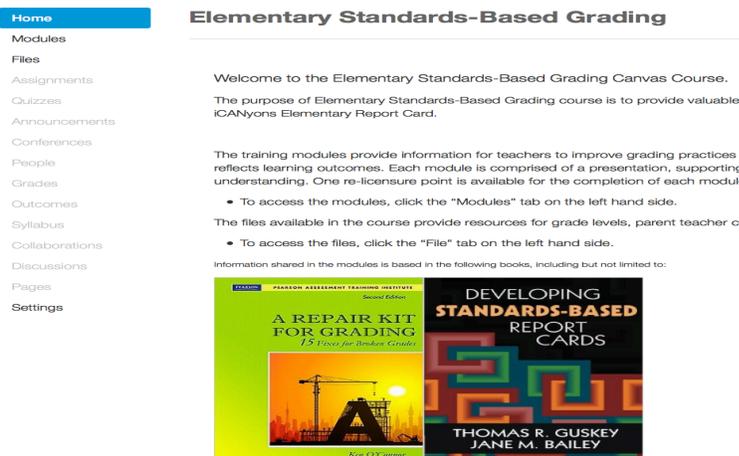
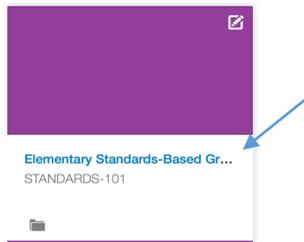
Modules:

- Each module aligns with the *Repair Kit for Grading, 15 Fixes for Broken Grades*.
- Provides teachers with professional development to better understand standards based grading and practices.
- Assignments are aligned with each module (optional). Upon completion 1 licensure point will be awarded.

Files:

- **Grade Level Folders**
 - Report Card
 - Supporting documents for ELA/Math details the alignment of assessment question(s) with the skill and standard.
 - Document detailing how to mark report card.
- **Parent Teacher Conference Resources**
 - SEP agendas
- **Technology Supports**
 - Skyward guides
- **Special Education Documents**
- **Mastery Training Documents**

Elementary Standards Based Grading Course



15 Fixes for Broken Grades

Fixes that Distort Achievement

1. Don't include student behaviors in grades; include only achievement (effort, participation, adherence to class rules, etc.).
2. Don't reduce marks on "work" submitted late; provide support the learner.
3. Don't give points for extra credit or use bonus points; seek only evidence that more work has resulted in a higher level of achievement.
4. Don't punish academic dishonesty with reduced grades; apply other consequences and reassess to determine actual level of achievement.
5. Don't consider attendance in grade determination; report absences separately.
6. Don't include group scores in grades; use only individual achievement.

Fixes for Low-Quality or Poorly Organized Evidence

7. Don't organize information in grading records by assessment methods or simply summarize into a single grade; organize and report evidence by standards/learning goals.
8. Don't assign grades using inappropriate or unclear performance standards; provide clear descriptions of achievement expectations.
9. Don't assign grades based on student's achievement compared to other students; compare each students' performance to present students.
10. Don't rely on evidence gathered using assessments that fail to meet standards of quality; rely only on quality assessments.

Fixes for Inappropriate Grade Calculation

11. Don't rely only on the mean; consider other measures such as median or mode and use professional judgment.
12. Don't include zeros in grade determination when evidence is missing or as punishment; use alternatives, such as reassessing to determine real achievement or use "I" for Incomplete or Insufficient Evidence.

Fixes to Support Learning

13. Don't use "checks for understanding" or practice (homework) to determine grades; use only evidence that demonstrates mastery.
14. Don't summarize evidence accumulated over time when learning is developmental and will grow with time and repeated opportunities; in those instances emphasize more recent achievement.
15. Don't leave students out of the grading process. Involve students; they can—and should—play key roles in assessment and grading that promote achievement.



Guidelines for using the *hashtag* on the Report Card

- The only standards with a *hashtag* are those in which learning opportunities are **modified** for a student.
 - ✓ The standards should align with the student's IEP
- General Education and Special Education teachers must discuss the standards represented with the *hashtag*.
- Student achievement towards standards marked a **3-On Track at this Time** or **3M-Mastered** will not have a *hashtag*. Mastery of a standard is accomplished without curriculum modifications.
- Teachers should meet with parents to explain the use of the *hashtag* to ensure information communicated to the parents.
 - ✓ Explain the modification being made to the standard (i.e. different level of work, modified curriculum, modified standard).
 - ✓ The Special Education Teacher should provide connections to the IEP progress report.

Accommodation	Modification
Accommodations are: <ul style="list-style-type: none">• adaptations in how a student accesses information and demonstrates learning• provided to give students equal access to learning opportunities to demonstrate knowledge	Modifications are: <ul style="list-style-type: none">• adaptations to a curriculum that may alter the grade-level expectations, but does not alter content standards.• changes to instructional level, performance criteria, and/or curriculum.
Example: A student is provided extended time to complete assignments or assessments.	Example: A third grade student receives reading instruction on a first grade reading level.

4th Grade I-CANyons Report Card Standards

Speaking and Listening

- Engage effectively in conversations by coming prepared, following discussion rules, building upon other's ideas, asking for clarification, and summarize key ideas SL.4.1

Reading Literature and Informational Texts:

- Ask and answer questions to demonstrate understanding referring to the text and drawing inferences RL.4.1, RI.4.1, SL.4.3
- Identify and summarize the main idea and key details RL.4.2, RI.4.2, SL.4.2
- Recognize the structure (e.g., sequence, dialogue, charts) RL.4.3, RL.4.5, RL.4.7, RI.4.3, RI.4.5, RI.4.7
- Compare and contrast point of view RL.4.6, RI.4.6

Foundational Skills:

- Recognize and apply grade-level phonics in multisyllable words RF.4.3
- Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension RF.4.4, RL.4.10, RI.4.10

Writing

- Write opinion pieces using organized reasons supported by facts and details W.4.1
- Write informational texts to convey ideas with supporting details, quotations, and specific vocabulary W.4.2, W.4.7, RI.4.9, L.4.3
- Write narrative text to develop real or imagined experiences with a well-developed conclusion W.4.3, RL.4.9, L.4.6
- Use technology to produce and publish writing W.4.6, W.4.8

Language

- Use grammar skills when writing or speaking L.4.1, L.4.2
- Apply grade level spelling when writing L.4.2.d
- Use context clues, affixes, and roots to determine the meaning of vocabulary words and phrases L.4.4, R.L.4.4, R.I.4.4

4th Grade SuccessNet Skill Alignment to the I-CANyons Report Card Standards

Category	I-CANyons Report Card Standard	SuccessNet Skill Alignment
Speaking and Listening	Engage effectively in conversations by coming prepared, following discussion rules, building upon other’s ideas, asking for clarification, and summarize key ideas SL.4.1	N/A
Reading Literature and Informational Texts	Ask and answer questions to demonstrate understanding referring to the text and drawing inferences RL.4.1, RI.4.1, SL.4.3	<ul style="list-style-type: none"> • Draw Conclusions • Fact and Opinion • Generalize
	Identify and summarize the main idea and key details RL.4.2, RI.4.2, SL.4.2	<ul style="list-style-type: none"> • Main Idea and Details • Theme
	Recognize the structure (e.g., sequence, dialogue, charts) RL.4.3, RL.4.5, RL.4.7, RI.4.3, RI.4.5, RI.4.7	<ul style="list-style-type: none"> • Cause and Effect • Character • Plot • Sequence • Setting • Graphic Sources • Compare and Contrast
	Compare and contrast point of view RL.4.6, RI.4.6	<ul style="list-style-type: none"> • Author’s Purpose
Foundational Skills	Recognize and apply grade-level phonics in multisyllable words RF.4.3	<ul style="list-style-type: none"> • Prefixes • Suffixes
	Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension RF.4.4, RL.4.10, RI.4.10	N/A
Writing	Write opinion pieces using organized reasons supported by facts and details W.4.1	N/A
	Write informational texts to convey ideas with supporting details, quotations, and specific vocabulary W.4.2, W.4.7, RI.4.9, L.4.3	N/A
	Write narrative text to develop real or imagined experiences with a well-developed conclusion W.4.3, RL.4.9, L.4.6	N/A
	Use technology to produce and publish writing W.4.6, W.4.8	N/A

Language	Use grammar skills when writing or speaking L.4.1, L.4.2	<ul style="list-style-type: none"> • Adjectives • Articles • Adverbs • Capitalization • Commas • Contractions and Negatives • Nouns • Prepositions • Pronouns • Antecedents • Quotations • Sentences • Conjunctions • Subject Verb Agreement • Subjects and Predicates • Verbs
	Apply grade level spelling when writing L.4.2.d	N/A
	Use context clues, affixes, and roots to determine the meaning of vocabulary words and phrases L.4.4, R.L.4.4, R.I.4.4	<ul style="list-style-type: none"> • Antonyms • Homographs • Synonyms • Root Words • Latin Roots • Prefixes and Suffixes • Related Words • Compound Words • Word Endings • Word Origins • Words, Unknown • Words, Unfamiliar • Words, Multiple Meaning

4th Grade ELA Progression

Mark a 3 on the report card
for the given term if the student shows mastery of the listed skills and standards.

Speaking and Listening			
Standard	Term 1	Term 2 Assess standards below while maintaining Term 1 skills and standards	Term 3 Assess standards below while maintaining Term 1 & 2 skills and standards
Engage effectively in conversations by coming prepared, following discussion rules, building upon other's ideas, asking for clarification, and summarize key ideas SL.4.1	<ul style="list-style-type: none">• Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.• Follow agreed-upon rules for discussions and carry out assigned roles.	<ul style="list-style-type: none">• Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.	<ul style="list-style-type: none">• Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

Reading Literature and Informational Skills

Standard	Term 1	Term 2 Assess standards below while maintaining Term 1 skills and standards	Term 3 Assess standards below while maintaining Term 1 & 2 skills and standards
<p>Ask and answer questions to demonstrate understanding referring to the text and drawing inferences</p> <p>RL.4.1, RI.4.1, SL.4.3</p>	<p>To determine mastery on the reading literature and informational text standards, consider the amount of scaffolding the student requires.</p> <ul style="list-style-type: none"> • If a student requires significant teacher and/or peer support to read and comprehend a grade-level text within the appropriate text complexity band, then the student would achieve a 1. • If a student is inconsistent in their skills and at times requires teacher or peer prompting or support at to read and comprehend a grade-level text within the appropriate text complexity band, then the student would achieve a 2. • If a student is able to read and comprehend grade-level text within the appropriate text complexity band and requires no support to do so, then the student would achieve a 3. 		
<p>Identify and summarize the main idea and key details</p> <p>RL.4.2, RI.4.2, SL.4.2</p>			
<p>Recognize the structure (e.g., sequence, dialogue, charts)</p> <p>RL.4.3, RL.4.5, RL.4.7, RI.4.3, RI.4.5, RI.4.7</p>			

<p>Compare and contrast point of view</p> <p>RL.4.6, RI.4.6</p>	
--	--

Foundational Skills

Standard	Term 1	Term 2 Assess standards below while maintaining Term 1 skills and standards	Term 3 Assess standards below while maintaining Term 1 & 2 skills and standards
<p>Recognize and apply grade-level phonics in multisyllable words</p> <p>RF.4.3</p>	<p>Read words involving:</p> <ul style="list-style-type: none"> • VCCV • Long Vowels • Endings –s, -es • R-Controlled Vowels • Consonant Pairs (ng, nk, ph, wh) 	<p>Read words involving ALL of Term 1, plus:</p> <ul style="list-style-type: none"> • Endings –ed, -ing • Compound Words • Possessives • Contractions • Final Syllable Patterns 	<p>Read words involving ALL of Term 1 & 2, plus:</p> <ul style="list-style-type: none"> • Prefixes • Suffixes • Roots & Word Parts
<p>Read grade level text fluently with accuracy, appropriate rate, and expression to support comprehension.</p> <p>RF.4.4, RL.4.10, RI.4.10</p>	<p>Read grade level text fluently with accuracy, rate of 105 wcpm, and expression to support comprehension.</p>	<p>Read grade level text fluently with accuracy, rate of 120 wcpm, and expression to support comprehension.</p>	<p>Read grade level text fluently with accuracy, rate of 136 wcpm, and expression to support comprehension.</p>

Writing

Standard	Term 1	Term 2 Assess standards below while maintaining Term 1 skills and standards	Term 3 Assess standards below while maintaining Term 1 & 2 skills and standards
<p>Write opinion pieces using organized reasons supported by facts and details</p> <p>W.4.1</p>	<p>Student can do 2 of the following:</p> <ul style="list-style-type: none"> • Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. • Provide reasons that are supported by facts and details. • Link opinion and reasons using words and phrases (e.g., <i>for instance, in order to, in addition</i>). • Provide a concluding statement or section related to the opinion presented. 	<p>N/A</p>	<p>Student can do ALL of the following:</p> <ul style="list-style-type: none"> • Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose. • Provide reasons that are supported by facts and details. • Link opinion and reasons using words and phrases (e.g., <i>for instance, in order to, in addition</i>). • Provide a concluding statement or section related to the opinion presented.
<p>Write informational texts to convey ideas with supporting details, quotations,</p>	<p>N/A</p>	<p>Student can do 3 of the following:</p> <ul style="list-style-type: none"> • Introduce a topic clearly and group related information in paragraphs and sections; 	<p>Student can do ALL of the following:</p> <ul style="list-style-type: none"> • Introduce a topic clearly and group related information in paragraphs

<p>and specific vocabulary</p> <p>W.4.2, W.4.7, RI.4.9, L.4.3</p>		<p>include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.</p> <ul style="list-style-type: none"> • Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. • Link ideas within categories of information using words and phrases (e.g., <i>another, for example, also, because</i>). • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Provide a concluding statement or section related to the information or explanation presented. 	<p>and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.</p> <ul style="list-style-type: none"> • Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. • Link ideas within categories of information using words and phrases (e.g., <i>another, for example, also, because</i>). • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Provide a concluding statement or section related to the information or explanation presented.
<p>Write narrative text to develop real or imagined experiences with a well-developed conclusion</p> <p>W.4.3, RL.4.9, L.4.6</p>	<p>Student can do 3 of the following:</p> <ul style="list-style-type: none"> • Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. • Use dialogue and description 	<p>Student can do ALL of the following:</p> <ul style="list-style-type: none"> • Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. • Use dialogue and description 	<p>N/A</p>

	<p>to develop experiences and events or show the responses of characters to situations.</p> <ul style="list-style-type: none"> • Use a variety of transitional words and phrases to manage the sequence of events. • Use concrete words and phrases and sensory details to convey experiences and events precisely. • Provide a conclusion that follows from the narrated experiences or events. 	<p>to develop experiences and events or show the responses of characters to situations.</p> <ul style="list-style-type: none"> • Use a variety of transitional words and phrases to manage the sequence of events. • Use concrete words and phrases and sensory details to convey experiences and events precisely. • Provide a conclusion that follows from the narrated 	
<p>Use technology to produce and publish writing</p> <p>W.4.6, W.4.8</p>	<ul style="list-style-type: none"> • Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. 	<p>Working towards building stamina to:</p> <ul style="list-style-type: none"> • With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting. 	<ul style="list-style-type: none"> • With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.

Language

Standard	Term 1	Term 2 Assess standards below while maintaining Term 1 skills and standards	Term 3 Assess standards below while maintaining Term 1 & 2 skills and standards
<p>Use grammar skills when writing or speaking.</p> <p>L.4.1, L.4.2</p>	<ul style="list-style-type: none"> Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons. 	<ul style="list-style-type: none"> Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses. Use modal auxiliaries (e.g., can, may must) to convey various conditions. Use relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why). Correctly use frequently confused words (e.g., <i>to, too, two; there, their</i>).* 	<ul style="list-style-type: none"> Fluently, independently, and legibly write all upper and lower case cursive letters. Produce grade appropriate text using legible cursive writing. Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag). Form and use prepositional phrases. Use correct capitalization. Use commas and quotation marks to mark direct speech and quotations from a text. Use a comma before a coordinating conjunction in a compound sentence.

<p>Apply spelling patterns when writing.</p> <p>L.4.2.d</p>	<p>For spelling patterns taught so far:</p> <ul style="list-style-type: none"> • Spell grade-appropriate words correctly, consulting references as needed. 	<p>For spelling patterns taught so far:</p> <ul style="list-style-type: none"> • Spell grade-appropriate words correctly, consulting references as needed. 	<p>For spelling patterns taught so far:</p> <ul style="list-style-type: none"> • Spell grade-appropriate words correctly, consulting references as needed.
<p>Use context clues, affixes, and roots to determine the meaning of vocabulary words and phrases.</p> <p>L.4.4, R.L.4.4, R.I.4.4</p>	<ul style="list-style-type: none"> • Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph). 	<ul style="list-style-type: none"> • Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase. 	<ul style="list-style-type: none"> • Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.

Grade 4

Operations and Algebraic Thinking

- Solve multi-step word problems using the four operations 4.OA.1-3
- Create and analyze patterns 4.OA.5

Numbers and Operations Base Ten

- Identify powers of ten in place value 4.NBT.1
- Read, write, and compare multi-digit numbers 4.NBT.2
- Fluently add multi-digit whole numbers 4.NBT.4
- Fluently subtract multi-digit whole numbers 4.NBT.4
- Illustrate and multiply whole numbers up to four digits 4.NBT.5
- Illustrate and divide whole numbers up to four digits 4.NBT.6

Numbers and Operations – Fractions

- Identify and create equivalent fractions 4.NF.1
- Compare fractions 4.NF. 2
- Add and subtract fractions with common denominators 4.NF.3
- Solve word problems with fractions using addition and subtraction 4.NF.3
- Multiply fractions by a whole number 4.NF.4
- Understand fraction and decimal relationships 4.NF.5-7

Measurement and Data

- Know and use measurement conversions 4.MD.1
- Apply the area and perimeter formulas 4.MD.3
- Solve problems with addition and subtraction using line plots 4.MD.4
- Understand and measure angles 4.MD.5-7

Geometry

- Draw and identify lines and angles 4.G.1
- Classify 2D shapes by their properties 4.G.2

4th Grade Math Progression

Mark a 3 on the report card

for the given term if the student shows mastery of the listed skills and standards.

Operations and Algebraic Thinking			
Standard	Term 1	Term 2	Term 3
<p>Solve multi-step word problems using the four operations</p> <p>4.OA.1-3</p>	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Maintain mastery of Term 1 skills and standards. • Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. • Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. • Solve multistep word problems posed with whole numbers and having whole- 	<ul style="list-style-type: none"> • Maintain mastery of Term 1 skills and standards.

		number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	
<p>Create and analyze patterns</p> <p>4.OA.5</p>	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Maintain mastery of Term 1 skills and standards. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i>

Numbers and Operations Base Ten

Standard	Term 1	Term 2	Term 3
<p>Identify powers of ten in place value</p> <p>4.NBT.1</p>	<ul style="list-style-type: none"> Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i> 	<ul style="list-style-type: none"> Maintain mastery of Term 1 skills and standards. 	<ul style="list-style-type: none"> Maintain mastery of Term 1 skills and standards.
<p>Read, write, and compare multi-digit numbers</p> <p>4.NBT.2</p>	<ul style="list-style-type: none"> Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. 	<ul style="list-style-type: none"> Maintain mastery of Term 1 skills and standards. 	<ul style="list-style-type: none"> Maintain mastery of Term 1 skills and standards.
	Fluently add and subtract multi-	<ul style="list-style-type: none"> Maintain mastery of Term 1 	<ul style="list-style-type: none"> Maintain mastery of Term

<p>Fluently add multi-digit whole numbers</p> <p>4.NBT.4</p>	<p>digit whole numbers using the standard algorithm.</p>	<p>skills and standards.</p>	<p>1 skills and standards.</p>
<p>Fluently subtract multi-digit whole numbers</p> <p>4.NBT.4</p>	<p>Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>	<ul style="list-style-type: none"> • Maintain mastery of Term 1 skills and standards. 	<ul style="list-style-type: none"> • Maintain mastery of Term 1 skills and standards.
<p>Illustrate and multiply whole numbers up to four digits</p> <p>4.NBT.5</p>	<ul style="list-style-type: none"> • Multiply a whole number of up to four digits by a one-digit whole number using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 	<ul style="list-style-type: none"> • Multiply two two-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 	<ul style="list-style-type: none"> • Maintain mastery of Term 1 and Term 2 skills and standards.
<p>Illustrate and divide whole numbers up to four digits</p> <p>4.NBT.6</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 	<ul style="list-style-type: none"> • Maintain mastery of Term 2 skills and standards.

Numbers and Operations - Fractions

Standard	Term 1	Term 2	Term 3
<p>Identify and create equivalent fractions</p> <p>4.NF.1</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. 	<ul style="list-style-type: none"> • Maintain mastery of Term 2 skills and standards.
<p>Compare fractions</p> <p>4.NF. 2</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that 	<ul style="list-style-type: none"> • Maintain mastery of Term 2 skills and standards.

		<p>comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.</p>	
<p>Add and subtract fractions with common denominators</p> <p>4.NF.3</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. <ul style="list-style-type: none"> a) Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b) Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. <i>Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.</i> c) Add and subtract

			<p>mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.</p>
<p>Solve word problems with fractions using addition and subtraction</p> <p>4.NF.3</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
<p>Multiply fractions by a whole number</p> <p>4.NF.4</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. <ul style="list-style-type: none"> a) Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times$

			<p>(1/4).</p> <p>b) Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)</i></p> <p>c) Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i></p>
	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Express a fraction with

<p>Understand fraction and decimal relationships</p> <p>4.NF.5-7</p>			<p>denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.2 For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.</p> <ul style="list-style-type: none"> • Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram. • Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.
---	--	--	--

Measurement and Data

Standard	Term 1	Term 2	Term 3
<p>Know and use measurement conversions</p> <p>4.MD.1</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in.</i> <i>Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i>

<p>Apply the area and perimeter formulas</p> <p>4.MD.3</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i>
<p>Make line plots and use them to solve addition and subtraction problems</p> <p>4.MD.4</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i>
<p>Understand and measure angles</p> <p>4.MD.5-7</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

			<p>a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles.</p> <p>b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.</p> <ul style="list-style-type: none">• Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.• Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a
--	--	--	--

			diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
--	--	--	--

Geometry

Standard	Term 1	Term 2	Term 3
<p>Draw and identify lines and angles</p> <p>4.G.1</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
<p>Classify 2D shapes by their properties</p> <p>4.G.2</p>	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles