SBS Booklet

2015-2016 EDITION

LAKE & PENINSULA SCHOOL DISTRICT

CONTENTS

OVERVIEW OF LPSD'S STANDARDS-BASED SYSTEM

LPSD INSTRUCTIONAL PHILOSOPHY AND IMPLEMENTATION

Mission Statement

The mission of the Lake and Peninsula School District is to develop productive citizens who are positive role models, self-directed learners, academically prepared, and resilient. We will accomplish this through our Standards-Based System in a safe, culturally sensitive environment with an emphasis on technology, extended opportunities, and committed partnerships.

In 2015-2016 LPSD will begin its 15th year as a standards and performance-based district. Teachers, administrators, staff and community members have worked hard over the years to develop, adapt, and adopt standards. *These standards form the basis of our curriculum.*

Students are leveled in each content area and receive instruction at their actual ability level rather than age as in a traditional system. Resources have been carefully chosen to align with our standards and teachers are expected to use LPSD recommended resources (see LPSD Resources list). However, since we realize not every student fits into the same mold, when a recommended resource fails to meet a student's needs, a teacher should work with their principal/coach and Curriculum Coordinator to document the need for an alternate resource. If different resources need to be purchased, an *Application to Purchase New Resource* form should then be filled out and submitted to LPSD Superintendent and Curriculum Coordinator.

In order to graduate from LPSD, a student must meet minimum graduation levels and acquire a minimum of twenty-one credits (see Credit Conversion and Pacing Chart). Instruction is to follow the balanced instructional model below:

Retention:		Looks Like:
10% of what we hear 20% of what we see	Drill & Practice	Reading, hearing words, looking at pictures, watching movies, looking at an exhibit, watching a demonstration, listening to a lecture, worksheets
70% of what we say	Practical Application	Participating in a discussion, giving a talk, presenting information
90% of what we say and do	Simulation	Doing a dramatic presentation, simulating the real experience
95% of what we teach others	Real-Life Connections	Doing the real thing, teaching others

SUBJECTS & LEVELS

Reading	•Levels 0-12 •Minimun graduation level: 10
Writing	•Levels 0-12 •Minimum graduation level: 10
Math	•Levels 0-12 •Minimum graduation level: 10, 11 or 12 •Students scheduled to graduate in 2016 or 2017 minimum graduation level: 9 or 12
Social Studies	•Levels 0-11 •Minimum graduation level: 3 levels from levels 8, 9, 10, 11 •2015-2016 rotation: Level 11 (World History)
Science	•Levels 0-11 •Minimum graduation level: 10
Technology	•Levels 1-10 •Minimum graduation level: 10
Cultural Awareness	•Levels 4-12 •Minimum graduation level: 10
Employability	•Levels 4-11 •Minimum graduation level: 10

ASSESSMENT OF STANDARDS

Advanced *
- High quality work that shows in-depth understanding
- Demonstrated through explaining or teaching to others (90% or higher)

Proficient +
- Quality work that meets standard
- Demonstrated independently (80-89%)

Developing ~
- Work is complete, but struggling
- Needs guidance from teacher (70-79%)

Emerging -
- Lack of effort, or misplaced in level

LEVEL ASSESSMENTS

Must complete before advancing to the next level

- Reading
- Writing
- Math

Given after all standards are complete within a level AND teacher and student are confident ALL standards have been mastered

- Avoid "over prepping" for level assessments
- Must earn a score of 80% or more to advance to the next level

If student receives less than proficient score...

- Student must review for sufficient period (i.e. two week minimum) before retaking assessment.
- See assessment documents on Moodle for detailed instructions

ONLINE RESOURCES

PROFESSIONAL DEVELOPMENT/COLLEGIALITY

- Early release Fridays: early release time to be used for professional development, data collection/intervention planning, and specific site issues.
- Out of district professional development: available as budget allows – check with the Curriculum Coordinator.
- Teamwork is essential to student progress.
- Teachers must be flexible and share ownership of student grades/ages/subject areas within their schools.
- Be cognizant of email etiquette.
- Keep itinerant travel/events recorded on FirstClass calendars.
- Communicate! Seek help when you need it.
- Take advantage of your unique situation – laugh and enjoy!

GO TO LIST 2015-2016

Standards-Based System/Resources	
Standards, assessments, resources, record keeping, professional development.	Bill Cornell
Attendance, enrollment, Educate program, diplomas, transcripts.	Hal Neumann
Online resources (ALEKS, IXL, Compass Learning)	Matthew Stark
Read Live	Glenda Egli
Early Childhood Literacy Program (newborn-3 year olds), First Class	Amber Kresl
On-site and Online Tutor Oversight	Linda Richter
CTE Programs	Kasie Luke
Writing Prompts	Nicole Metzgar
Online Classes	
In-district online classes (RE/MA) coordination, oversight.	Joe Ward
Out-of-district online classes (for super-seniors, students going beyond graduation levels, special cases)	Kasie Luke
Blackboard Collaborate	Matthew Stark
Online Interventions	Linda Richter
Data Driven Instruction	
AMP related	Glenda Egli
AIMSweb – Administration, probes, progress monitoring, intervention process and resources.	Glenda Egli
Technology	
Software Programs	Matthew Stark
Hardware	Sam Rigby

PACING, COURSES, CREDITS

CREDIT CONVERSION & PACING CHARTS 2015-2016

Credit Conversion/Minimum Graduation Levels (Shaded)

LPSD Levels in black, graduation levels in pink, numbers are grade levels

Standard Area	0	1	2	3	4	5	6	7	8	9	10	11	12
Reading										1	1	1	1
Writing										1	1	1	1
Math*								(1)	1	1	1	1	1
Social Studies**									1	1	1	1	
Science										1	1	1	
Technology									.5	1	1		
Cultural Awareness										.5	1		
Employability									1	2	2		

* Need a total of 3 credits in Math (students scheduled to graduate in 2016, 2017 receive 1 credit for Level 7)
** Need to earn three social studies credits from Levels 8-11. Students must complete the AK Studies portion of Level 8 SS in order to graduate.

Pacing Chart

Standard Areas	0	1	2	3	4	5	6	7	8	9	10	11	12
Reading	K	1	2	3	4	5	6	7	8	9	10	11+	
Writing	K	1	2	3	4	5	6	7	8	9	10	11+	11+
Math*	K	1	2	3	4	5	6	7	8	9	10	10	11+
Social Studies**	K	1	2	3	4	5	6-7	7-8	9-11	9-11	9-11	9-11	12
Science	K	1	2	3	4	5	6	7	8	9	10	11+	
Technology					4-5	5-6	6-7	7-8	9-12	9-12	9-12		
Cultural Awareness					4	5	6	7	8	9-12	9-12		
Employability					4-5	5-6	6-7	7-8	9-12	9-12	9-12		

* Need to complete **either** Math Level 10 or Level 12
** Need to earn three Social Studies credits from Levels 8-11. Students must complete the AK Studies portion of Level 8 SS in order to graduate.

Criteria for Half Credits in Credit-Bearing Levels

Subject/Level	Criteria for .5 Credit
Math LV 8 (Pre-algebra)	Half or more standards complete with score of proficient or advanced.
Math LV 9 (Algebra I)	Half or more standards complete with score of proficient or advanced.
Math LV 10, 11 (Geometry, Algebra II)	Half or more standards complete with score of proficient or advanced.
Math LV 12 (Consumer Math)	No .5 credit option. LV 12 can often be completed within a semester.
Science LV 9	Complete two strands of standards (Earth, Life, Physical) with a score of proficient or advanced OR complete one strand of standards (Earth, Life, Physical) and one science fair project.
Science LV 10	Complete two strands of standards (Earth, Life, Physical) with a score of proficient or advanced OR complete one strand of standards (Earth, Life, Physical) and one science fair project.
Writing LV 9-12	Complete at least half the standards at appropriate level with a score of proficient or advanced
Reading LV 9-12	Complete at least half the standards at appropriate level with a score of proficient or advanced
Social Studies Level 8	US Civics and Government section (8.1.1-16) OR AK History and Government section (8.2.1-17) complete with score of proficient or advanced
Social Studies Level 9-11	Half or more standards complete with score of proficient or advanced.
Technology Level 8-9	Half or more standards complete with score of proficient or advanced.
Technology Level 10	Level 10 is a .5 credit level
Cultural Awareness Level 9	Level 9 is a .5 credit level
Cultural Awareness Level 10	Completes two standards (10.1-10.3) with a score of proficient or advanced
Employability Level 8	Successfully participates in a CTE Program OR completes six standards (8.1-8.12) with a score of proficient or advanced
Employability Level 9 and 10	Successfully participates in a CTE Program OR completes six standards with a score of proficient or advanced. Level 9 and 10 are 2-credit levels.

LPSD Approved Courses for the Alaska Performance Scholarship

Subject	Course Title	District Course #	Credit	APS Course Equivalency
Science	Level 9, Integrated SC I	SC LV 9	1	Biology, Earth Science, Physical Science
Science	Level 10, Integrated SC II	SC LV 10	1	Biology, Earth Science, Physical Science
Science	Level 11, Integrated SC III	SC LV 11	1	Biology, Earth Science, Physical Science
Science	Approved Online SC Courses			Physical SC, Biology, Earth SC, Chemistry, Physics, Marine Biology, Anatomy & Physiology
Math	Level 9, Algebra I	MA LV 9	1	Algebra 1 Equivalent
Math	Level 10, Geometry	MA LV 10	1	Geometry Equivalent
Math	Level 11, Algebra II	MA LV 11	1	Algebra II Equivalent
Math	Approved Online Math Course			Trigonometry, Pre-Calculus, Calculus, Calculus II, Statistics
Language Arts	WR Level 9, Writing 9	WR LV 9	1	9th Grade English
Language Arts	WR Level 10,Writing 10	WR LV 10	1	10th Grade English
Language Arts	RE Level 9, Reading 9	RE LV 9	1	9th Grade English
Language Arts	RE Level 10, Reading 10	RE LV 10	1	10th Grade English
Language Arts	WR Level 11, Advanced Composition I	WR LV 11	1	Composition Equivalent
Language Arts	WR Level 12, Advanced Composition II	WR LV 12	1	Advanced Composition Equivalent
Language Arts	RE Level 11, American Literature	RE LV 11	1	American Literature Equivalent
Language Arts	RE Level 12, British Literature	RE LV 12	1	British Literature Equivalent
Language Arts	Approved Online LA Course			World Literature, Speech & Debate, Creative Writing
Social Studies	SS Level 8, Alaska Studies	SS LV 8	0.5	Alaska History

Social Studies	SS Level 8, US Government	SS LV 8	0.5	American Government
Social Studies	SS Level 9, Early US History	SS LV 9	1	American History
Social Studies	SS Level 10, Late US History	SS LV 10	1	American History
Social Studies	SS Level 11, International Studies	SS LV 11	1	World History
Social Studies	Approved Online SS Course			Geography, Civics, Economics, Western Civilization, Eastern, Civilization, Psychology, Sociology
World Languages	Approved Online WL Course			Foreign Language, Alaska Native Language, Sign Language

INSTRUCTION

BEGINNING A NEW YEAR:
ADVICE FOR MULTI-LEVEL INSTRUCTION

1. Grouping for multi-level instruction

a) Identify the range of levels you have in your classroom for the content you are teaching (see Educate, binders, previous teacher comments, and Student Record End of Year Checkouts). Work with other teacher(s) at your site to make sure teaching assignments are organized in the most efficient way possible.
b) Identify the resources that each level of students will be using for each content area.
c) Use AIMSweb data, SRI data, and SBA/AMP results to determine appropriate Tier for each student (Tier I, Tier II, or Tier III). This will help you identify appropriate resources.
d) Identify any student who is in our SPED program and work with the SPED instructor assigned to your site to determine educational goals and resources.
e) Use all this information to group students based on LPSD levels/standards and the resources they will be using for instruction.

2. Review Standards, Assessments, and Student Work

a) Review standards for each level you are teaching using Educate or the Standards Booklet.
b) Identify standards that students need to complete using Educate.
c) Review past assessments and classroom work (binders) students have completed and note strengths and weaknesses.
d) Review student work in binders and Student Records End of Year Checkout form to determine students' current levels as a refresher for what needs to be accomplished in specific content areas.

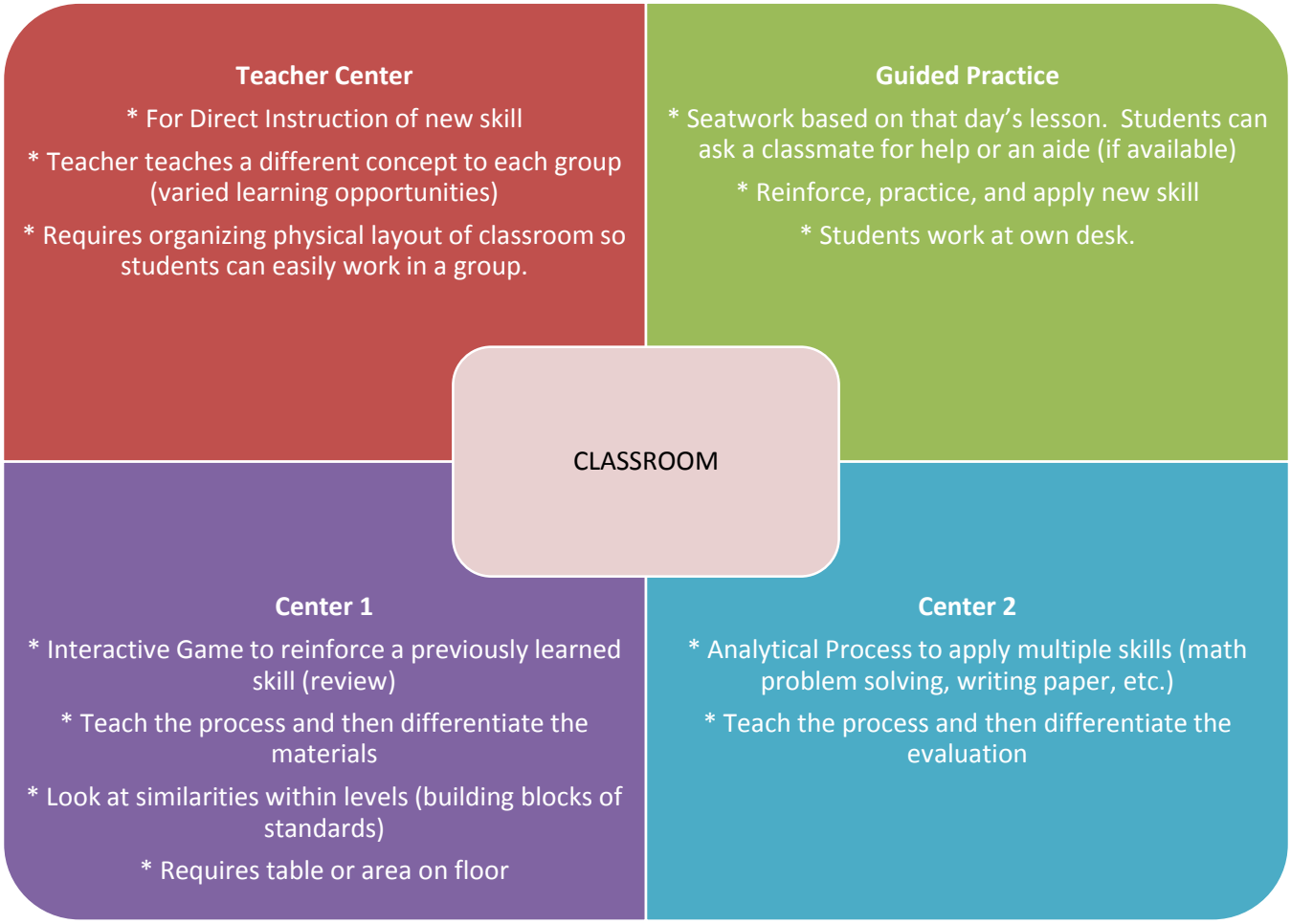
3. Organizing Instruction

a) Review the LPSD resource list and identify resources for each Tier of instruction. Locate resources in your building.
b) Notice that for most of our content areas, strands are uniform across levels. This may allow you to provide direct instruction to several levels at the same time.
c) Begin to organize your schedule so you can provide direct instruction to groups in the most efficient way possible. Make sure while you are providing direct instruction, other groups are provided independent work that will help them reach mastery of the standards they are working on.
d) Seek help in organizing your classroom and planning instruction from your principal.

CENTERS

Sample of One Day's Centers

Here is an example of how a secondary math teacher was able to meet four diverse levels within one classroom.



Time	Teacher	Guided Practice	Center 1	Center 2
9:00	Group A	Group D (yesterday's lesson)	Group C	Group B
9:15	Group B	Group A	Group D	Group C
9:30	Group C	Group B	Group A	Group D
9:45	Group D	Group C	Group B	Group A

Tips on teaching in multi-level classrooms:

1. Staggering your start times can help if you have the same group of students all day. For instance, if you start Group A above when the rest of the class is doing SSR, you avoid the issue of having Group D work on the guided practice from yesterday's lesson. Group A simply does their SSR time after they are finished with all four centers.
2. Alternating days for Direct Instruction allows each group to spend more time with you in one sitting. If you do this make sure to plan for activities in the centers that take a longer period of time.
3. Protect your instructional time at your center by doing the following:
    a. Have clear expectations and consequences for working independently at center time (utilize peer, self, and teacher evaluations of behavior; discipline system; etc.).
    b. Structure stations so that activity involves a product (i.e., game recording sheet, problem solving steps on paper, etc.).
    c. Allow peer help or schedule aide help.
4. If stations involve a process that is new to students, teach/model the process to the whole group prior to beginning centers.
5. Have station directions written briefly and concisely. Use picture directions with simple words for primary students.
6. Color code student folders for independent work; students have a card or sticker on desk with their color in each subject.
7. Have a list of 5-10 things students can do (in order of importance) if they finish early posted in your class.

If you finish early….

1. Check your work.
2. Finish work that has not been completed (homework) from another class.
3. Work on your PEP.
4. Work on your writing portfolio.
5. Read a book.
6. Clean your desk/locker.

Lake and Peninsula School District Education Action Map

Student _____ School _____ Year _____
Teacher _____ DOB _____ ID # _____

My progress to date:

Subjects/ (grad.Level)	L0	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11
Reading (10)												
Writing (10)												
Math (9 + 10 or 12)												
Science (10)												
Social Studies (3 levels)												
Technology (10)												
Cult. Aware. (10)												
Employability (10)												

I want to reach graduation proficiency in _____ semesters. The following table is a map of desired progression. I will revise my Education Action Map each semester.

	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019	Spring 2020
Reading										
Writing										
Math										
Science										
Social Studies										
Technology										
Cult. Aware										
Employability										

Student Signature Date Parent Signature Date Teacher Signature

LPSD DATA DRIVEN INSTRUCTION

LPSD uses AIMSweb as a means to focus on data-driven instruction. Teachers also use data as the basis for aligning resources to specific student needs.

Teachers provide universal screening for students, GRADES K-8, in Reading, Writing, and Math three times per year. The Writing benchmark is used to assess students in grades 2-6 ONLY.

Students found to be proficient on the 8th grade AIMSweb spring benchmark, need not be assessed again. *8th graders not proficient on their spring benchmark need to be progress monitored until proficiency goals are met.* The AIMSweb manager will work with teachers of 9th-12th graders to identify students who need to be progress monitored.

For all students, data-driven instruction proceeds according to the universal screening results below:

Score on AIMSweb Universal Screening Grades K-1st	Score on AIMSweb Universal Screening Grades 2nd-12th	Plan of Action
35% and above (Proficient)	45% and above (Proficient)	Continue core resources, watch carefully for changes in student progress
15% to 34% (Below Proficient)	15% to 44% (Below Proficient)	Continue core resources, add progress monitoring using supplemental resources
14% and below (Far Below Proficient)	14% and below (Far Below Proficient)	Further diagnose and begin immediate intervention with progress monitoring in area of need

LPSD RECOMMENDED LEXILE LEVELS

Level	CCSS Lexile Range*	Sample Texts**
1	190-530	Seuss, Dr. *Green Eggs and Ham* Aliki. *My Five Senses*
2	420-650	MacLachlan, Patricia. *Sarah, Plain and Tall* St. George, Judith. *So You Want to Be President?*
3	520-820	
4	740-940	Babbitt, Natalie. *Tuck Everlasting* Buckmaster, Henrietta. *"Underground Railroad."*
5	830-1010	
6	925-1070	L'Engle, Madeleine. *A Wrinkle in Time* Partridge, Elizabeth. *This Land Was Made for You and Me: The Life and Songs of Woody Guthrie*
7	970-1120	
8	1110-1185	
9	1050-1260	Zusak, Marcus. *The Book Thief* Brown, Dee. *Bury My Heart at Wounded Knee*
10	1080-1335	
11+	1185–1385	Fitzgerald, F. Scott. *The Great Gatsby* Anaya, Rudolfo. *"Take the Tortillas Out of Your Poetry."*
** See Common Core State Standards, Appendix B (www.corestandards.org) for more recommended texts.		

RESOURCES LIST

	TIER I – CORE	Tier I – Supplemental	Tier II	Tier III
READING	**Levels 0-3:** • Houghton Mifflin • Reading Mastery	**Levels 0-3:** • FCRR (binder) • Six-Minute Solution	**Levels 0-3:** • Reading Mastery • FCRR Activities (binder) • Phonics for Reading (L3)	**Levels 0-10:** • Reading Mastery • FCRR (binder) • Phonics for Reading (L3)
		Teacher Resources • Words Their Way • Unlocking Literacy • Bring Words to Life • Scholastic Reading Counts • Compass Learning • IXL ELA	**Teacher Resources** • Road to the Code • Phonemic Awareness in Young Children • Ladders to Literacy • Reading Counts • Compass Learning • IXL ELA	**Teacher Resources** • Road to the Code • Phonemic Awareness in Young Children • Ladders to Literacy • Reading Counts • Compass Learning • IXL ELA
	Levels 4-10: • Storytown (L 4-5) • McDougall/Littell • Literature (L 6-8) • McDougal/Littell Literature 9 (L 9-12) • Novel studies	**Levels 4-10**: • FCRR (binder) • Rewards (Beg./Int.) • Six-Minute Solution • Novel Ties • Daily Analogies • Language! Instructional Planning Tools CD • Reading Counts • Compass Learning • IXL ELA	**Levels 4-10:** • Language! • Reading Mastery (L 4-6) • FCRR (binder L 4-6) • Phonics for Reading (L 3-8) • Rewards (Beg./Int.) • Six-Minute Solution • Reading Counts • Compass Learning • IXL ELA	**Levels 4-10:** • Language! • Reading Mastery (L 4-6) • FCRR (binder) • Phonics for Reading (L3-8) • Rewards (Beg./Int.) • Six-Minute Solution • Reading Counts • Compass Learning • IXL ELA
		Teacher Resources • Phonics and Spelling Through Phoneme-Grapheme Mapping • Words Their Way • Unlocking Literacy • Bring Words to Life	**Teacher Resources** • Phonics and Spelling Through Phoneme-Grapheme Mapping • Words Their Way • Unlocking Literacy • Bring Words to Life	**Teacher Resources** • Phonics and Spelling Through Phoneme-Grapheme Mapping • Words Their Way • Unlocking Literacy • Bring Words to Life

	Tier I – Core	Tier I – Supplemental	Tier II	Tier III
WRITING	**Levels 0-10:** • Units of Study in Writing	**Levels 0-10:** • Daily Oral Language • Writers Inc. (L 8-10) • All Write (L 6-8) • Write One (L 1) • Write Away (L-2) • Write on Track (L 3) • Writer's Express (L 4-5) • Compass Learning • IXL ELA • Excellence in Writing, Teaching Writing: Structure and Style (Pudewa) • McDougal Littell: Grammar for Writing 7 (L 7-8) • McDougal Littell: Grammar for Writing 8 (L 7-8) • 6 Trait Binder • 6+1 Traits of Writing, • Grades 1-2 (L 1-2) • 6+1 Traits of Writing, Grade 3 and UP (L 3+) • D'Nealian Handwriting (L 0+)	**Levels 4-10:** • Language! • Compass Learning • IXL ELA	**Levels 4-10:** • Language! • Compass Learning • IXL ELA

	Tier I – Core	Tier I – Supplemental	Tier II	Tier III
MATH	**Level 0-2:** • enVision Math K-2/supplement **Level 3:** • enVision Math 3, 4 **Level 4:** • enVision Math 4, 5 **Level 5:** • enVision Math 5,6 **Level 6:** • PH Course I, II **Level 7:** • PH Course II, III **Level 8:** • PH Pre-Algebra **Level 9:** • PH Algebra I **Level 10:** • PH Geometry **Level 11:** • PH Algebra II **Level 12:** • AGS Consumer Math • Consumer Math (11)	**Levels 0-6:** • enVision Math CD's (Learning Animations, eTools, MindPoint Quiz Show, Exam View) • enVision Math online • Compass Learning • IXL Math • ALEKS Math **Level 6-12:** • Pizazz binders • Prentice Hall CDs (Teacher Express, Exam View) • Prentice Hall Online • Compass Learning • IXL Math • ALEKS Math	**Levels 0-10:** • enVision Math Diagnostic Intervention System (L 0-6) • Prentice Hall Adapted Workbooks • Compass Learning • IXL Math • ALEKS Math	**Levels 0-10:** • envision Math Diagnostic Intervention System (L 0-6) • Prentice Hall Adapted Workbooks • Compass Learning • IXL Math • ALEKS Math

	Tier I – Core	Tier I – Supplemental	Tier II	Tier III
SCIENCE	**Levels 0-2:** • Level 0-2 Curriculum Guide • Science: A Closer Look, Reading Essentials **Levels 3-5** • Level 3-5 Curriculum Guide • Science: A Closer Look, Reading Essentials **Level 6-8** • Level 6-8 Curriculum Guide • Science: A Closer Look (Gr. • 6 only) • Integrated Science: Red, Green, Blue **Level 9-11** • Level 9-11 Curriculum Guide • Integrated Science Explorations Stduent Text • Integrated Science Explorations Practice Book	**Levels 0-5** • Science: A Closer Look Activity Book • Science: A Closer Look Leveled Readers • Compass Learning **Level 6** • Science: A Closer Look Reading Essentials • Compass Learning **Level 6-8** • Red, Green, Blue Laboratory Activities • Red, Green, Blue Reading Essentials • Compass Learning		

	Tier I – Core	Tier I – Supplemental	Tier II	Tier III
SOCIAL STUDIES	**Levels 0-2:** • Scott Foresman – All Together **Level 3** • TBA **Levels 4-5:** • Scott Foresman – The United States **Levels 6-7** • Pearson – History of Our World **Level 8** • Pearson – Macgruder's American Government **Levels 9-10** • Pearson – United States History **Level 11** • Pearson – World History	**Levels 0-11** • Compass Learning **Levels 0-2** • Kindergarten Big Books • Grade 1, 2, 3 Leveled Readers • Map Sack Grades K-2 • Test Talk Practice Bk. Gr. 2, 3 **Levels 3** • TBA **Levels 4-5** • Test Talk Practice Bk. Gr. 4, 5 • Grade 4, 5 Leveled Readers • Map Sack Grades 3-6 **Levels 9-10** • US History Historian's Apprentice Activity Pk. **Level 11** • World History Historian's Apprentice Activity Pk.	**Levels 6+:** • AGS US History	**Levels 6+:** • AGS US History

CULTURAL AWARENESS	Tier I – Core
	Lower levels: • Elements of Art • How to Teach Art to Children • Ed Emberley's *Big Green Drawing Book* • Ed Emberley's *Big Purple Drawing Book* • Ed Emberley's *Big Red Drawing Book* • Drawing With Children • Children Just Like Me, A Trip Around the World • Crafts of Many Cultures • Alaska, Our 49th State • Eight Stars of Gold • Native American Legends and Activities; Elements of Art • How to Teach Art to Children, A Survival Kit for the Elementary/Middle School Art Teacher • How to Draw and Paint Watercolors • Nature's Art Box • Hands on Alaska • History of Art in Pictures • The History of Art • Smart Art: Learning to Classify and Critique Art • Sharing Alaska Native Culture • Hands on Alaska • Elements of Art, Snips, Snails, & Walnut Whales • Good Earth Art: Environmental Art for Kids **ALL Levels: See Cultural Awareness Curriculum Guide on Moodle**

EMPLOYABILITY	Tier I – Core	Tier I – Supplemental	Tier II	Tier III
	All Levels: • CTE • On-site Assessment Activities (Moodle) • AKCIS (online)			

TECHNOLOGY	Tier I – Core	Tier I – Supplemental	Tier II	Tier III
	Upper Levels: • The Computer Companion for Individual and Classroom Use: 30 Practical Lessons • Cyber Literacy For The Digital Age- B.E. Publishing			

TECHNOLOGY RESOURCES

READING TECHNOLOGY	
	Levels 0-3: http://www.eduplace.com (Houghton Mifflin) *Houghton Mifflin CDs:* *1 set audio CDs per level* *1 set Teaching Resource Kit per level.* *Language!* CDs: 2 CDs per Book A-F: **Instructional Planning Tools**, **eReader** 1 CD per Books A-F: **Sortegories** 1 CD per Books A-F: **Words** **Levels 4-5:** Storytown Think Central http://www-k6.thinkcentral.com **Levels 6-10** *McDougall Littell, Literature* *www.classzone.com* **All Levels** Reading Counts www.aimsweb.com Compass Learning https://www.thelearningodyssey.com/ **Levels 0-10:** *IXL ELA* **http://www.ixl.com/**

WRITING TECHNOLOGY	
	All Levels: **http://readingandwritingproject.com/resources/units-of-study.html** *Resources for Teaching Writing*- Lucy Calkins 1 CD per Level *Teaching Writing Structure and Style*: CD set (9 Cds) **Levels 4-6:** Same as for reading **Levels 7-10:** http://www.classzone.com/cz/index.htm **All Levels** Compass Learning https://www.thelearningodyssey.com/ **Levels 0-10:** *IXL ELA* **http://www.ixl.com/**

MATH TECHNOLOGY	
	Levels 0-6: **https://www.pearsonsuccessnet.com** ***enVision Math*** **Levels 6-12:** https://www.pearsonsuccessnet.com *Prentice Hall* **Levels 6-8:** Tutorials and supplemental activities: http://www.phschool.com/atschool/phmath07/program_page_ms.html **Levels 9-12**: Tutorials and supplemental activities: http://www.phschool.com/atschool/phmath07/program_page_hs.html **Levels 3+** *Aleks Math* *http://www,aleks.com* **Levels 0-8:** *IXL Math* **http://www.ixl.com/**

SOCIAL STUDIES TECHNOLOGY	**Levels 0-2** *Pearson; All Together* *http://www.sfsocialstudies.com* *MindPoint Video Gr.: 1 CD each for levels 1-3 *Video Field Trip Gr.: 1 CD each for levels 1-3 *Songs and Music CD: 1 CD **Levels 4-5** *Pearson: The United States* *http://www.sfsocialstudies.com* *MindPoint Video Gr.: 1 CD each for levels 4-5 *Video Field Trip Gr.: 1 CD each for levels 4-5 *Online Lesson Planner Gr. 5 **Levels 6-7** *Pearson: History of our World* *http://www.phschool.com* **Level 8** *Pearson: Macgruders American Government* *http://www.phschool.com* *Online Teacher Center **Level 9-10** *Pearson: US History* *http://www.phschool.com* *Witness History: 1 CD **Level 11** *Pearson: World History* *http://www.phschool.com*

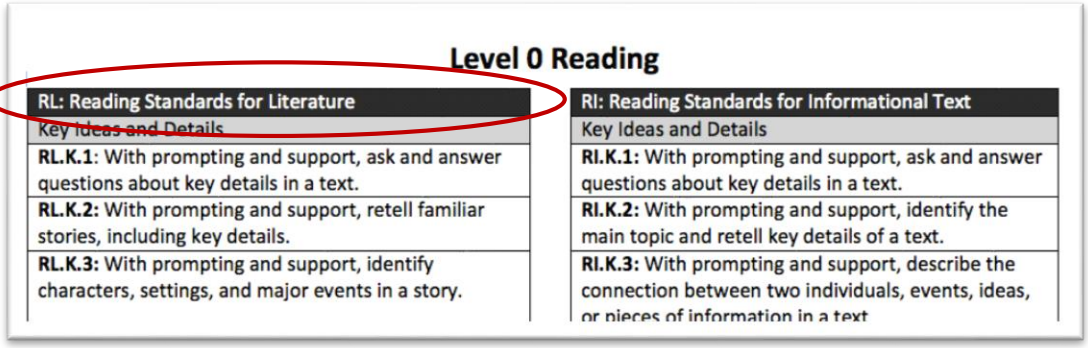
SCIENCE TECHNOLOGY	Levels 0-6 *McGrawHill: Science A Closer Look* *https://www.mheonline.com* **Levels 6-8** *Glencoe: Integrated SC Red, Green, Blue* *https://www.mheonline.com* **Levels 9-11** *Pearson: Conceptual Integrated Science* *http://www.phschool.com/home.html*

EMPLOYABILITY TECHNOLOGY	**All Levels:** http://akcis.intocareers.org

CULTURAL AWARENESS TECHNOLOGY	**All Levels:** www.metmuseum.org http://www.theatre.com http://www.ankn.uaf.edu/ http://www.akart.org/ http://akartsed.org

STANDARDS

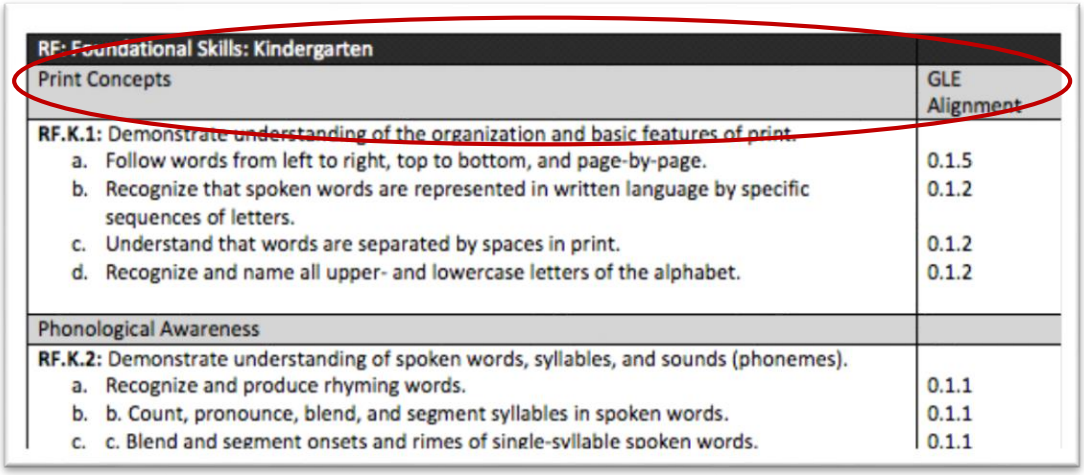
HOW TO READ READING & WRITING STANDARDS



Level 0 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	Key Ideas and Details
RL.K.1: With prompting and support, ask and answer questions about key details in a text.	**RI.K.1:** With prompting and support, ask and answer questions about key details in a text.
RL.K.2: With prompting and support, retell familiar stories, including key details.	**RI.K.2:** With prompting and support, identify the main topic and retell key details of a text.
RL.K.3: With prompting and support, identify characters, settings, and major events in a story.	**RI.K.3:** With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text

Black headings indicate **STRAND**. Reading has 4 strands: Reading Standards for Literature (RL), Reading Standards for Informational Text (RI), Foundational Skills (RF) [Levels 0-5 ONLY), and Speaking and Listening (SL). Writing has 2 strands: Writing (W) and Language (L).



RF: Foundational Skills: Kindergarten	
Print Concepts	GLE Alignment
RF.K.1: Demonstrate understanding of the organization and basic features of print.	
a. Follow words from left to right, top to bottom, and page-by-page.	0.1.5
b. Recognize that spoken words are represented in written language by specific sequences of letters.	0.1.2
c. Understand that words are separated by spaces in print.	0.1.2
d. Recognize and name all upper- and lowercase letters of the alphabet.	0.1.2
Phonological Awareness	
RF.K.2: Demonstrate understanding of spoken words, syllables, and sounds (phonemes).	
a. Recognize and produce rhyming words.	0.1.1
b. b. Count, pronounce, blend, and segment syllables in spoken words.	0.1.1
c. c. Blend and segment onsets and rimes of single-syllable spoken words.	0.1.1

Gray shading indicates CLUSTER followed by ANCHOR standards which are consistent across Levels. Level specific ANCHOR standards are listed under CLUSTER.

SL: Speaking and Listening: Kindergarten	
Comprehension and Collaboration	GLE Alignment
SL.K.1: Participate in collaborative conversations about *kindergarten topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.	Not aligned
SL.K.2: Confirm understanding of written texts read aloud or information presented orally or through media by asking and answering questions about key details and requesting clarification if something is not understood.	Not aligned
SL.K.3: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.	Not aligned

Level specific standards for Speaking Listening STRAND are listed below CLUSTER (Comprehension and Collaboration).

W: Writing Standards: Kindergarten	
Text Types and Purposes	GLE Alignment
W.K.1: 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., *My favorite book is . . .*).	0.1.1
W.K.2: 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.	0.1.2
W.K.3: 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.	0.1.3
Production and Distribution of Writing	
(Begins in grade 3)	
W.K.5: With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.	0.6.1

Writing STRAND and ANCHOR Standards: Text types and Purposes, Production and Distribution of Writing. Level Specific Standards listed below ANCHOR standards.

W.K.1: "W" refers to WRITING STRAND
"K" refers to KINDERGARTEN (Level 0)
"1" refers to ANCHOR Standard number

L: Language Standards: Second Grade	
Conventions	GLE Alignment
L.2.1: Observe conventions of grammar and usage when writing or speaking.	
a. Use collective nouns (e.g., *group*).	Not aligned
b. Form and use frequently occurring irregular plural nouns (e.g., *feet*, *children*, *teeth*, *mice*, *fish*).	2.5.1
c. Use reflexive pronouns (e.g., *myself*, *ourselves*).	Not aligned
d. Form and use the past tense of frequently occurring irregular verbs (e.g., *sat*, *hid*, *told*).	2.5.2
e. Use adjectives and adverbs, and choose between them depending on what is to be modified.	Not aligned
f. 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*).	2.4.1
L.2.2: Observe conventions of capitalization, punctuation, and spelling when writing.	
a. Capitalize holidays, product names, and geographic names.	2.5.3
b. Use commas in greetings and closings of letters.	2.5.4
c. Use an apostrophe to form contractions and frequently occurring possessives.	2.5.5
d. Generalize learned spelling patterns when writing words (e.g., *cage* → *badge*; *boy* → *boil*).	2.5.6
e. Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.	2.6.6
Effective Language Use	
(Begins in grade 3)	
Vocabulary Acquisition and Usage	
L.2.4: 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.	

Above note:

Strand: Language

Clusters: Conventions, Effective Language Use
Vocabulary Acquisition and Usage
Anchor Standards: 1, 2, 4 (3 not available for Level 2)
Sub-standards: a-f for Anchor Standard 1 and a-e for Anchor Standard 2
L.2.4: refers to Language Strand, Level 2, Anchor Standard 4

LPSD READING STANDARDS

Level 0 Reading

RL: Reading Standards for Literature
Key Ideas and Details
RL.K.1: With prompting and support, ask and answer questions about key details in a text.
RL.K.2: With prompting and support, retell familiar stories, including key details.
RL.K.3: With prompting and support, identify characters, settings, and major events in a story.
Craft and Structure
RL.K.4: Ask and answer questions about unknown words in a text.
RL.K.5: Recognize common types of texts (e.g., storybooks, poems).
RL.K.6: With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.
Integration of Knowledge and Ideas
RL.K.7: With prompting and support, describe the connection between pictures or other illustrations and the overall story in which they appear.
(Not applicable to literature)
RL.K.9: With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.
Range of Reading and Level of Text Complexity
RL.K.10: Actively engage in group reading activities with purpose and understanding.

RI: Reading Standards for Informational Text
Key Ideas and Details
RI.K.1: With prompting and support, ask and answer questions about key details in a text.
RI.K.2: With prompting and support, identify the main topic and retell key details of a text.
RI.K.3: With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text
Craft and Structure
RI.K.4: With prompting and support, ask and answer questions about unknown words in a text.
RI.K.5: Identify the front cover, back cover, and title page of a book.
RI.K.6: Name the author and illustrator of a text and define the role of each in presenting the ideas or information in a text.
Integration of Knowledge and Ideas
RI.K.7: With prompting and support, describe the connection between pictures or other illustrations and the overall text in which they appear.
RI.K.8: With prompting and support, identify the reasons an author gives to support points in a text.
RI.K.9: With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
Range of Reading and Level of Text Complexity
RI.K.10: Actively engage in group reading activities with purpose and understanding.

RF: Foundational Skills: Kindergarten
Print Concepts
RF.K.1: Demonstrate understanding of the organization and basic features of print. a. Follow words from left to right, top to bottom, and page-by-page. b. Recognize that spoken words are represented in written language by specific sequences of letters. c. Understand that words are separated by spaces in print. d. Recognize and name all upper- and lowercase letters of the alphabet.
Phonological Awareness
RF.K.2: Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Recognize and produce rhyming words. b. b. Count, pronounce, blend, and segment syllables in spoken words. c. c. Blend and segment onsets and rimes of single-syllable spoken words.

d. d. Isolate and pronounce the initial, medial vowel, and final sounds (phonemes) in three-phoneme (CVC) words.1 (This does not include CVCs ending with /*l*/, /*r*/, or /*x*/.) e. Add or substitute individual sounds (phonemes) in simple, one-syllable words to make new words.
Phonics and Word Recognition
RF.K.3: Know and apply grade-level phonics and word analysis skills in decoding words. a. Demonstrate basic knowledge of letter-sound correspondences by producing the primary or most frequent sound for each consonant. b. Associate the long and short sounds with the common spellings (graphemes) for the five major vowels. c. Read common high-frequency words by sight. (e.g., *the*, *of*, *to*, *you*, *she*, *my*, *is*, *are*, *do*, *does*). d. Distinguish between similarly spelled words by identifying the sounds of the letters that differ.
RF.K.4: Read emergent-reader texts with purpose and understanding.

SL: Speaking and Listening: Kindergarten
Comprehension and Collaboration
SL.K.1: Participate in collaborative conversations about *kindergarten topics and texts* with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
SL.K.2: Confirm understanding of written texts read aloud or information presented orally or through media by asking and answering questions about key details and requesting clarification if something is not understood.
SL.K.3: Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
Presentation of Knowledge and Ideas
SL.K.4: Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
SL.K.5: Add drawings or other visual displays to descriptions as desired to provide additional detail.
SL.K.6: Speak audibly and express thoughts, feelings, and ideas clearly.

LEVEL 1 Reading

RL: Reading Standards for Literature
Key Ideas and Details
RL.1.1: Ask and answer questions about key details in a text.
RL.1.2: Retell stories, including key details, and demonstrate understanding of their central message or lesson.
RL.1.3: Describe characters, settings, and major events in a story, using key details.
Craft and Structure
RL.1.4: Identify words and phrases in stories or poems that suggest feelings or appeal to the senses.
RL.1.5: Explain major differences between books that tell stories and books that give information, drawing on a wide reading of a range of text types.
RL.1.6: Identify who is telling the story at various points in a text.
Integration of Knowledge and Ideas
RL.1.7: Refer to pictures, illustrations, and details in a story to describe characters, setting, or events.
(Not applicable to literature)
RL.1.9: Compare and contrast the adventures and experiences ofd characters in stories.
Range of Reading and Level of Text Complexity
RL.1.10: With prompting and support, read appropriately complex prose and poetry for grade 1.

RI: Reading Standards for Informational Text
Key Ideas and Details
RI.1.1: Ask and answer questions about key details in a text.
RI.1.2: Identify the main topic and retell key details of a text.
RI.1.3: Describe the connection between two individuals, events, ideas, or pieces of information in a text.
Craft and Structure
RI.1.4: Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
RI.1.5: 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.
RI.1.6: Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
Integration of Knowledge and Ideas
RI.1.7: Use pictures, illustrations, and details in a text to describe its key ideas.
RI.1.8: Identify the reasons an author gives to support points in a text.
RI.1.9: Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
Range of Reading and Level of Text Complexity
RI.1.10: With prompting and support, read appropriately complex informational texts for grade 1.

RF: Foundational Skills: First Grade
Print Concepts
RF.1.1: Demonstrate understanding of the organization and basic features of print. a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
Phonological Awareness
RF.1.2: Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Distinguish long from short vowel sounds in spoken single-syllable words . b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends. c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words.

d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).
Phonics and Word Recognition
RF.1.3: Know and apply grade-level phonics and word analysis skills in decoding words. a. Know the spelling-sound correspondences for common consonant digraphs.(two letters that represent one sound). b. Decode regularly spelled one-syllable words. c. Know final *-e* and common vowel team conventions for representing long vowel sounds. d. Use knowledge that every syllable must have a vowel sound to determine the number of syllables in a printed word. e. Decode two-syllable words following basic patterns by breaking the words into syllables. f. Read words with inflectional endings. g. Recognize and read grade-appropriate irregularly spelled words.
RF.1.4: Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SL: Speaking and Listening: First Grade
Comprehension and Collaboration
SL.1.1: Participate in collaborative conversations about *grade 1 topics and texts* with peers and adults in small and larger groups. a. 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). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.2: Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
SL.1.3: Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
Presentation of Knowledge and Ideas
SL.1.4: Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
SL.1.5: Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
SL.1.6: Produce complete sentences when appropriate to task and situation. (See standards 1–3 in Language, for specific expectations.)

LEVEL 2 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	Key Ideas and Details
RL.2.1. Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.	**RI.2.1:** Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
RL.2.2: Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.	**RI.2.2:** Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
RL.2.3: Describe how characters in a story respond to major events and challenges.	**RI.2.3:** Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
Craft and Structure	Craft and Structure
RL.2.4: Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.	**RI.2.4:** Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area*.
RL.2.5: Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.	**RI.2.5:** 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 quickly and efficiently.
RL.2.6: Acknowledge differences in the points of view of characters, including by speaking in a different voice for each character when reading dialogue aloud.	**RI.2.6:** Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.2.7: Use information from illustrations, other visual elements (e.g., maps), and the words in a print or digital text to demonstrate understanding of the characters, setting, or plot.	**RI.2.7:** Explain how specific images and other illustrations contribute to and clarify a text (e.g., show how something works).
(Not applicable to literature)	**RI.2.8:** Describe how reasons support specific points the author makes in a text.
RL.2.9: Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.	**RI.2.9:** Compare and contrast the most important points presented by two texts on the same topic.
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity
RL.2.10: By the end of the year, read literature, including stories, poetry, and drama, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.	**RI.2.10:** By the end of year, read and comprehend informational texts, including historical, scientific and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

RF: Foundational Skills: Second Grade
Print Concepts
RF.2.1: Demonstrate understanding of the organization and basic features of print. a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
Phonological Awareness
RF.2.2: Demonstrate understanding of spoken words, syllables, and sounds (phonemes). a. Distinguish long from short vowel sounds in spoken single-syllable words . b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends. c. Isolate and pronounce initial, medial vowel, and final sounds (phonemes) in spoken single-syllable words. d. Segment spoken single-syllable words into their complete sequence of individual sounds (phonemes).
Phonics and Word Recognition
RF.2.3: Know and apply grade-level phonics and word analysis skills in decoding words. a. Distinguish long and short vowels when reading regularly spelled one-syllable words. b. Know spelling sound correspondences for additional common vowel teams. c. Decode regularly spelled two-syllable words with long vowels. d. Decode words with common prefixes and suffixes. e. Identify words with inconsistent but common spelling-sound correspondences. f. Recognize and read grade-appropriate irregularly spelled words.
RF.2.4: Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level text orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SL: Speaking and Listening: Second Grade
Comprehension and Collaboration
SL.2.1: Participate in collaborative conversations about *grade 2 topics and texts* with peers and adults in small and larger groups. a. 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). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
SL.2.2: Recount or describe key ideas or details from written texts read aloud or information presented orally or through media.
SL.2.3: 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.
Presentation of Knowledge and Ideas
SL.2.4: Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
SL.2.5: 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.
SL.2.6: Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See standards 1–3 in Language, for specific expectations.)

LEVEL 3 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	Key Ideas and Details
RL.3.1: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	**RI.3.1:** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
RL.3.2: 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.	**RI.3.2:** Determine the main idea of a text; recount the key details and explain how they support the main idea.
RL.3.3: Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	**RI.3.3:** 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.
Craft and Structure	Craft and Structure
RL.3.4: Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language	**RI.3.4:** Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.
RL.3.5: 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.	**RI.3.5:** Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic quickly and efficiently.
RL.3.6: Distinguish their own point of view from that of the narrator or those of the characters.	**RI.3.6:** Distinguish their own point of view from that of the author of a text.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.3.7: Explain how specific images and illustrations contribute to or clarify a story (e.g., create mood, emphasize particular aspects of characters or settings).	**RI.3.7:** Use information gained from illustrations, other visual elements (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).
(Not applicable to literature)	**RI.3.8:** Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence).
RL.3.9: 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).	**RI.3.9:** Compare and contrast the most important points and key details presented in two texts on the same topic.
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity
RL.3.10: By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 2–3 text complexity band independently and proficiently.	**RI.3.10:** By the end of the year, read and comprehend informational texts, including historical, scientific, and technical texts, in the grades 2–3 text complexity band independently and proficiently.

RF: Foundational Skills: Third Grade
Phonics and Word Recognition
RF.3.1: Know and apply grade-level phonics and word analysis skills in decoding words. a. Identify and know the meaning of the most common prefixes and derivational suffixes. b. Decode words with common Latin suffixes. c. Decode multisyllable words. d. Read grade-appropriate irregularly spelled words
Fluency
RF.3.2: Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SL: Speaking and Listening: Third Grade
Comprehension and Collaboration
SL.3.1: Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly. a. 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). b. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others. c. Explain their own ideas and understanding in light of the discussion
SL.3.2: Identify the main ideas and supporting details of written texts read aloud or information presented graphically, orally, visually, or multimodally.
SL.3.3: Ask and answer questions about information from a speaker's, offering appropriate elaboration and detail.
Presentation of Knowledge and Ideas
SL.3.4: 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.
SL.3.5: 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.
SL.3.6: Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See standards 1–3 in Language, for specific expectations.)

LEVEL 4 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	A: Key Ideas and Details
RL.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.4.1:** 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.
RL.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 what happened and why, based on specific information in the text.
Craft and Structure	Craft and Structure
RL.4.4: 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., *Herculean*), drawing on a wide reading of classic myths from a variety of cultures and periods.	**RI.4.4:** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.
RL.4.5: Explain major differences between poems, drama, and prose, and refer to the core structural elements of poems (e.g., stanza, verse, rhythm, meter) and drama (e.g., casts of characters, setting descriptions, dialogue, acts, scenes, stage directions) when writing or speaking about a text.	**RI.4.5:** Describe the overall structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect) in a text or part of a text.
RL.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.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.4.7: Integrate information gained from illustrations and other visual elements in a text with the words to demonstrate understanding of how the characters, setting, and plot interact and develop.	**RI.4.7:** Interpret factual information presented graphically or visually (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to understanding the text in which they appear.
(Not applicable to literature)	**RI.4.8:** Explain how an author uses reasons and evidence to support particular points in a text.
RL.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.	**RI.4.9:** Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity

RL.4.10: 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.	**RI.4.10:** By the end of year, read and comprehend informational texts, including historical, scientific, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as necessary at the high end of the range.

RF: Foundational Skills: Fourth Grade
Phonics and Word Recognition
RF.4.1: 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 read accurately unfamiliar multi-syllabic words in context and out of context.
Fluency
RF.4.2: Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SL: Speaking and Listening: Fourth Grade
Comprehension and Collaboration
SL.4.1: Engage effectively in range of collaborative discussions (one-on-one and in groups) 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 discussions. 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.
SL.4.2: Paraphrase portions of written texts read aloud or information presented graphically, orally, visually, or multimodally.
SL.4.3: Identify the reasons and evidence a speaker provides to support particular points.
B: Presentation of Knowledge and Ideas
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.
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. (See standards 1–3 in Language, for specific expectations).

LEVEL 5 Reading

RL:: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	Key Ideas and Details
RL.5.1: Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	**RI.5.1:** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
RL.5.2: 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.	**RI.5.2:** Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
RL.5.3: 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).	**RI.5.3:** 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	Craft and Structure
RL.5.4: Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.	**RI.5.4:** Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.
RL.5.5 Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.	**RI.5.5:** Compare and contrast the organizational structure of events, ideas, concepts, or information (e.g., chronology, comparison, cause/effect, problem/solution) in two or more texts.
RL.5.6: Describe how a narrator's or speaker's point of view influences how events are described.	**RI.5.6:** 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	Integration of Knowledge and Ideas
RL.5.7: Analyze how visual and multimedia elements in conjunction with words contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction).	**RI.5.7:** 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.
(Not applicable to literature)	**RI.5.8:** Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence supports which point(s).
RL.5.9: Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.	**RI.5.9:** 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 Text Complexity	Range of Reading and Level of Text Complexity
RL.5.10: By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band independently and proficiently.	**RI.5.10:** By the end of the year, read and comprehend informational text, including historical, scientific, and technical texts, in the grades 4–5 text complexity band level independently and proficiently.

RF: Foundational Skills: Fifth Grade
Print Concepts
None at this Grade Level
Phonological Awareness
None at this Grade Level
Phonics and Word Recognition
RF.5.3: 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 read accurately unfamiliar multi-syllabic words in context and out of context.
Fluency
RF.5.4: Read with sufficient accuracy and fluency to support comprehension. a. Read on-level text with purpose and understanding. b. Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SL: Speaking and Listening: Fifth Grade
Comprehension and Collaboration
SL.5.1: Engage effectively in a range of collaborative discussions (one-on-one and in groups) 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.
SL.5.2: Summarize written texts read aloud or information presented graphically, orally, visually, or multimodally.
SL.5.3: Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
Presentation of Knowledge and Ideas
SL.5.4: 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.
SL.5.5: Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
SL.5.6: Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See standards 1–3 in Language, for specific expectations.)

LEVEL 6 Reading

RL.6: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	Key Ideas and Details
RL.6.1: Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**RI.6.1:** Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.6.2: Determine a theme or central idea of a text and analyze its development over the course of the text; summarize the text.	**RI.6.2:** Determine a central idea of a text and analyze its development over the course of the text; summarize the text.
RL.6.3: Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.	**RI.6.3:** Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
Craft and Structure	Craft and Structure
RL.6.4: Determine the meaning of words and phrases as they are used in a text, including figures of speech and the connotations (associations) of particular words and phrases; analyze the impact of a specific word choice on meaning and tone.	**RI.6.4:** Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.
RL.6.5: Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.	**RI.6.5:** Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
RL.6.6: Explain how an author establishes and develops the point of view of the narrator or speaker in a text.	**RI.6.6:** Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.6.7: Compare and contrast the experience of reading a story, poem, or dram to listening to or viewing an audio, video, or live version of the text, including contrasting what they see and hear when reading the text to what they perceive when they listen or watch.	**RI.6.7:** Integrate information presented in different formats (e.g., print or digital text, video, multimedia) to develop a coherent understanding of a topic or issue.
(Not applicable to literature)	**RI.6.8:** Delineate and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.
RL.6.9: Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.	**RI.6.9:** Compare and contrast one author's presentation of events with that of another (e.g., a memoir written by and a biography on the same person).
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity
RL.6.10: By the end of the year, read and comprehend literature, including stories, dramas,	**RI.6.10:** By the end of the year, read and comprehend literary nonfiction in the grades 6–8

and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	text complexity band proficiently, with scaffolding as needed at the high end of the range

SL: Speaking and Listening: Sixth	
Comprehension and Collaboration	GLE Alignment
SL.6.1: Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 6 topics*, *texts*, *and issues*, 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 by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. With guidance and support from adults, work with peers to set rules for collegial discussions, clear goals and deadlines, and individual roles as needed. c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.	Not aligned
SL.6.2: Interpret information presented in graphical, oral, visual or multimodal formats and explain how it contributes to a topic, text, or issue under study.	Not aligned
SL.6.3: Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.	Not aligned
Presentation of Knowledge and Ideas	
SL.6.4: Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation	Not aligned
SL.6.5: Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.	Not aligned
SL.6.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See standards 1–3 in Language, for specific expectations.)	Not aligned

LEVEL 7 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	Key Ideas and Details
RL.7.1: Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**RI.7.1:** Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.7.2: Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; summarize the text.	**RI.7.2:** Determine two or more central ideas in a text and analyze their development over the course of the text and their relationship to one another; summarize the text.
RL.7.3: Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).	**RI.7.3:** Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).
Craft and Structure	Craft and Structure
RL.7.4: Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama.	**RI.7.4:** Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.
RL.7.5: Analyze how a drama's or poem's form or structure (e.g. sonnet, soliloquy) contributes to its meaning.	**RI.7.5:** Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to the development of the ideas.
RL.7.6: Analyze how an author establishes and contrasts the points of view of different characters or narrators in a text.	**RI.7.6:** Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her point of view from that of others.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.7.7: Compare and contrast a story, poem, or drama to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, camera focus and angles).	**RI.7.7:** Compare and contrast the experience of reading a text to experiencing an audio, video, or multimedia version of it, analyzing the text's portrayal in each medium (e.g., how the delivery of a speech affects the impact of the words).
(Not applicable to literature)	**RI.7.8:** Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is sufficient to support the claims.
RL.7.9: Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.	**RI.7.9:** Analyze how two or more authors writing about the same topic shape their presentations of key information by emphasizing different evidence or advancing different interpretations of facts
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity

RL.7.10: By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as necessary at the high end of the range	**RI.7.10:** By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.

SL: Speaking and Listening: Seventh Grade
Comprehension and Collaboration
SL.7.1: Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 7 topics*, *texts*, *and issues*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Work with peers to set rules for collegial discussions, clear goals and deadlines, and individual roles as needed. c. Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed. d. Acknowledge new information expressed by others and, when warranted, modify their own views and understanding.
SL.7.2: Analyze the main ideas and supporting details presented in graphical, oral, visual, or multimodal formats and explain how the ideas clarify a topic, text, or issue under study.
SL.7.3: Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance of the evidence.
Presentation of Knowledge and Ideas
SL.7.4: Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.7.5: Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
SL.7.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See standards 1–3 in Language, for specific expectations.)

LEVEL 8 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	Key Ideas and Details
RL.8.1: Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.	**RI.8.1:** Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RL.8.2: Determine a theme or central idea of a text and analyze its development over the course of the text, including how it is conveyed through particular details; provide an accurate summary of the text distinct from personal opinions or judgments.	**RI.8.2:** Determine a central idea of a text and analyze its development over the course of the text, including how it is conveyed through particular details; provide an accurate summary of the text distinct from personal opinions or judgments.
RL.8.3: Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.	**RI.8.3:** Analyze how a text makes connections among and distinctions between key individuals, ideas, or events (e.g., through comparisons, analogies, or categories).
Craft and Structure	Craft and Structure
RL.8.4: Determine the meaning of words and phrases as they are used in a text, including analogies or allusions to other texts; analyze the impact of specific word choices on meaning and tone.	**RI.8.4:** Determine the meaning of words and phrases as they are used in a text, including analogies or allusions to other texts; analyze the impact of specific word choices on meaning and tone.
RL.8.5: Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.	**RI.8.5:** Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept.
RL.8.6: Explain how differences in the point of view of characters and the audience or reader (e.g., created through the use of dramatic irony) creates such effects as suspense or humor.	**RI.8.6:** Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.8.7: Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.	**RI.8.7:** Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multimedia) to present a particular topic or idea.
(Not applicable to literature)	**RI.8.8:** Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient and identifying when irrelevant evidence is introduced.
RL.8.9: Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.	**RI.8.9:** Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.

Range of Reading and Level of Text Complexity
RL.8.10: By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band independently and proficiently.

Range of Reading and Level of Text Complexity
RI.8.10: By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band independently and proficiently.

SL: Speaking and Listening: Eighth Grade
Comprehension and Collaboration
SL.8.1: Engage effectively in a range of collaborative discussions (one-on-one and in groups) on *grade 8 topics*, *texts*, *and issues*, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Work with peers to set rules for collegial discussions, clear goals and deadlines, and individual roles as needed. c. Pose questions that connect the ideas of several speakers and elicit elaboration, and respond to others' questions and comments with relevant evidence, observations, and ideas. d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views and understanding in light of the evidence presented.
SL.8.2: Determine the purpose of information in graphical, oral, visual, or multimodal formats and evaluate the motives (e.g., social, commercial, political) behind its presentation.
SL.8.3: Delineate a speaker's argument and specific claims, evaluating the validity of the reasoning and sufficiency of the evidence.
Presentation of Knowledge and Ideas
SL.8.4: Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.8.5: Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
SL.8.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See standards 1–3 in Language, pages for specific expectations.)

LEVELS 9 & 10 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	A: Key Ideas and Details
RL.9-10.1: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	**RI.9-10.1**: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.9-10.2: Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	**RI.9-10.2**: Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
RL.9-10.3: Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.	**RI.9-10.3**: Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
Craft and Structure	Craft and Structure
RL.9-10.4: Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).	**RI.9-10.4**: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
RL.9-10.5: Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.	**RI.9-10.5**: Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).
RL.9-10.6: Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.	**RI.9-10.6**: Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.9-10.7: Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).	**RI.9-10.7**: Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.
(Not applicable to literature)	**RI.9.10.8**: Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.
RL.9-10.9: Analyze how an author draws on and transforms source material in a specific work (e.g.,	**RI.9-10.9**: Analyze seminal U.S. documents of historical and literary significance (e.g.,

how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).	Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity
RL.9-10.10: By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.	**RI.9-10.10**: By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

SL: Speaking and Listening: Grades 9-10
Comprehension and Collaboration
SL.9-10.1:Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed. c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions. d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
SL.9-10.2: Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
SL.9-10.3: Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
Presentation of Knowledge and Ideas
SL.9-10.4:Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
SL.9-10.5: Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9-10 Language standards 1 and 3 for specific expectations.)

LEVELS 11 & 12 Reading

RL: Reading Standards for Literature	RI: Reading Standards for Informational Text
Key Ideas and Details	A: Key Ideas and Details
RL.11-12.1: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	**RI.11-12.1**: Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
RL.11-12.2: Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.	**RI.11-12.2**: Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
RL.11-12.3: Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).	**RI.11-12.3**: Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
Craft and Structure	Craft and Structure
RL.11-12.4: Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)	**RI.11-12.4**: Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
RL.11-12.5: Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.	**RI.11-12.5**: Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
RL.11-12.6: Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).	**RI.11-12.6**: Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
Integration of Knowledge and Ideas	Integration of Knowledge and Ideas
RL.11-12.7: Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)	**RI.11-12.7**: Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

(Not applicable to literature)	**RI.11-12.8**: Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., *The Federalist*, presidential addresses).
RL.11-12.9: Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.	**RI.11-12.9**: Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.
Range of Reading and Level of Text Complexity	Range of Reading and Level of Text Complexity
RL.11-12.10: By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.	**RI.11-12.10**: By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

SL: Speaking and Listening: Grades 11-12
Comprehension and Collaboration
SL.11-12.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
SL.11-12.2: Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
SL.11-12.3: Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
Presentation of Knowledge and Ideas
SL.11-12.4: Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

SL.11-12.5: Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
SL.11-12.6: Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11-12 Language standards 1 and 3 or specific expectations.)

Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

LPSD WRITING STANDARDS

Level 0 Writing

W: Writing Standards: Kindergarten
Text Types and Purposes
W.K.1: 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., *My favorite book is* . . .).
W.K.2: 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. **W.K.3:** 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.
Production and Distribution of Writing
(Begins in grade 3) **W.K.5:** With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.
W.K.6: With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge
W.K.7: Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
W.K.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (Begins in grade 4)
Range of Writing
(Begins in grade 3)

L: Language Standards: Kindergarten
Conventions of Standard English
L.K.1: Observe conventions of grammar and usage when writing or speaking. • Print many upper- and lowercase letters. • Use frequently occurring nouns and verbs. • Form regular plural nouns orally by adding /s/ or /es/ (e.g., *dog*, *dogs*; *wish*, *wishes*). • Understand and use question words (interrogatives) (e.g., *who*, *what*, *where*, *when*, *why*, *how*). • Use the most frequently occurring prepositions (e.g., *to*, *from*, *in*, *out*, *on*, *off*, *for*, *of*, *by*, *with*). • Produce and expand complete sentences in shared language activities.
L.K.2: Observe conventions of capitalization, punctuation, and spelling when writing. • Capitalize the first word in a sentence and the pronoun *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.
Knowledge of Language
(Begins in grade 2)
Vocabulary Acquisition and Use
L.K.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.

- Identify new meanings for familiar words and apply them accurately (e.g., knowing *duck* as a bird and learning the verb *to duck*).
- 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.

L.K.5: With guidance and support from adults, explore word relationships and nuances in word meanings.

- 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.

L.K.6: Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

LEVEL 1 Writing

W: Writing Standards: First Grade
Text Types and Purposes
W.1.1: 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.
W.1.2: Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
W.1.3: 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.
Production and Distribution of Writing
(Begins in grade 3) **W.1.5:** 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. **W.1.6:** With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge
W.1.7: 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).
W.1.8: With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (Begins in grade 4)
D: Range of Writing
(Begins in grade 3)

L: Language Standards: First Grade
Conventions of Standard English
L.1.1: Observe conventions of grammar and usage when writing or speaking. • Print all upper- and lowercase letters. • Use common, proper, and possessive nouns. • Use singular and plural nouns with matching verbs in basic sentences (e.g., *He hops*; *We hop*). • Use personal, possessive, and indefinite pronouns (e.g., *I*, *me*, *my*; *they*, *them*, *their*, *anyone*, *everything*). • 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*). • Use frequently occurring adjectives. • Use frequently occurring conjunctions (e.g., *and*, *but*, *or*, *so*, *because*). • Use determiners (e.g., articles, demonstratives). • Use frequently occurring prepositions (e.g., *during*, *beyond*, *toward*). • Produce and expand complete simple and compound declarative, interrogative, imperative, and exclamatory sentences in response to questions and prompts.
L.1.2: Observe conventions of capitalization, punctuation, and spelling when writing. • 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 spelling for words with common spelling patterns and for frequently occurring irregular words.
- Spell untaught words phonetically, drawing on phonemic awareness and spelling conventions.

Knowledge of Language

(Begins in grade 2)

Vocabulary Acquisition and Use

L.1.4: 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.

- Use sentence-level context as a clue to the meaning of a word or phrase.
- Use frequently occurring affixes as a clue to the meaning of a word.
- Identify frequently occurring root words (e.g., *look*) and their inflectional forms (e.g., *looks*, *looked*, *looking*).

L.1.5: With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings.

- 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.

L.1.6: 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*).

LEVEL 2 Writing

W: Writing Standards: Second Grade
Text Types and Purposes
W.2.1: 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.
W.2.2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section. **W.2.3:** 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.
Production and Distribution of Writing
(Begins in grade 3) **W.2.5:** With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.
W.2.6: With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
Research to Build and Present Knowledge
W.2.7: 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).
W.2.8: Recall information from experiences or gather information from provided sources to answer a question.

L: Language Standards: Second Grade
Conventions
L.2.1: Observe conventions of grammar and usage when writing or speaking. • Use collective nouns (e.g., *group*). • Form and use frequently occurring irregular plural nouns (e.g., *feet*, *children*, *teeth*, *mice*, *fish*). • Use reflexive pronouns (e.g., *myself*, *ourselves*). • Form and use the past tense of frequently occurring irregular verbs (e.g., *sat*, *hid*, *told*). • Use adjectives and adverbs, and choose between them depending on what is to be modified. • 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*). **L.2.2:** Observe conventions of capitalization, punctuation, and spelling when writing. • 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.
Effective Language Use
(Begins in grade 3)
Vocabulary Acquisition and Usage
L.2.4: 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. • 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., *happy*/*unhappy*, *tell*/*retell*).
- Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., *addition*, *additional*).
- Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., *birdhouse*, *lighthouse*, *housefly*; *bookshelf*, *notebook*, *bookmark*).
- Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.

L.2.5: Demonstrate understanding of word relationships and nuances in word meanings.

- Identify real-life connections between words and their use (e.g., describe foods tha*t 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*).

L.2.6: 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*).

LEVEL 3 Writing

W:Writing Standards: Third Grade
Text Types and Purposes
W.3.1: Write opinion pieces on familiar topics or texts, supporting a point of view with reasons. • Introduce the topic or book 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. **W.3.2:** 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., *also*, *another*, *and*, *more*, *but*) to connect ideas within categories of information. • Provide a concluding statement or section. **W.3.3:** 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.
Production and Distribution of Writing
W.3.4: 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). **W.3.5:** With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.
W.3.6: 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.
Research to Build Knowledge
W.3.7: Conduct short research projects that build knowledge about a topic.
W.3.8: Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (Begins in grade 4)
Range of Writing
W.3.10: 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.

L: Language Standards: Third Grade
Conventions
L.3.1: Observe conventions of grammar and usage when writing or speaking.

- Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.
- Form and use regular and irregular plural nouns.
- Use abstract nouns (e.g., *childhood*).
- Form and use regular and irregular verbs.
- Form and use the simple (e.g., *I walked*; *I walk*; *I will walk*) verb tenses.
- Ensure subject-verb and pronoun-antecedent agreement.*
- Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified.
- Use coordinating and subordinating conjunctions.
- Produce simple, compound, and complex sentences.

L.3.2: Observe conventions of capitalization, punctuation, and spelling when writing.

- Capitalize important 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.

Effective Language Use

L.3.3: Use language to achieve particular effects when writing or speaking.

- Choose words and phrases for effect.*
- Recognize and observe differences between the conventions of spoken and written standard English.

Vocabulary Acquisition and Usage

L.3.4: 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.

L.3.5: Demonstrate understanding of word relationships *a*nd 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*).

L.3.6: Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific vocabulary, including words and phrases that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

LEVEL 4 Writing

W: Writing Standards: Fourth Grade
Text Types and Purposes
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
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.
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.
Production and Distribution of Writing
W.4.4: 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.)
W.4.5: With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. **W.4.6:** With some guidance and support from adults, use technology, including the Internet, to produce and publish writing (using the keyboard) 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.
Research to Build Knowledge
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.
W.4.9: Draw evidence from literary or informational texts to support analysis, reflection, and research. 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). b. Apply *grade 4 Reading standard*s to informational texts (e.g., —Explain how an author uses reasons and evidence to support particular points in a text).

Range of Writing

W.4.10: 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.

L: Language Standards: Fourth Grade

Conventions

L.4.1: Observe conventions of grammar and usage when writing or speaking.

- Use relative pronouns (*who*, *whose*, *whom*, *which*, *that*) and relative adverbs (*where*, *when*, *why*).
- Form and use the progressive (e.g., *I was walking*; *I am walking*; *I will be walking*) verb aspects.
- Use modal auxiliaries (e.g., *can*, *may*, *must*) to convey various conditions.
- 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.
- Produce complete sentences, recognizing and correcting rhetorically poor fragments and run-ons.*
- Correctly use frequently confused words (e.g., *to*, *too*, *two*; *there*, *their*).*

L.4.2: Observe conventions of capitalization, punctuation, and spelling when writing.

- 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.

Effective Language Use

L.4.3 Use language to enhance meaning and achieve particular effects when writing or speaking.

- Choose words and phrases to convey ideas precisely.*
- Use 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).

Vocabulary Acquisition and Usage

L.4.4: 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.

L.4.5: 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).

L.4.6: Acquire and use accurately grade-appropriate general academic and domain-specific vocabulary, including words and phrases that signal precise actions, emotions, or states of being (e.g., *quizzed*, *whined*, *stammered*) and words and phrases basic to a particular topic (e.g., *wildlife*, *conservation*, and *endangered* when discussing animal preservation).

LEVEL 5 Writing

W: Writing Standards: Fifth Grade
Text Types and Purposes
W.5.1: 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 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.
W.5.2: 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.
W.5.3: 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 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
W.5.4: 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 #1–3 above.)
W.5.5: With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. **W.5.6:** With some guidance and support from adults, use technology, including the Internet, to produce and publish a minimum of two pages of writing (using the keyboard) as well as to interact and collaborate with others.
Research to Build Knowledge
W.5.7: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
W.5.8: 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.
W.5.9: 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).

- 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 supports which point[s]).

Range of Writing

W.5.10: 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.

L: Language Standards: Fifth Grade

Conventions

L.5.1: Observe conventions of grammar and usage when writing or speaking.

- Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.
- Form and use the perfect (e.g., *I had walked*; *I have walked*; *I will have walked*) verb aspects.
- Use verb tense and aspect to convey various times, sequences, states, and conditions.
- Recognize and correct inappropriate shifts in verb tense and aspect.*
- Use correlative conjunctions.

L.5.2: Observe conventions of capitalization, punctuation, and spelling when writing.

- 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.

Effective Language Use

L.5.3: Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking.

- 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.

Vocabulary Acquisition and Usage

L.5.4: 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.

L.5.5: 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.

L.5.6: Acquire and use accurately grade-appropriate general academic and domain-specific vocabulary, including words and phrases that signal contrast, addition, and other logical relationships (e.g., *however*, *although*, *nevertheless*, *similarly*, *moreover*, *in addition*).

LEVEL 6 Writing

W: Writing Standards: Sixth
Text Types and Purposes
W.6.1: Write arguments to support claims with clear reasons and relevant evidence. • Introduce claim(s) and organize the reasons and evidence clearly. • Support claim(s) with clear reasons and relevant evidence, demonstrating an understanding of the topic or text. • Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from the argument presented
W.6.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. • Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate transitions to clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from the information or explanation presented.
W.6.3: Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. • Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. • Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. • Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. • Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events. • Provide a conclusion that follows from the narrated experiences or events.
Production and Distribution of Writing
W.6.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.6.5: With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. **W.6.6:** Use technology, including the Internet, to produce and publish a minimum of three pages of writing as well as to interact and collaborate with others.
Research to Build Knowledge
W.6.7: Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate

W.6.8: Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources

W.6.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

- Apply *grade 6 Reading standards* to literature (e.g., —Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics).
- Apply *grade 6 Reading standards* to literary nonfiction (e.g., —Delineate and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not).

Range of Writing

W.6.10: 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.

L: Language Standards: Sixth

Conventions

L.6.1: Observe conventions of grammar and usage when writing or speaking.

- Ensure that pronouns are in the proper case (subjective, objective, possessive).
- Use intensive pronouns (e.g., *myself*, *ourselves*).
- Recognize and correct inappropriate shifts in pronoun number and person.*
- Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).*
- Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.*

L.6.2: Observe conventions of capitalization, punctuation, and spelling when writing.

- Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.*
- Spell correctly.

Effective Language Use

L.6.3: Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking.

- Vary sentence patterns for meaning, reader/listener interest, and style.*
- Maintain consistency in style and tone.*

Vocabulary Acquisition and Usage

L.6.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 6 reading and content*, choosing flexibly from a range of strategies.

- Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
- Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *audience*, *auditory*, *audible*).
- Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
- Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.6.5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- Interpret figures of speech (e.g., personification) in context.
- Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words.

• Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *stingy*, *scrimping*, *economical*, *unwasteful*, *thrifty*).
L.6.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

LEVEL 7 Writing

W: Writing Standards: Seventh Grade
Text Types and Purposes
W.7.1: Write arguments to support claims with clear reasons and relevant evidence. • Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant evidence, demonstrating an understanding of the topic or text. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented
W.7.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the information or explanation presented **W.7.3:** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. • Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. • Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. • Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. • Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. • Provide a conclusion that follows from and reflects on the narrated experiences or events.
Production and Distribution of Writing
W.7.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.7.5: With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed. **W.7.6:** Use technology, including the Internet, to produce and publish a minimum of four pages of writing as well as to interact and collaborate with others.

Research to Build Knowledge
W.7.7: Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
W.7.8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.7.9: Draw evidence from literary or informational texts to support analysis, reflection, and research. • Apply *grade 7 Reading standards* to literature (e.g., —Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history]). • Apply *grade 7 Reading standards* to literary nonfiction (e.g., —Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is sufficient to support the claims).
Range of Writing
W.7.10: 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.

L: Language Standards: : Seventh Grade
Conventions
L.7.1: Observe conventions of grammar and usage when writing or speaking. • Explain the function of phrases and clauses in general and their function in specific sentences. • Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas. • Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.*
L.7.2: Observe conventions of capitalization, punctuation, and spelling when writing. • Use a comma to separate coordinate adjectives (e.g., *It was a fascinating, enjoyable movie* but not *He wore an old[,] green shirt*). • Spell correctly. **L.7.3:** Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking. • Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.*
Vocabulary Acquisition and Usage
L.7.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 7 reading and content*, choosing flexibly from a range of strategies. • Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. • Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *belligerent*, *bellicose*, *rebel*). • Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech. • Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.7.5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. • Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context.

- Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words.
- Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *refined*, *respectful*, *polite*, *diplomatic*, *condescending*).

L.7.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

LEVEL 8 Writing

W: Writing Standards: Eighth Grade
Text Types and Purposes
W.8.1: Write arguments to support claims with clear reasons and relevant evidence. • Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. • Support claim(s) with logical reasoning and relevant evidence, using credible sources and demonstrating an understanding of the topic or text. • Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the argument presented.
W.8.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. • Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. • Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. • Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Establish and maintain a formal style. • Provide a concluding statement or section that follows from and supports the information or explanation presented. **W.8.3:** Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. • Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. • Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters. • Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events. • Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events. • Provide a conclusion that follows from and reflects on the narrated experiences or events.
Production and Distribution of Writing
W.8.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.) **W.8.5:** With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
W.8.6: Use technology, including the Internet, to produce and publish a minimum of five pages of writing as well as to interact and collaborate with others.
Research to Build and Present Knowledge

W.8.7: Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

W.8.8: Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

W.8.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

- Apply *grade 8 Reading standards* to literature (e.g., —Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new).
- Apply *grade 8 Reading standards* to literary nonfiction (e.g., —Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient and identifying when irrelevant evidence is introduce).

Range of Writing

W.8.10: 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.

L: Language Standards: Eighth Grade

Conventions in Writing and Speaking

L.8.1: Observe conventions of grammar and usage when writing or speaking.

- Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.
- Form and use verbs in the active and passive voice.
- Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.
- Recognize and correct inappropriate shifts in verb voice and mood.*

L.8.2: Observe conventions of capitalization, punctuation, and spelling when writing.

- Use punctuation (comma, ellipsis, dash) to indicate a pause or break.
- Use an ellipsis to indicate an omission.
- Spell correctly

Effective Language Use

L.8.3: Use language to enhance meaning, convey style, and achieve particular effects when writing or speaking.

- Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).

Vocabulary Acquisition and Usage

L.8.4: Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on *grade 8 reading and content*, choosing flexibly from a range of strategies.

- Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
- Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., *precede*, *recede*, *secede*).
- Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
- Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.8.5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- Interpret figures of speech (e.g. verbal irony, puns) in context.
- Use the relationship between particular words to better understand each of the words.
- Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., *bullheaded*, *willful*, *firm*, *persistent*, *resolute*)

L.8.6: Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

LEVELS 9 & 10 Writing

W: Writing Standards: Grades 9-10

Text Types and Purposes

W.9-10.1:Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

- Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.
- Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.
- Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
- Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- Provide a concluding statement or section that follows from and supports the argument presented.

W.9-10.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

- Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
- Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
- Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
- Use precise language and domain-specific vocabulary to manage the complexity of the topic.
- Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
- Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.9-10.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

- Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.
- Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.
- Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.
- Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.
- Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

Production and Distribution of Writing

W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

W.9-10.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

W.9-10.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

Research to Build and Present Knowledge

W.9-10.7: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

W.9-10.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

W.9-10.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

- Apply *grades 9–10 Reading standards* to literature (e.g., "Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]").
- Apply *grades 9–10 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning").

Range of Writing

W.9-10.10: 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.

L: Language Standards: Grades 9-10

Conventions

L.9-10.1: Demonstrate command of the conventions of standard English grammar and usage when writing/speaking.

- Use parallel structure.*
- Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

L.9-10.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

- Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.
- Use a colon to introduce a list or quotation.
- Spell correctly.

Effective Language Use

L.9-10.3: 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.

- Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian's *Manual for Writers*) appropriate for the discipline and writing type.

Vocabulary Acquisition and Usage

L.9-10.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9–10 reading and content*, choosing flexibly from a range of strategies.

- Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
- Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *analyze, analysis, analytical; advocate, advocacy*).
- Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.
- Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.9-10.5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.
- Analyze nuances in the meaning of words with similar denotations.

L.9-10.6: Acquire and use accurately 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 considering a word or phrase important to comprehension or expression.

LEVELS 11 & 12 Writing

W: Writing Standards: Grades 11-12
Text Types and Purposes
W.11-12.1: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. • Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence. • Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. • Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. • Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. • Provide a concluding statement or section that follows from and supports the argument presented.
W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. • Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. • Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. • Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. • Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic. • Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. • Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).
W.11-12.3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. • Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. • Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. • Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution). • Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.

- Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

Production and Distribution of Writing

W.11-12.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.

W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
W.11-12.6: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Research to Build and Present Knowledge

W.11-12.7: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

W.11-12.8: Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

W.11-12.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

- Apply g*rades 11–12 Reading standards* to literature (e.g., "Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics").
- Apply *grades 11–12 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., *The Federalist*, presidential addresses]").

Range of Writing

W.11-12.10: 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.

L: Language Standards: Grades 11-12

Conventions

L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

- Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.
- Resolve issues of complex or contested usage, consulting references (e.g., *Merriam-Webster's Dictionary of English Usage, Garner's Modern American Usage*) as needed.

L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

- Observe hyphenation conventions.
- Spell correctly.

Effective Language Use

L.11-12.3: 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.

- Vary syntax for effect, consulting references (e.g., Tufte's *Artful Sentences*) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

Vocabulary Acquisition and Usage

L.11-12.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 11–12 reading and content*, choosing flexibly from a range of strategies.

- Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
- Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *conceive, conception, conceivable*).
- Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.
- Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

L.11-12.5: Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

- Interpret figures of speech (e.g., hyperbole, paradox) in context and analyze their role in the text.
- Analyze nuances in the meaning of words with similar denotations.

L.11-12.6: Acquire and use accurately 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 considering a word or phrase important to comprehension or expression.

Beginning in grade 3, skills and understandings that are particularly likely to require continued attention in higher grades as they are applied to increasingly sophisticated writing and speaking are marked with an asterisk (*).

HOW TO READ MATH STANDARDS

Each Math Level 0-8 begins with:

- A narrative explaining key components
- 8 mathematical practices (consistent across ALL levels)
- DOMAINS to be covered at this level and bulleted list of key skills (SUPER standards)

LEVEL 0

In LEVEL 0, instructional time should focus on two critical areas: (1) representing and comparing whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Level 0 should be devoted to number than to other topics.

1. Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Level 0 students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.
2. Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

Mathematical Practices

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.

LEVEL 0 Overview

Counting and Cardinality

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

Operations and Algebraic Thinking

Number and Operations in Base Ten

- Work with numbers 11–19 to gain foundations for place value.

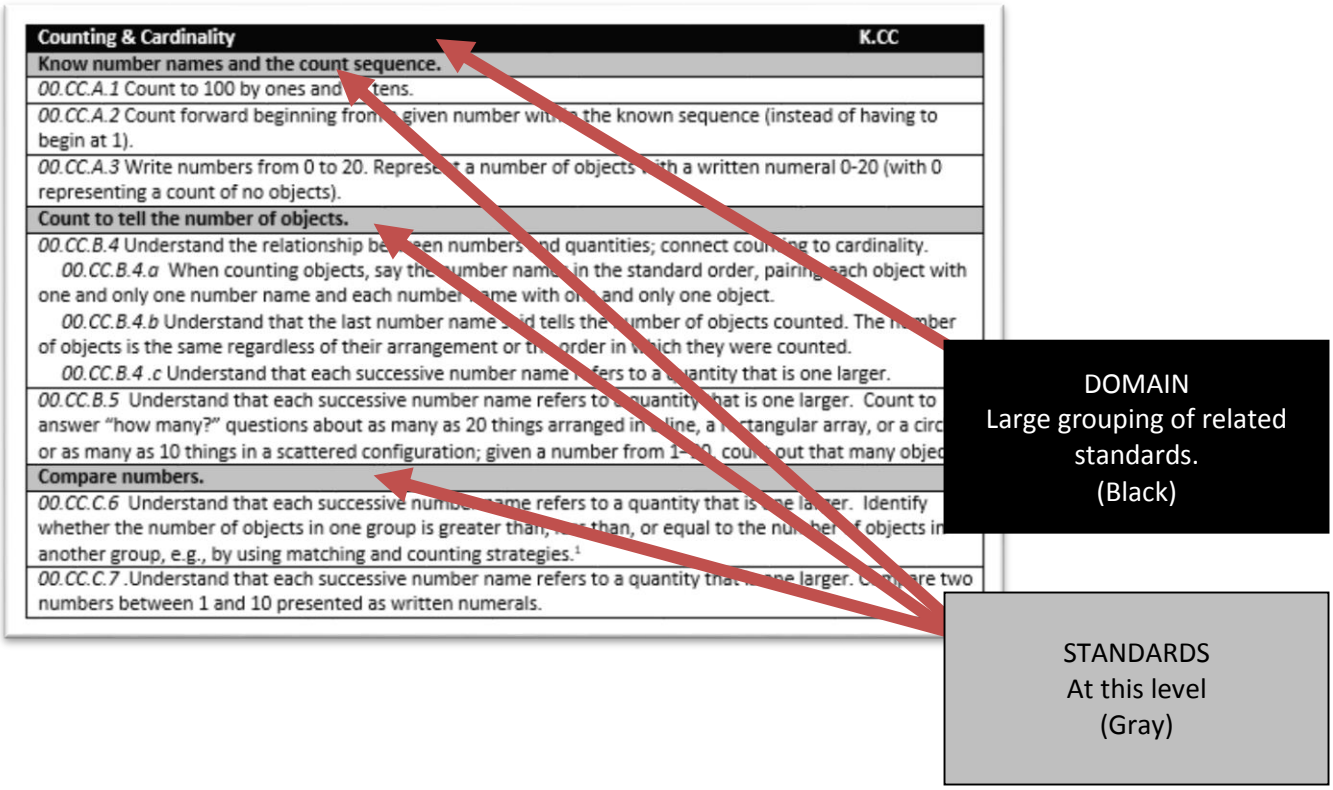
Measurement and Data

- Describe and compare measurable attributes.
- Classify objects and count the number of objects in categories.

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Geometry

- Identify and describe shapes.
- Analyze, compare, create, and compose shapes.



00.CC.B.4.b*

- 00: refers to Level 0 (first 0 is place holder)
- CC: refers to Domain, Counting and Cardinality
- B: refers to Cluster (Count to tell the number of objects)
- 4: fourth standard in this Domain
- b: refers to second sub-standard in this standard group

OO.CC.C.6

- 00: refers to Level 0 (first 0 is place holder)
- CC: refers to Domain, Counting and Cardinality
- C: refers to Cluster (Compare Numbers)
- 6: refers to sixth standard in this Domain

OO.CC.C.7

- 00: refers to Level 0 (first 0 is place holder)
- CC: refers to Domain, Counting and Cardinality
- C: refers to Cluster (Compare Numbers)

*Note that on Educate standard, numbers are preceded by "CC.M." which refers to: Common Core Math

LPSD MATH STANDARDS

LEVEL 0 Math

In LEVEL 0, instructional time should focus on two critical areas: (1) representing and comparing whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Level 0 should be devoted to number than to other topics.

1. Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Level 0 students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away.
2. Students describe their physical world using geometric ideas (e.g., shape, orientation, spatial relations) and vocabulary. They identify, name, and describe basic two-dimensional shapes, such as squares, triangles, circles, rectangles, and hexagons, presented in a variety of ways (e.g., with different sizes and orientations), as well as three-dimensional shapes such as cubes, cones, cylinders, and spheres. They use basic shapes and spatial reasoning to model objects in their environment and to construct more complex shapes.

Mathematical Practices

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.

LEVEL 0 Overview

Counting and Cardinality

- Know number names and the count sequence.
- Count to tell the number of objects.
- Compare numbers.

Operations and Algebraic Thinking

- Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Number and Operations in Base Ten

- Work with numbers 11–19 to gain foundations for place value.

Measurement and Data

- Describe and compare measurable attributes.
- Classify objects and count the number of objects in categories.

Geometry

- Identify and describe shapes.
- Analyze, compare, create, and compose
- shapes.

Counting & Cardinality	**K.CC**
Know number names and the count sequence.	
00.CC.A.1 Count to 100 by ones and by tens.	
00.CC.A.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	
00.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	
Count to tell the number of objects.	
00.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality. *00.CC.B.4a* 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. *00.CC.B.4b* Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. *00.CC.B.4c* Understand that each successive number name refers to a quantity that is one larger.	
*00.CC.B.*5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.	
Compare numbers.	
00.CC.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.[1]	
00.CC.7 Compare two numbers between 1 and 10 presented as written numerals.	

[1] Include groups with up to ten objects.

Operations & Algebraic Thinking	**K.OA**
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	
00.OA.A.1 Represent addition and subtraction with objects, fingers, mental images, drawings[1], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	
00.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	
00.OA.A.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).	
00.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	
5*00.OA.A.5* Fluently add and subtract within 5.	

[1] Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.)

Number & Operations in Base Ten	K.NBT
Work with numbers 11-19 to gain foundations for place value.	
00.NBT.A.1 Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	

Measurement & Data	K.MD
Describe and compare measurable attributes.	
00.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	
00.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*	
00.MD.B.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[1]	

[1] Limit category counts to be less than or equal to 10.

Geometry	K.G
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
00.G.A.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.	
00.G.A.2 Correctly name shapes regardless of their orientations or overall size.	
00.G.A.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	
Analyze, compare, create, and compose shapes.	
00.G.B.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	
00.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	
00.G.B.6 Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"*	

LEVEL 1

In Level 1, instructional time should focus on four critical areas: (1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes.

1. Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., adding two is the same as counting on two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., "making tens") to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

2. Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.

3. Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.[1]

4. Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

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[1] Students should apply the principle of transitivity of measurement to make indirect comparisons, but they need not use this technical term.

Mathematical Practices

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.

LEVEL 1 Overview

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

Number and Operations in Base Ten

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Represent and interpret data.

Geometry

- Reason with shapes and their attributes.

Operations & Algebraic Thinking	**1.OA**
Represent and solve problems involving addition and subtraction.	
01.0A.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.[1]	
01.0A.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	
Understand and apply properties of operations and the relationship between addition and subtraction.	
01.0A.B.3 Apply properties of operations as strategies to add and subtract.[2] *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*	
01.0A.B.4 Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*	
Add and subtract within 20.	
01.0A.C.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	
01.0A.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	
Work with addition and subtraction equations.	

01.0A.D.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.
01.0A.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ – 3, 6 + 6 = _.*

[1] Students need not use formal terms for these properties.

Number & Operations in Base Ten	**1.NBT**
Extend the counting sequence.	
01.NBT.A.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	
Understand place value.	
01.NBT.B.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: *01.NBT.B.2a* 10 can be thought of as a bundle of ten ones — called a "ten." *01.NBT.B.2b* The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. *01.NBT.B.2c* The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	
01.NBT.B.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	
Use place value understanding and properties of operations to add and subtract.	
01.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	
01.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	
01.NBT.C.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	

Measurement & Data	**1.MD**
Measure lengths indirectly and by iterating length units.	
01.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.	
01.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*	
Tell and write time.	
01.MD.B.3 Tell and write time in hours and half-hours using analog and digital clocks.	
Represent and interpret data.	

01.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Geometry	**1.G**
Reason with shapes and their attributes.	
01.G.A.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size) ; build and draw shapes to possess defining attributes.	
01.G.A.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.[1]	
01.G.A.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	

[1] Students do not need to learn formal names such as “right rectangular prism.”

LEVEL 2

In Level 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

1. Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

2. Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

3. Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

4. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Mathematical Practices

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.

LEVEL 2 Overview

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.

Number and Operations in Base Ten

- Understand place value.

Measurement and Data

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.
- Represent and interpret data.

Geometry

- Reason with shapes and their attributes.

- Use place value understanding and properties of operations to add and subtract.

Operations & Algebraic Thinking	**2.OA**
Represent and solve problems involving addition and subtraction.	
02.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]	
Add and subtract within 20.	
02.OA.B.2 Fluently add and subtract within 20 using mental strategies.[2] By end of Grade 2, know from memory all sums of two one-digit numbers.	
Work with equal groups of objects to gain foundations for multiplication.	
02.OA.C.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	
02.OA.C.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	

[1] See Glossary, Table 1.

[2]See standard 1.OA.6 for a list of mental strategies.

Number & Operations in Base Ten	**2.NBT**
Understand place value.	
02.NBT.A.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: *02.NBT.A.1a* 100 can be thought of as a bundle of ten tens — called a "hundred." *02.NBT.A.1b* The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	
02.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.	
02.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	
02.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	
Use place value understanding and properties of operations to add and subtract.	
02.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	
02.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	
02.NBT.B.7 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	
02.NBT.B.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	
02.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.[1]	

[1] Explanations may be supported by drawings or objects.

Measurement & Data	2.MD
Measure and estimate lengths in standard units.	
02.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	
02.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	
02.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.	
02.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	
Relate addition and subtraction to length.	
02.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	
02.MD.B.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	
Work with time and money.	
02.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	
02.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?	
Represent and interpret data.	
02.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	
02.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[1] using information presented in a bar graph.	

[1] See Glossary, Table 1.

Geometry	2.G
Reason with shapes and their attributes.	
02.G.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[1] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	
02.G.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	
02.G.A.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	

[1] Sizes are compared directly or visually, not compared by measuring.

LEVEL 3

In Level 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

1. Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

2. Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

3. Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

4. Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Mathematical Practices

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.

Level 3 Overview

Operations and Algebraic Thinking

- Represent and solve problems involving multiplication and division.
- Understand properties of multiplication and the relationship between multiplication and division.
- Multiply and divide within 100.
- Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Number and Operations in Base Ten

- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations—Fractions

- Develop understanding of fractions as numbers.

Measurement and Data

- Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- Represent and interpret data.
- 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

- Reason with shapes and their attributes.

Operations & Algebraic Thinking	**3.OA**
Represent and solve problems involving multiplication and division.	
03.OA.A.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	
03.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	
03.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]	
03.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?*	
Understand properties of multiplication and the relationship between multiplication and division.	
03.OA.B.5 Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*	
03.OA.B.6 Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	
Multiply and divide within 100.	
03.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	
Solve problems involving the four operations, and identify and explain patterns in arithmetic.	

03.OA.D.8 Solve two-step word problems using the four operations. 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.[3]
03.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

[2] Students need not use formal terms for these properties.

[3] This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order.

Number & Operations in Base Ten	**3.NBT**
Use place value understanding and properties of operations to perform multi-digit arithmetic.[1]	
03.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	
03.NBT.A.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	
03.NBT.A.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	

[1] A range of algorithms may be used.

Number & Operations—Fractions[1]	**3.NF**
Develop understanding of fractions as numbers.	
03.NF.A.1 Understand a fraction 1/*b* as the quantity formed by 1 part when *a* whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by a parts of size 1/*b*.	
03.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram. *03.NF.A.2a*Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. *03.NF.A.2b* Represent a fraction *a*/*b* on a number line diagram by marking off a lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.	
03.NF.A.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. *03.NF.A.3a* Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. *03.NF.A.3b* Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. *03.NF.A.3c* Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* *03.NF.A.3d* Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	

[1] Level 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, 8.

Measurement & Data	**3.MD**
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	
03.MD.A.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	
03.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[1] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[2]	
Represent and interpret data.	
03.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.* *03.MD.B.4* Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.	
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	
03.MD.C.5 Recognize area as an attribute of plane figures and understand concepts of area measurement. *03.MD.C.5a* A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. *03.MD.C5b* A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.	
03.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	
03.MD.C.7 Relate area to the operations of multiplication and addition. *03.MD.C.7a* Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. *03.MD.C.7b* Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. *03.MD.C.7c* Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. *03.MD.C.7d* Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	
03.MD.D.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	

[1] Excludes compound units such as cm3 and finding the geometric volume of a container.

[2] Excludes multiplicative comparison problems (problems involving notions of “times as much”.

Geometry	**3.G**
Reason with shapes and their attributes.	
03.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	
03.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape*	

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LEVEL 4

In Level 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; (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 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. 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. 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.

Mathematical Practices

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.

Level 4 Overview

Operations and Algebraic Thinking

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.

Measurement and Data

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.

Number and Operations in Base Ten

- Generalize place value understanding for multidigit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations—Fractions

- 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.
- Geometric measurement: understand concepts of angle and measure angles.

Geometry

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Operations & Algebraic Thinking	**4.OA**
Use the four operations with whole numbers to solve problems.	
04.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 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.	
04.OA.A.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]	
04.OA.A.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.	
Gain familiarity with factors and multiples.	
04.OA.B.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.	
Generate and analyze patterns.	
04.OA.B.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.*	

Number & Operations in Base Ten[1]	**4.NBT**
Generalize place value understanding for multi-digit whole numbers.	
04.NBT.A.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 ÷ 70 = 10 by applying concepts of place value and division.*	
04.NBT.A.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.	

04.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.
Use place value understanding and properties of operations to perform multi-digit arithmetic.
04.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
04.NBT.B.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.
04.NBT.B.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.

[1]Level 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000

Number & Operations—Fractions[1] **4.NF**
Extend understanding of fraction equivalence and ordering.
04.NF.A.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.
04.NF.A.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 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.
04.NF.B.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. *04.NF.B.3a* Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. *04.NF.B.3 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 = 8/8 + 8/8 + 1/8.* *04.NF.B.3c* 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. *04.NF.B.3d* 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.
04.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. *04.NF.B.4a* 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 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* *04.NF.B.4b* 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 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* *04.NF.B.4c* 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.
04.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 respective denominators 10 and 100.[2] *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*
04.NF.C.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.*
04.NF.C.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.

[1] Level 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, 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.

Measurement & Data **4.MD**
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
04.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), ...*
04.MD.A.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.
04.MD.A.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.*
Represent and interpret data.
04.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 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.
04.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: *04.MD.C.5*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. *04.MD.C.5*b An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.

04.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
04.MD.C.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.

Geometry	**4.G**
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
04.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	
04.G.A.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.	
04.G.A.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.	

LEVEL 5

In Level 5, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

1. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

2. Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

3. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

Mathematical Practices

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.

Level 5 Overview

Operations and Algebraic Thinking

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

Measurement and Data

- Convert like measurement units within a given measurement system.

Number and Operations in Base Ten
- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

Number and Operations—Fractions
- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
- Represent and interpret data.
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

Geometry
- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Classify two-dimensional figures into categories based on their properties.

Operations & Algebraic Thinking	**5.OA**
Write and interpret numerical expressions.	
05.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	
05.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*	
Analyze patterns and relationships.	
05.OA.B.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*	

Number & Operations in Base Ten	**5.NBT**
Understand the place value system.	
05.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	
05.NBT.A2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	
05.NBT.A.3 Read, write, and compare decimals to thousandths. *05.NBT.A.3a* Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). *05.NBT.A.3b*Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	
05.NBT.A.4 Use place value understanding to round decimals to any place.	
Perform operations with multi-digit whole numbers and with decimals to hundredths.	
05.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	
05.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.

05.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Number & Operations—Fractions	**5.NF**
Use equivalent fractions as a strategy to add and subtract fractions.	
05.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*	
05.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*	
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
05.NF.B.3 Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*	
05.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. *05.NF.B.4a* Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)* *05.NF.B.4b* Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	
05.NF.B.5 Interpret multiplication as scaling (resizing), by: *05.NF.B.5a* Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. *05.NF.B.5b* Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	
05.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	
05.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.[1]	

05.NF.B.7a Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.*

05.NF.B.7b Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*

05.NF.B.7c Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*

[1] Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.

Measurement & Data	**5.MD**
Convert like measurement units within a given measurement system.	
05.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	
Represent and interpret data.	
05.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*	
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	
05.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. *05.MD.C.3a* A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. *05.MD.C.3b* A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.	
05.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	
05.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. *05.MD.C.5a* Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. *05.MD.C.5b* Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems. *05.MD.C.5c* Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	

Geometry	5.G
Graph points on the coordinate plane to solve real-world and mathematical problems.	
05.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).	
05.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	
Classify two-dimensional figures into categories based on their properties.	
05.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.	
05.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.	

LEVEL 6

In Level 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

1. Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.

2. Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understandings of number and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.

3. Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships between quantities.

4. Building on and reinforcing their understanding of number, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability. Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected.

Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles

and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.

Mathematical Practices

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.

Level 6 Overview

Ratios and Proportional Relationships

- Understand ratio concepts and use ratio reasoning to solve problems.

The Number System

- Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- Compute fluently with multi-digit numbers and find common factors and multiples.
- Apply and extend previous understandings of numbers to the system of rational numbers.

Expressions and Equations

- Apply and extend previous understandings of arithmetic to algebraic expressions.
- Reason about and solve one-variable equations and inequalities.
- Represent and analyze quantitative relationships between dependent and independent variables.

Geometry

- Solve real-world and mathematical problems involving area, surface area, and volume.

Statistics and Probability

- Develop understanding of statistical variability.
- Summarize and describe distributions.

Ratios & Proportional Relationships	**6.RP**
Understand ratio concepts and use ratio reasoning to solve problems.	
06.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*	
06.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*[1]	

06.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

06.RP.A.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

06.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?*

06.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

06.RP.A.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

[1] Expectations for unit rates in this grade are limited to non-complex fractions.

The Number System	**6.NS**
Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	
06.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*	
Compute fluently with multi-digit numbers and find common factors and multiples.	
06.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.	
06.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	
06.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4 (9 + 2).*	
Apply and extend previous understandings of numbers to the system of rational numbers.	
06.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	
06.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. *06.NS.C.6a* Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. *06.NS.C.6b* Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	

06.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

06.NS.C.7 Understand ordering and absolute value of rational numbers.

06.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.*

06.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 ^{o}C > –7 ^{o}C to express the fact that –3 ^{o}C is warmer than –7 ^{o}C.*

06.NS.C.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.*

06.NS.C.7d Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*

06.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Expressions & Equations	**6.EE**
Apply and extend previous understandings of arithmetic to algebraic expressions.	
06.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.	
06.EE.A2 Write, read, and evaluate expressions in which letters stand for numbers. *06.EE.A.2a* Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.* *06.EE.A.2b* Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.* *06.EE.A.2c* Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6 s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.*	
06.EE.A.3 Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*	
06.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*	
Reason about and solve one-variable equations and inequalities.	
06.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	
06.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	
06.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	

06.EE.B.8 Write an inequality of the form *x* > *c* or *x* < *c* to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form *x* > *c* or *x* < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.
Represent and analyze quantitative relationships between dependent and independent variables.
06.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.

Geometry	**6.G**
Solve real-world and mathematical problems involving area, surface area, and volume.	
06.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	
06.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas *V = l w h* and *V = b h* to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	
06.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	
06.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	

Statistics & Probability	**6.SP**
Develop understanding of statistical variability.	
06.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*	
06.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.	
06.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	
Summarize and describe distributions.	
06.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	

06.SP.B.5 Summarize numerical data sets in relation to their context, such as by:

06.SP.B.5a Reporting the number of observations.

06.SP.B.5b Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.

06.SP.B.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

06.SP.B.5d Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

LEVEL 7

In Level 7, instructional time should focus on four critical areas: (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

1. Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

2. Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

3. Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.

4. Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.

Mathematical Practices

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.

Level 7 Overview

Ratios and Proportional Relationships

- Analyze proportional relationships and use them to solve real-world and mathematical problems.

The Number System

- Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Expressions and Equations

- Use properties of operations to generate equivalent expressions.
- Solve real-life and mathematical problems
- using numerical and algebraic expressions and equations.

Geometry

- Draw, construct and describe geometrical figures and describe the relationships between them.
- Solve real-life and mathematical problems
- involving angle measure, area, surface area, and volume.

Statistics and Probability

- Use random sampling to draw inferences about a population.
- Draw informal comparative inferences about two populations.
- Investigate chance processes and develop, use, and evaluate probability models.

Ratios & Proportional Relationships **7.RP**
Analyze proportional relationships and use them to solve real-world and mathematical problems.
07.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.*
07.RP.A.2 Recognize and represent proportional relationships between quantities. *07.RP.A.2a* Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. *07.RP.A.2b* Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. *07.RP.A.2c* Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* *07.RP.A.2d* Explain what a point (*x*, *y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where r is the unit rate.
07.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

The Number System 7.NS
Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
07.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. *07.NS.A.1a* Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.* *07.NS.A.1* b Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. *07.NS.A.1* c Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. *07.NS.A.1*d Apply properties of operations as strategies to add and subtract rational numbers.
07.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. *07.NS.A.2a* Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(–1)(–1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. *07.NS.A.2b* Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $–(p/q) = (–p)/q = p/(–q)$. Interpret quotients of rational numbers by describing real-world contexts. *07.NS.A.2c* Apply properties of operations as strategies to multiply and divide rational numbers. *07.NS.A.2d* Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
07.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.[1]

[1] Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

Expressions & Equations 7.EE
Use properties of operations to generate equivalent expressions.
07.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
07.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
07.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

07.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

07.EE.B.4a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*

07.EE.B.4b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Geometry	**7.G**
Draw construct, and describe geometrical figures and describe the relationships between them.	
07.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	
07.G.A.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	
07.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	
07.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	
07.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	
07.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	

Statistics & Probability	**7.SP**
Use random sampling to draw inferences about a population.	
07.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	
07.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*	
Draw informal comparative inferences about two populations.	
07.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*	

07.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*
Investigate chance processes and develop, use, and evaluate probability models.
07.SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
07.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*
07.SP.C.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. *07.SP.C.7a* Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* *07.SP.C.7b* Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*
07.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. *07.SP.C.8a* Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. *07.SP.C.8b* Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. *07.SP.C.8c* Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*

LEVEL 8

In Level 8, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

1. Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount $m \cdot A$. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span vs. height for students in a classroom). At this grade, fitting the model, and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret components of the relationship (such as slope and y-intercept) in terms of the situation.

   Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

2. Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

3. Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

Mathematical Practices

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.

Level 8 Overview

The Number System

- Know that there are numbers that are not rational, and approximate them by rational numbers.

Expressions and Equations

- Work with radicals and integer exponents.
- Understand the connections between proportional relationships, lines, and linear equations.
- Analyze and solve linear equations and pairs of simultaneous linear equations.

Functions

- Define, evaluate, and compare functions.
- Use functions to model relationships between quantities.

Geometry

- Understand congruence and similarity using physical models, transparencies, or geometry software.
- Understand and apply the Pythagorean Theorem.
- Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

Statistics and Probability

- Investigate patterns of association in bivariate data.

The Number System	**8.NS**
Know that there are numbers that are not rational, and approximate them by rational numbers.	
08.NS.A.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	
08.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*	

Expressions & Equations	**8.EE**
Work with radicals and integer exponents.	
08.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.	
08.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.	
08.EE.A.3 Use numbers expressed in the form of a single digit times a whole-number power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9, and determine that the world population is more than 20 times larger.*	
08.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	

Understand the connections between proportional relationships, lines, and linear equations.
08.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
08.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation *y = mx + b* for a line intercepting the vertical axis at *b*.
Analyze and solve linear equations and pairs of simultaneous linear equations.
08.EE.C.7 Solve linear equations in one variable. *08.EE.C.7a* Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form *x = a*, *a = a*, or *a = b* results (where *a* and *b* are different numbers). *08.EE.C.7b* Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
08.EE.C.8 Analyze and solve pairs of simultaneous linear equations. *08.EE.C.8a* Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. *08.EE.C.8b* Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.* *08.EE.C.8c* Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

Functions	**8.F**
Define, evaluate, and compare functions.	
08.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.[1]	
08.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*	
08.F.A.3 Interpret the equation *y = mx + b* as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*	
Use functions to model relationships between quantities.	
08.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (*x, y*) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	
08.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	

[1]Function notation is not required in Level 8.

Geometry	**8.G**
Understand congruence and similarity using physical models, transparencies, or geometry software.	
08.G.A.1 Verify experimentally the properties of rotations, reflections, and translations: *08.G.A.1*a Lines are taken to lines, and line segments to line segments of the same length. *08.G.A.1*b Angles are taken to angles of the same measure. *08.G.A.1*c Parallel lines are taken to parallel lines.	
08.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	
08.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	
08.G.A.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	
08.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*	
Understand and apply the Pythagorean Theorem.	
08.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.	
08.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	
08.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	
08.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	

Statistics & Probability	**8.SP**
Investigate patterns of association in bivariate data.	
08.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	
08.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	
08.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*	
08.SP.A.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*	

Table 1. Common addition and subtraction situations.[1]

	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
Take from	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 Unknown[2]**
Put Together/ Take Apart[3]	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**	**Smaller Unknown**
Compare[4]	("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

[1]Adapted from Box 2-4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp. 32, 33).

[2]These 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.

[3]Either 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.
[4]For 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.

Table 2. Common multiplication and division situations.[1]

	Unknown Product 3 × 6 = ?	Group Size Unknown ("How many in each group?" Division) 3 × ? = 18, and 18 ÷ 3 = ?	Number of Groups Unknown ("How many groups?" Division) ? × 6 = 18, and 18 ÷ 6 = ?
Equal Groups	There are 3 bags with 6 plums in each bag. How many plums are there in all? *Measurement example*. You need 3 lengths of string, each 6 inches long. How much string will you need altogether?	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag? *Measurement example*. You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?	If 18 plums are to be packed 6 to a bag, then how many bags are needed? *Measurement example*. 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?
Arrays,[2] Area[3]	There are 3 rows of apples with 6 apples in each row. How many apples are there? *Area example*. What is the area of a 3 cm by 6 cm rectangle?	If 18 apples are arranged into 3 equal rows, how many apples will be in each row? *Area example*. A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?	If 18 apples are arranged into equal rows of 6 apples, how many rows will there be? *Area example*. A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?
Compare	A blue hat costs $6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? *Measurement example*. A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?	A red hat costs $18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost? *Measurement example*. 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?	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? *Measurement example*. 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?
General	$a \times b = ?$	$a \times ? = p$, and $p \div a = ?$	$? \times b = p$, and $p \div b = ?$

[1]The first examples in each cell are examples of discrete things. These are easier for students and should be given before the measurement examples.
[2]The 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.
[3]Area 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.

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.

Associative property of addition	$(a + b) + c = a + (b + c)$
Commutative property of addition	$a + b = b + a$
Additive identity property of 0	$a + 0 = 0 + a = a$
Existence of additive inverses	For every a there exists $-a$ so that $a + (-a) = (-a) + a = 0$
Associative property of multiplication	$(a \times b) \times c = a \times (b \times c)$
Commutative property of multiplication	$a \times b = b \times a$
Multiplicative identity property of 1	$a \times 1 = 1 \times a = a$
Existence of multiplicative inverses	For every $a \neq 0$ there exists $1/a$ so that $a \times 1/a = 1/a \times a = 1$
Distributive property of multiplication over addition	$a \times (b + c) = a \times b + a \times c$

Table 4. The properties of equality. Here *a*, *b* and *c* stand for arbitrary numbers in the rational, real, or complex number systems.

Reflexive property of equality	$a = a$
Symmetric property of equality	If $a = b$, then $b = a$
Transitive property of equality	If $a = b$ and $b = c$, then $a = c$
Addition property of equality	If $a = b$, then $a + c = b + c$
Subtraction property of equality	If $a = b$, then $a - c = b - c$
Multiplication property of equality	If $a = b$, then $a \times c = b \times c$
Division property of equality	If $a = b$ and $c \neq 0$, then $a \div c = b \div c$
Substitution property of equality	If $a = b$, then b may be substituted for a in any expression containing a.

Table 5. The properties of inequality. Here *a*, *b* and *c* stand for arbitrary numbers in the rational or real number systems.

Exactly one of the following is true: $a < b$, $a = b$, $a > b$.
If $a > b$ and $b > c$ then $a > c$.
If $a > b$, then $b < a$.
If $a > b$, then $-a < -b$.
If $a > b$, then $a \pm c > b \pm c$.
If $a > b$ and $c > 0$, then $a \times c > b \times c$.
If $a > b$ and $c < 0$, then $a \times c < b \times c$.
If $a > b$ and $c > 0$, then $a \div c > b \div c$.
If $a > b$ and $c < 0$, then $a \div c < b \div c$.

LEVEL 9 (ALGEBRA 1) OVERVIEW

Number and Quantity

The Real Number System

- Extend the properties of exponents to rational exponents.
- Use properties of rational and irrational numbers.

Quantities

- Reason quantitatively and use units to solve problems.

Algebra

Seeing Structure in Expressions

- Interpret the structure of expressions.
- Write expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions

- Perform arithmetic operations on polynomials.

Creating Equations

- Create equations that describe numbers or relationships.

Reasoning with Equations and Inequalities

- Understand solving equations as a process of reasoning and explain the reasoning.
- Solve equations and inequalities in one variable.
- Solve systems of equations.
- Represent and solve equations and inequalities graphically.

Functions

Interpreting Functions

- Understand the concept of a function and use function notation.
- Interpret functions that arise in applications in terms of the context.
- Analyze functions using different representations.

Building Functions

- Build a function that models a relationship between two quantities.
- Build new functions from existing functions.

Standards for Mathematical Practice
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 an express regularity in repeated reasoning.

Functions (cont'd.)

Linear, Quadratic, and Exponential Models

- Construct and compare linear, quadratic, and exponential models and solve problems.
- Interpret expressions for functions in terms of the situation they model.

Statistics and Probability

Interpreting Categorical and Quantitative Data

- Summarize, represent, and interpret data on a single count or measurement variable.
- Summarize, represent, and interpret data on two categorical and quantitative variables.
- Interpret linear models.

Content Standards **Number and Quantity**
The Real Number System N-RN
Extend the properties of exponents to rational exponents.
CC.M.09.RN.A.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define $5^{1/3}$ to be the cube root of 5 because we want $(5^{1/3})^3 = 5^{(1/3)3}$ to hold, so $(5^{1/3})^3$ must equal 5.*
CC.M.09.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.
Use properties of rational and irrational numbers.
CC.M.09.RN.B.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.
Quantities N-Q
Reason quantitatively and use units to solve problems. CC.M.09.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. CC.M.09.Q.A.2 Define appropriate quantities for the purpose of descriptive modeling. CC.M.09.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Algebra
Seeing Structure in Expressions A-SSE
Interpret the structure of expressions.
CC.M.09.SSE.A.1 Interpret expressions that represent a quantity in terms of its context. CC.M.09.SSE.A.1.a Interpret parts of an expression, such as terms, factors, and coefficients. CC.M.09.SSE.A.1.b Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1 + r)^n$ as the product of P and a factor not depending on P.*
CC.M.09.SSE.A.2 Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.* **Write expressions in equivalent forms to solve problems.**

CC.M.09.SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

CC.M.09.SSE.B.3.a Factor a quadratic expression to reveal the zeros of the function it defines.

CC.M.09.SSE.B.3.b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

CC.M.09.SSE.B.3.c Use the properties of exponents to transform expressions for exponential functions. *For example, the expression* 1.15^t *can be rewritten as* $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ *to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*

Arithmetic with Polynomials and Rational Expressions A-APR

Perform arithmetic operations on polynomials.

CC.M.09.APRA.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Creating Equations A-CED

Create equations that describe numbers or relationships.

CC.M.09.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

CC.M.09.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

CC.M.09.CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

CC.M.09.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*

Reasoning with Equations and Inequalities A-REI

Understand solving equations as a process of reasoning and explain the reasoning.

CC.M.09.REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Solve equations and inequalities in one variable.

CC.M.09.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

CC.M.09.REI.B.3.a Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

CC.M.09.REI.B.3.b Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.

CC.M.09.REI.B.4 Solve quadratic equations in one variable.

Solve systems of equations.

CC.M.09.REI.C.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

CC.M.09.REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

CC.M.09.REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = –3x$ and the circle $x^2 + y^2 = 3$.*

Represent and solve equations and inequalities graphically.

CC.M.09.REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

CC.M.09.REI.D.11 Explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

CC.M.09.REI.D.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Functions

Interpreting Functions F-IF

Understand the concept of a function and use function notation.

CC.M.09.IF.A.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then $f(x)$ denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation $y = f(x)$.

CC.M.09.IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

CC.M.09.IF.A.3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. *For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n + 1) = f(n) + f(n 1) for n ≥ 1.*

Interpret functions that arise in applications in terms of the context.

CC.M.09.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*

CC.M.09.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*

CC.M.09.IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

Analyze functions using different representations.

CC.M.09.IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

CC.M.09.IF.C.7.a Graph linear and quadratic functions and show intercepts, maxima, and minima.

CC.M.09.IF.C.7.b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

CC.M.09.IF.C.7.c Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

CC.M.09.IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

CC.M.09.IF.C.8.a Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.

CC.M.09.IF.C.8.b Use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as* $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, *and* $y = (1.2)^{t/10}$, *and classify them as representing exponential growth or decay.*

CC.M.09.IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

Building Functions F-BF

Build a function that models a relationship between two quantities.

CC.M.09.BF.A.1 Write a function that describes a relationship between two quantities.

CC.M.09.BF.A.1.a Determine an explicit expression, a recursive process, or steps for calculation from a context.

CC.M.09.BF.A.1.b Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*

CC.M.09.BF.A.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

Build new functions from existing functions.

CC.M.09.BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*

CC.M.09.BF.B.4 Find inverse functions.

CC.M.09.BF.B.4.a Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example,* $f(x) = 2x^3$ *or* $f(x) = (x + 1)/(x\ \ 1)$ *for* $x \neq 1$.

Linear, Quadratic, and Exponential Models F-LE

Construct and compare linear, quadratic, and exponential models and solve problems.

CC.M.09.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.

CC.M.09.LE.A.1.a Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

CC.M.09.LE.A.1.b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

CC.M.09.LE.A.1.c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

CC.M.09.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

CC.M.09.LE.A.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

Interpret expressions for functions in terms of the situation they model.

CC.M.09.LE.B.5 Interpret the parameters in a linear or exponential function in terms of a context.

Statistics and Probability

Interpreting Categorical and Quantitative Data S-ID

Summarize, represent, and interpret data on a single count or measurement variable.

CC.M.09.ID.A.1 Represent data with plots on the real number line (dot plots, histograms, and box plots). CC.M.09.ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
CC.M.09.ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). **Summarize, represent, and interpret data on two categorical and quantitative variables.**
CC.M.09.ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data. CC.M.09.ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. CC.M.09.ID.B.6.a Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.* CC.M.09.ID.B.6.b Informally assess the fit of a function by plotting and analyzing residuals. CC.M.09.ID.B.6.c Fit a linear function for a scatter plot that suggests a linear association.
Interpret linear models.
CC.M.09.ID.C.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
CC.M.09.ID.C.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.
CC.M.09.ID.C.9 Distinguish between correlation and causation.

LEVEL 10 OVERVIEW

Number and Quantity

Quantities

- Reason quantitatively and use units to solve problems.

Geometry

Congruence

- Experiment with transformations in the plane.
- Understand congruence in terms of rigid motions.
- Prove geometric theorems.
- Make geometric constructions.

Similarity, Right Triangles, and Trigonometry

- Understand similarity in terms of similarity in terms of similarity transformations.
- Prove theorems involving similarity.
- Define trigonometric ratios and solve problems involving right triangles.
- Apply trigonometry to general triangles.

Circles

- Understand and apply theorems about circles.
- Find arc lengths and area of sectors of circles.

Expressing Geometric Properties with Equations

- Translate between the geometric description and the equation for a conic section.
- Use coordinates to prove simple geometric theorems algebraically.

Geometric Measurement and Dimension

- Explain volume formulas and use them to solve problems.
- Visualize relationships between two-dimensional and three-dimensional objects.

Modeling with Geometry

- Apply geometric concepts in modeling situations.

Standards for Mathematical Practice
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 an express regularity in repeated reasoning.

Statistics and Probability

Conditional Probability and the Rules of Probability

- Understand independence and conditional probability and use them to interpret data.
- Use the rules of probability to compute probabilities of compound events in a uniform probability model.

Using Probability to Make Decisions

- Use probability to evaluate outcomes of decisions.

Content Standards **Number and Quantity**
Quantities N-Q
Reason quantitatively and use units to solve problems.
CC.M.10.Q.A.2 Define appropriate quantities for the purpose of descriptive modeling. CC.M.10.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
Geometry
Congruence G-CO
Experiment with transformations in the plane.
CC.M.10.CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
CC.M.10.CO.A.2 Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
CC.M.10.CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself. CC.M.10.CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. CC.M.10.CO.A.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. **Understand congruence in terms of rigid motions.** CC.M.10.CO.B.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
CC.M.10.CO.B.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
CC.M.10.CO.B.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. **Prove geometric theorems.** CC.M.10.CO.B.9 Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.* CC.M.10.CO.B.10 Prove theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*
CC.M.10.CO.B.11 Prove theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.* **Make geometric constructions.**
CC.M.10.CO.B.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric

software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*

CC.M.10.CO.B.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

Similarity, Right Triangles, and Trigonometry G-SRT

Understand similarity in terms of similarity transformations.

CC.M.10.SRT.A.1 Verify experimentally the properties of dilations given by a center and a scale factor:
CC.M.10.SRT.A.1.a A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged.
CC.M.10.SRT.A.1.bThe dilation of a line segment is longer or shorter in the ratio given by the scale factor.

CC.M.10.SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
CC.M.10.SRT.A.3 Use the properties of similarity transformations to establish the Angle-Angle (AA) criterion for two triangles to be similar.

Prove theorems involving similarity.

CC.M.10.SRT.B.4 Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*

CC.M.10.SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Define trigonometric ratios and solve problems involving right triangles.

CC.M.10.SRT.C.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

CC.M.10.SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.

CC.M.10.SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

Apply trigonometry to general triangles.

CC.M.10.SRT.D.9 (+) Derive the formula $A = \frac{1}{2}ab\sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
CC.M.10.SRT.D.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.
CC.M.10.SRT.D.11 (+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Circles G-C

Understand and apply theorems about circles.

CC.M.10.C.A.1 Prove that all circles are similar.
CC.M.10.C.A.2 Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*
CC.M.10.C.A.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

CC.M.10.C.A.4 (+) Construct a tangent line from a point outside a given circle to the circle.

Find arc lengths and areas of sectors of circles.

CC.M.10.C.B.5 Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

Expressing Geometric Properties with Equations G-GPE

Translate between the geometric description and the equation for a conic section.

CC.M.10.GPE.A.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

CC.M.10.GPE.A.2 Derive the equation of a parabola given a focus and directrix.

Use coordinates to prove simple geometric theorems algebraically.

CC.M.10.GPE.B.4 Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).*

CC.M.10.GPE.B.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).

CC.M.10.GPE.B.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.

CC.M.10.GPE.B.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Geometric Measurement and Dimension G-GMD

Explain volume formulas and use them to solve problems.

CC.M.10.GMD.A.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*

CC.M.10.GMD.A.2 (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.

CC.M.10.GMD.A.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Visualize relationships between two-dimensional and three-dimensional objects.

CC.M.10.GMD.B.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Modeling with Geometry G-MG

Apply geometric concepts in modeling situations.

CC.M.10.MG.A.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

CC.M.10.MG.A.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

CC.M.10.MG.A.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

Statistics and Probability

Conditional Probability and the Rules of Probability S-CP

Understand independence and conditional probability and use them to interpret data.

CC.M.10.CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").

CC.M.10.CP.A.2 Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent.

CC.M.10.CP.A.3 Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.

CC.M.10.CP.A.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are

independent and to approximate conditional probabilities*. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.*
CC.M.10.CP.A.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.*
Use the rules of probability to compute probabilities of compound events in a uniform probability model.
CC.M.10.CP.B.6 Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A*, and interpret the answer in terms of the model. CC.M.10.CP.B.7 Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.
CC.M.10.CP.B.8 (+) Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B\|A) = P(B)P(A\|B)$, and interpret the answer in terms of the model. CC.M.10.CP.B.9 (+) Use permutations and combinations to compute probabilities of compound events and solve problems.
Using Probability to Make Decisions S-MD
Use probability to evaluate outcomes of decisions. CC.M.10.MD.B.6 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
CC.M.10.MD.B.7 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

LEVEL 11 (ALGEBRA 2) OVERVIEW

Number and Quantity

The Complex Number System

- Perform arithmetic operations with complex numbers.
- Use complex numbers in polynomial identities and equations.

Vector and Matrix Quantities

- Represent and model with vector quantities.
- Perform operations on matrices and use matrices in applications.

Algebra

Seeing Structure in Expressions

- Interpret the structure of expressions.
- Write expressions in equivalent forms to solve problems.

Arithmetic with Polynomials and Rational Expressions

- Perform arithmetic operations on polynomials.
- Understand the relationship between zeros and factors of polynomials.
- Use polynomial identities to solve problems.
- Rewrite rational expressions.

Creating Equations

- Create equations that describe numbers or relationships.

Reasoning with Equations and Inequalities

- Understand solving equations as a process of reasoning and explain the reasoning.
- Represent and solve equations and inequalities graphically.

Functions

Interpreting Functions

- Interpret functions that arise in applications in terms of the context.
- Analyze functions using different representations.

Building Functions

- Build a function that models a relationship between two quantities.
- Build new functions from existing functions.

Standards for Mathematical Practice
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 an express regularity in repeated reasoning.

Functions (cont'd.)

Linear, Quadratic, and Exponential Models

- Construct and compare linear, quadratic, and exponential models and solve problems.

Trigonometric Functions

- Extend the domain of trigonometric functions using the unit circle.
- Model periodic phenomena with trigonometric functions.
- Prove and apply trigonometric identities.

Statistics and Probability

Interpreting Categorical and Quantitative Data

- Summarize, represent and interpret data on a single count or measurement variable.

Making Inferences and Justifying Conclusions

- Understand and evaluate random processes underlying statistical experiments.
- Make inferences and justify conclusions from sample surveys, experiments and observational studies.

Using Probability to Make Decisions

- Use probability to evaluate outcomes of decisions.

Number and Quantity	
The Complex Number System	N-CN
Perform arithmetic operations with complex numbers.	
CC.M.11.CN.A.1 Know there is a complex number *i* such that $i^2 = -1$, and every complex number has the form *a* + *bi* with *a* and *b* real.	
CC.M.11.CN.A.1 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	
Use complex numbers in polynomial identities and equations.	
CC.M.11.CN.C.7 Solve quadratic equations with real coefficients that have complex solutions. CC.M.11.CN.C.8 (+) Extend polynomial identities to the complex numbers. *For example, rewrite* $x^2 + 4$ *as* $(x + 2i)(x – 2i)$.	
CC.M.11.CN.C.9 (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	
Vector and Matrix Quantities	N-VM
Represent and model with vector quantities.	
CC.M.11.VM.A.1 (+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., ***v***, $\|\boldsymbol{v}\|$, $\|\|\boldsymbol{v}\|\|$, *v*).	
CC.M.11.VM.A.3 (+) Solve problems involving velocity and other quantities that can be represented by vectors.	
Perform operations on matrices and use matrices in applications.	
CC.M.11.VM.C.6 (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network. CC.M.11.VM.C.8 (+) Add, subtract, and multiply matrices of appropriate dimensions.	
CC.M.10.VM.C.12 (+) Work with 2 2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	
Algebra	
Seeing Structure in Expressions	A-SSE

Interpret the structure of expressions.

CC.M.11.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.

CC.M.11.SSE.A.1.a Interpret parts of an expression, such as terms, factors, and coefficients.

CC.M.11.SSE.A.1.b Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1 + r)^n$ as the product of P and a factor not depending on P.*

CC.M.11.SSE.A.2 Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 – y^4$ as $(x^2)^2 – (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 – y^2)(x^2 + y^2)$.*

Write expressions in equivalent forms to solve problems.

CC.M.11.SSE.B.4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.*

Arithmetic with Polynomials and Rational Expressions A-APR

Perform arithmetic operations on polynomials.

CC.M.11.APRA.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Understand the relationship between zeros and factors of polynomials.

CC.M.11.APRA.B.2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x – a$ is $p(a)$, so $p(a) = 0$ if and only if $(x – a)$ is a factor of $p(x)$.

CC.M.11.APRA.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

Use polynomial identities to solve problems.

CC.M.11.APRA.C.4 Prove polynomial identities and use them to describe numerical relationships. *For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 – y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.*

CC.M.11.APRA.C.5 (+) Know and apply the Binomial Theorem for the expansion of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle.

Rewrite rational expressions.

CC.M.11.APRA.D.6 Rewrite simple rational expressions in different forms; write $\boldsymbol{a(x)/b(x)}$ in the form $q(x) + \boldsymbol{r(x)/b(x)}$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

CC.M.11.APRA.D.7 (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.

Creating Equations A-CED

Create equations that describe numbers or relationships.

CC.M.11.CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

CC.M.11.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

CC.M.11.CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

CC.M.11.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*

Reasoning with Equations and Inequalities A-REI

Understand solving equations as a process of reasoning and explain the reasoning.

CC.M.11.REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Represent and solve equations and inequalities graphically.

CC.M.11.REI.D.11 Explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

Functions

Interpreting Functions F-IF

Interpret functions that arise in applications in terms of the context.

CC.M.11.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*

CC.M.11.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*

CC.M.11.IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

Analyze functions using different representations.

CC.M.11.IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

CC.M.11.IF.C.7.b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

CC.M.11.IF.C.7.c Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.

CC.M.11.IF.C.7.e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

CC.M.11.IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

CC.M.11.IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

Building Functions F-BF

Build a function that models a relationship between two quantities.

CC.M.11.BF.A.1 Write a function that describes a relationship between two quantities.

CC.M.11.BF.A.1.b Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*

Build new functions from existing functions.

CC.M.11.BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*

CC.M.11.BF.B.4 Find inverse functions.

CC.M.11.BF.B.4.a Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse and write an expression for the inverse. *For example, $f(x) = 2x^3$ or $f(x) = (x + 1)/(x\ 1)$ for $x \neq 1$.*

Linear, Quadratic, and Exponential Models	F-LE
Construct and compare linear, quadratic, and exponential models and solve problems.	
CC.M.11.LE.A.4 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	
Trigonometric Functions	F-TF
Extend the domain of trigonometric functions using the unit circle.	
CC.M.11.TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	
CC.M.11.TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	
Model periodic phenomena with trigonometric functions.	
CC.M.11.TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	
Prove and apply trigonometric identities.	
CC.M.11.TF.C.8 Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant.	
Statistics and Probability	
Interpreting Categorical and Quantitative Data	S-ID
Summarize, represent, and interpret data on a single count or measurement variable.	
CC.M.11.ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	
Making Inferences and Justifying Conclusions	S-IC
Understand and evaluate random processes underlying statistical experiments.	
CC.M.11.IC.A.1 Understand statistics as a process for making inferences to be made about population parameters based on a random sample from that population.	
CC.M.11.IC.A.1 Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*	
Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	
CC.M.11.IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	
CC.M.11.IC.B.4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	
CC.M.11.IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	
CC.M.11.IC.B.6 Evaluate reports based on data.	
Using Probability to Make Decisions	S-MD
Use probability to evaluate outcomes of decisions.	
CC.M.11.MD.B.6 (+) Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).	

CC.M.11.MD.B.7 (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

MA Strand	Standard	MATH LEVEL 12
Core Resources: AGS Consumer Math		
Digital Resources: http://www.aleks.com		
MA 12.01	**Estimation and Computation**	
	01.02	Calculates gross pay vs. net pay
	02.02	Applies all operations using fractions, decimals, and percents, and proportions in real-life applications
	03.02	Calculates simple interest and compound interest including semiannual, quarterly, and monthly interest for periods of more or less than one year
	04.02	Understands and is able to explain the function of a checking account and reconcile a bank statement
	05.02	Calculates the cost and return of stocks and bonds, including percent profit or percent loss
	06.02	Calculates end of year federal income tax using short form
	07.02	Computes property tax, property tax rates, and assessment rates
	08.02	Calculates end of year taxes using long form
	09.02	Describes how math is used in various careers
MA 12.02	**Functions and Relationships**	
	01.02	Understands general consumer purchases and payment plans (food, clothing, car, and credit card)
	02.02	Calculates cost of goods sold with sales tax
	03.02	Performs and manages basic financial operations (e.g. budgeting money and repayment of loans)
	04.02	Calculates insurance rates, discounts, and commission sales
	05.02	Demonstrates knowledge of food consumption and preparation
	06.02	Applies various measurement systems to describe situations and solve problems
MA 12.03	**Measurement**	
	01.02	Evaluates measurements for accuracy, precision, and error with respect to the measuring tools, methods, and the computational process
	02.02	Estimates and converts measurements between different systems
	03.02	Makes travel calculations (inc. elapsed time and time zones)
MA 12.04	**Geometry**	
	01.02	Prepares a budget, including reading and constructing a circle graph
MA 12.05	**Problem-Solving**	
	01.02	Applies various problem solving strategies to solve problems from this level
	02.02	Defends conclusions with examples and applies to new situations
MA 12.06	**Communication and Reasoning**	
	01.02	Uses technology, vocabulary, symbols and notation to defend mathematical ideas, solutions and methods to various audiences
	02.02	Recognizes and applies inductive and deductive reasoning
	03.02	Makes tests and proves mathematical conjectures
MA 12.07	**Connections**	

	The student understands and applies mathematical skills and processes across the content strands	
	01.02	Applies practical skills in problem solving using typical business, consumer and real world problems

LPSD SOCIAL STUDIES STANDARDS

LEVEL 0

SS Strand	Standard	Social Studies Level 0
Core Resource: Scott Foresman Social Studies, *All Together* (Gr. 1) Digital Resources: http://www.sfsocialstudies.com, CDs (MindPoint Video, Video Field Trips, Exam View, Songs and Music)		
SS 00.01	**People and Cultures**	
	01.02	Shares experiences that reflect family culture (camping, fishing, potlucks, hunting, story telling, travel)
SS 00.02	**Time and Change**	
	01.02	Creates a timeline using events from their own lives (e.g., birth, crawling, walking, loosing teeth)
SS 00.03	**Geography**	
	01.02	Uses directions or positional words (up/down, in/out, above/below) to identify locations in the classroom.
SS 00.04	**Government**	
	01.02	Explains (i.e. using classroom rules) why people do not have the right to do whatever they want (i.e. to promote fairness, ensure the common good, and to maintain safety)
SS 00.05	**Economics**	
	01.02	Makes a list of needs and wants and explains the difference
	02.02	Describes job experiences he/she may have at home or in the classroom

LEVEL 1

SS Strand	Standard	Social Studies Level 1
Core Resource: Scott Foresman Social Studies, *All Together* (Gr. 1) Digital Resources: http://www.sfsocialstudies.com, CDs (MindPoint Video, Video Field Trips, Exam View, Songs and Music)		
SS 01.01	**People and Cultures**	
	01.02	Compares and contrasts family cultures (e.g. foods, language, religion, traditions) around the world
	02.02	Summarizes stories and/or songs originating from a variety of cultures
SS 01.02	**Time and Change**	
	01.02	Compares and contrasts school life in the past to school life in the present. (eg. Parents/grandparents interviews, class presenters, AK digital archives)
	02.02	Tells a historical narrative about his/her own family
	03.02	Understands and makes family connections using the terms niece, nephew, sister, brother, uncle, aunt, cousin, grandparents, mother (mom), father (dad)
SS 01.03	**Geography**	
	01.02	Creates and uses a map of the classroom; map includes title, legend, and directions (north, south, east, west)
SS 01.04	**Government**	
	01.02	Recognizes important United States symbols (etc. Bald Eagle, Statue of Liberty, US Flag, White House)
	02.02	Creates classroom rules and explains why people do not have the right to do whatever they want (to promote fairness, ensure the common good, and maintain safety)
SS 01.05	**Economics**	
	01.02	Knows the names of presidents on a nickel (Thomas Jefferson), dime (Franklin Roosevelt), quarter (George Washington), and penny (Abraham Lincoln)
	02.02	Writes, tells, or draws and presents information about a job in the school (i.e., teacher, cook, aide) and supplies some facts (duties, pay, work) relevant to that job
	03.02	Creates a project showing understanding of potential economical resources in local environment (i.e., recipe book of subsistence food, wood for sale sign, bottled water)

LEVEL 2

SS Strand	Standard	Social Studies Level 2
Core Resource: Scott Foresman Social Studies, *All Together* (Gr. 1) Digital Resources: http://www.sfsocialstudies.com, CDs (MindPoint Video, Video Field Trips, Exam View, Songs and Music)		
SS 02.01	**People and Cultures**	
	01.02	Compares and contrasts different types of communities (village, city, rural, urban)
	02.02	Summarizes and restates information gained by listening to and questioning a community member
SS 02.02	**Time and Change**	
	01.02	Presents a project on how the community has or might change using the terms past, present, and future (ex. transportation, tools, clothing)
SS 02.03	**Geography**	
	01.02	Creates a class map of the community which includes title, legend, cardinal directions, important landmarks and a map scale
	02.02	Routinely locates his/her village and any nearby major bodies of water or land features (lakes, rivers, volcanoes, mountains) on a map of Alaska
SS 02.04	**Government**	
	01.02	Describes causes and effects for creating and following local rules (i.e., pollution, vandalism, breaking and entering, curfew, treatment of elders)
	02.02	Formulates appropriate questions to ask local leaders
SS 02.05	**Economics**	
	01.02	Presents information about how community members use local resources through drawing, writing, and/or discussion
	02.02	Identifies the presidents and historical figures on bills $1 to $20 ($1 –George Washington, $5 – Abraham Lincoln, $10 – Alexandar Hamilton (1st US Secretary of the US Treasury), $20 Andrew Jackson)
	03.02	Creates a list of appropriate questions to ask while visiting local work sites and places of business

LEVEL 3

SS Strand	Standard	Social Studies Level 3: Alaska Studies
Core Resource: AK Studies Curriculum Guide Level 3 Digital Resources: see AK Studies Curriculum Guide		
SS 03.01	**People and Cultures**	
	01.02	Presents an indigenous migration theory (Berring Land Bridge, Island Hopping) through writing, drawing and/or discussions
	02.02	Creates a project that compares and contrasts housing, family structures, clothing, language, art, and use of environmental resources between at least two Alaskan Native Groups
	03.02	Explains reasons for Russian exploration and lists causes and effects of contact
	04.02	Reads and summarizes an Alaskan Native legend and/or song.
SS 03.02	**Time and Change**	
	01.02	Creates a timeline that sequences at least 10 main events from Native Alaskan history to the present (ex. Russian exploration, Molly Hootch case, AK purchase by the United States, ANCSA, etc.)
	02.02	Presents a project on how tools, technology, and/or transportation has or will change in Alaska using the terms past, present, and future
SS 03.03	**Geography**	
	01.02	Creates a relief map identifying major land features (rivers, deltas, lakes, glaciers, mountains, valleys, volcanoes) and towns of Alaska
	02.02	Creates a simple map showing where Alaskan Native groups (Athabascan, Aleut, Tlingit, Haida, Inuit, Eyak, Yup'ik, and Tsimshian) reside
SS 03.04	**Government**	
	01.02	Identifies major Alaskan symbols such as Alaskan flag, song, flower, bird etc.
	02.02	Presents information about a significant Alaskan leader (i.e., William Hensley, Roy Huhndorf, Julie Kitka, Albert Kookesh, Janie Leask, Oliver Leavitt, Byron Mallott, Elizabeth Peratrovich, Benny Benson, Gov. Jay Hammond) through writing, drawings and discussions
	03.02	Creates a diagram that shows leadership and government roles in Alaska including the following: village or tribal leader, mayor, city council, state courts, governor, state legislature
SS 03.05	**Economics**	
	01.02	Identifies natural and manufactured resources exported, imported and used in Alaska
	02.02	Creates a travel brochure which includes a graph or chart and outlines major attractions (services) and resources (goods) of Alaska

LEVEL 4

SS Strand	Standard	Social Studies Level 4: US History to the Revolutionary War
Core Resource: Scott Foresman, *The United States*, Volume 1 Digital Resources: MindPoint Video, Video Field Trips, Lesson Planner, Exam View, *http://www.sfsocialstudies.com*		
SS 04.01	**People and Cultures**	
	01.02	Compares and contrasts tools, shelter, clothing, artwork and food used by two or more different Native American groups
	02.02	Creates a diorama highlighting the culture, resources and climate of a Native American group
	03.02	Describes how the first Americans used resources from their environment to survive
	04.02	Explains why people migrated to North America (explorers, conquistadors, colonists, missionaries)
	05.02	Summarizes the impact of explorers (such as Columbus, De Gama, Cortez, Cartier, James Cook, etc.) and the settlement of Europeans on indigenous populations
	06.02	Describes the relationships between the 13 colonies and the differences between north and south
SS 04.02	**Time and Change**	
	01.02	Creates a Venn Diagram comparing pre-colonial (Native Americans) to colonial settlement; Venn Diagram highlights the changes that occurred during colonization
	02.02	Sequences the major events of the Revolutionary War
SS 04.03	**Geography**	
	01.02	Creates a map of the original 13 colonies
	02.02	Creates and labels a relief map of the United States that includes major mountain ranges, rivers, oceans, and lakes
SS 04.04	**Government**	
	01.02	Outlines British policies that led to the Revolutionary War
SS 04.05	**Economics**	
	01.02	Creates a diagram of imports and exports (including slavery) and the major trade routes of the Colonial Period
	02.02	Explains the economic cause of the Revolutionary War (Stamp Act, Boston Tea Party, Intolerable Acts)

LEVEL 5

SS Strand	Standard	Social Studies Level 5: US History: Post Revolutionary War
Core Resource: Scott Foresman, *The United States*, Volume 2 Digital Resources: MindPoint Video, Video Field Trips, Lesson Planner, Exam View, *http://www.sfsocialstudies.com*		
SS 05.01	**People and Cultures**	
	01.02	Formulates an opinion based upon reading and interpreting a slavery song, an Abolitionist writing, and a Pro-Slavery piece
	02.02	Creates a Venn Diagram comparing the views of Northern and Southern Soldiers in the Civil War
	03.02	Creates a project using a variety of sources that investigates a famous early American figure (e.g. Sitting Bull, Johnny Appleseed, Billy the Kid, Annie Oakley, John Henry)
	04.02	Writes a narrative from the point of view of a person immigrating to the United States through Ellis Island
	05.02	Creates a project using a variety of sources that investigates a famous influential person from 1900 to present (ex. Martin Luther King, Adolf Hitler, Franklin Roosevelt, Susan B Anthony, Rosa Parks).
SS 05.02	**Time and Change**	
	02.02	Creates a project that demonstrates an understanding of *Manifest Destiny*
	01.02	Sequences the major events of the Civil War
	03.02	Creates a timeline of the 20th Century America including major wars, depression, and the industrial revolution
SS 05.03	**Geography**	
	01.02	Creates a map of the Louisiana Purchase and Lewis and Clark Expedition
	02.02	Identifies the 50 States and their capitals
	03.02	Identifies the major geographical features and regions of the United States
	04.02	Uses and calculates scale, longitude, latitude, and time zones on maps
SS 05.04	**Government**	
	01.02	Diagrams and explains the branches of US government
	02.02	Explains the importance of the Constitution and the Bill of Rights.
SS 05.05	**Economics**	
	01.02	Creates a model, diagram, or map showing the economic injustices of a southern plantation
	02.02	Formulates questions and investigates economic reasons for westward expansion (ex. Gold rush, homesteading, ranching)

LEVEL 6

Social Studies Level 6: World History – Western Hemisphere		
Core Resource: Pearson, *History of Our World* Digital Resources: Exam View, Teacher Express, *http://www.phschool.com*		
SS 06.01	**People and Cultures: Hunters and Gatherers**	
	01.02	Describes the lives of hunting and gathering people during the earliest eras of human society (tools, fire, and how early were organized [laws and government])
	02.02	Describes the early migrations of people among Earth's continents (including the Bering Land Bridge)
	People and Cultures: Agricultural	
	03.02	Describes the transition from hunter gatherers to sedentary agriculture (domestication of plants and animals)
	04.02	Describes the importance of the natural environment in the development of agricultural settlements in different locations (e.g., availability of water for irrigation, adequate precipitation, and suitable growing season)
	05.02	Explains the impact of the Agricultural Revolution (stable food supply, surplus, population growth, trade, division of labor, development of settlements)
	People and Cultures: Religion	
	06.02	Summarizes at least two different creation myths of cultures of the Western hemisphere (i.e., Aztec, Judeo-Christian)
	People and Cultures: Western Hemisphere	
	07.02	Compares and contrasts the Mayan, Aztec, and Incan societies, including economy, religion, and role and class structure
	08.02	Explains the effects of European Imperialism on the Aztec Empire and identifies key figures (Montezuma and Cortez)
	09.02	Explains the effects of European Imperialism on the Incan Empire and identifies key figures (Tupac Amaru and Pizarro)
	People and Cultures: Greece and Rome	
	10.02	Describes the rise of Greek city-states (Athens and Sparta) and identifies key figures (Homer and Plato)
	11.02	Explains the effects of the rise of the Macedonian Empire and identifies key figures (Alexander the Great)
	12.02	Explains the effects of the rise of the Roman Empire and identifies key figures (Julius Cesar and Hannibal)
SS 06.02	**Time and Change**	
	01.02	Creates a timeline that illustrates the rise and fall of the Roman Empire
	02.02	Creates a timeline of the rise of Christianity which includes the geographical center and spread of Christianity
	03.02	Explains the causes and spread of the Plague [the Black Death] and analyzes its consequences
SS 06.03	**Geography**	
	01.02	Draws the geographic boundaries of Europe, North American, and South America
	02.02	Compares and contrasts two maps to show change over time (i.e., population, migration, political boundaries, colonization, plagues/epidemics)
	03.02	Using historic and modern maps, locates the Macedonian and Roman Empires, and describes their geographic characteristics including physical features

	04.02	Identifies major river systems and transportation routes of the Western Hemisphere (i.e., Amazon and Atlantic trade routes)including physical features
SS 06.04	**Government**	
	01.02	Compares and contrasts the defining characteristics of a city-state, civilization, and empire
	02.02	Explains the importance of Greek ideas about democracy to our world today
	03.02	Defines the system of *republicanism* as used during the Roman Republic
SS 06.05	**Economics**	
	01.02	Uses historic and modern maps to locate and describe trade networks among empires (i.e., the Inca Road, the Roman Road system) using the terms: infrastructure, import/export, barter/trade, monetary system
	02.02	Using the terms *supply* and *demand*, explains how limited resources and human wants cause people to choose some things and give up others
	03.02	Describes the economic impacts of slavery for Greeks, Romans, Aztecs, or Incas
	04.02	Defines the terms *class* and *aristocracy* and describes how the tribute system led to the rise of aristocracy

LEVEL 7

SS Strand	Standard	Social Studies Level 7: World History – Eastern Hemisphere
Core Resource: Pearson, *History of Our World* Digital Resources: Exam View, Teacher Express, *http://www.phschool.com*		
SS 07.01	**People and Cultures: Asia**	
	01.02	Uses primary and secondary sources (i.e., historical and modern maps) to locate and describe the geographic spread of the Mongolian Empire and life of leader Genghis Khan
	02.02	Explains the effects of British imperialism on India
SS 07.02	**People and Cultures: Africa**	
	01.02	Compares and contrasts at least two of the major states/civilizations of East, South, and West Africa (Aksum, Bantu, Swahili, Ghana, Mali, Songhai)
	02.02	Describes the European exploration of Africa and identifies key explorers
SS 07.03	**People and Cultures: Religion**	
	01.02	Summarizes at least two different creation myths from cultures of the Eastern Hemisphere (i.e., Africa, China)
SS 07.04	**People and Cultures: Eastern Hemisphere**	
	01.02	Describes the significance of major achievements from Indian, Chinese, Japanese, African civilizations in the areas of art (Japan – Haiku), architecture (i.e., Egypt – pyramids); technology (i.e., China – printing) and mathematics (i.e., India – the idea of zero)
	02.02	Describes the significance of legal codes (the Code of Hammurabi), belief systems (Confucianism, Buddhism, Taoism), caste systems (Hinduism), written languages (hieroglyphics) in the development of human civilization
SS 07.05	**People and Cultures: Ancient Empires**	
	01.02	Identifies the roles and contributions of individuals in Ancient Egypt (Hatshepsut, Ramses, and Cleopatra)
	02.02	Explains the effects of the rise and fall of the Persian Empire and identifies key figures (Darius and Alexander the Great)
	03.02	Explains the effects of the rise of the Mughal Empire and identifies key figures (Babur)
SS 07.06	**Time and Change**	
	01.02	Creates a timeline that illustrates the rise and fall of the Persian Empire
	02.02	Creates a timeline that illustrates the rise and fall of the Mongolian Empire
	03.02	Creates a timeline that illustrates the rise and fall of the Ottoman Empire
	04.02	Creates a timeline of the rise of Islam and its geographical center
SS 07.07	**Geography**	
	01.02	Identifies major river systems and transportation routes of the Eastern Hemisphere (i.e., Nile, Tigris/Euphrates, Indus, and Yangtze)
	02.02	Maps the geographic boundaries of Africa, Asia, and Australia
	03.02	Maps the colonization of Africa over time by European nations (i.e., Belgium, France, Germany, Italy, Portugal, Spain, United Kingdom)
SS 07.08	**Government**	
	01.02	Compares and contrasts matriarchal and patriarchal systems
	02.02	Diagrams the caste systems of India
	03.02	Identifies and explains two examples of tribal interactions in Africa

SS 07.09	Economics	
	01.02	Analyzes trade along the Silk Road and the trans-Saharan trade in gold and salt
	02.02	Analyzes the development of an organized slave trade within Africa (i.e., Egyptian and West African slavery)
	03.02	Describes the slavery systems of Egypt and the Middle East
	04.02	Identifies and describes the significance of two historical natural resources from Africa and Asia (Africa – gold, salt, rubber; and Asia– silk, tea, spices)
	05.02	Compares and contrasts three different subsistence strategies (Hunter gatherer [foraging], pastoralist, agrarian)
	06.02	Defines *supply* and *demand* and compares and contrasts barter/trade systems with monetary systems

LEVEL 8

SS Strand	Standard	Social Studies Level 8: US Civics and Government / Alaska History and Government
Core Resource: Pearson, *Macgruders American Government* Digital Resources: Online Teacher Center, *http://www.phschool.com*		
SS 08.01	**US Civics and Government**	
	01.02	Distinguishes between a government and a nation
	02.02	Explains the purpose and functions of government (i.e., common defense, protection of property, justice, diplomatic relations)
	03.02	Compares and contrasts different forms of government both in theory and practice (democracy, autocracy, communist state, socialist state)
	04.02	Defines sovereignty and the three "unalienable rights" listed in the Declaration of Independence
	05.02	Identifies and explains 6 basic principles in the U.S. Constitution (popular sovereignty, limited government, separation of powers, checks and balances, judicial review and federalism)
	06.02	Describes the divisions of power between the federal, state, and local governments and the role/function of each
	07.02	Explains the rights and responsibilities of civics as it applies to citizenship
	08.02	Demonstrates an understanding of the following concepts: equality, justice, liberty and privacy
	09.02	Researches and reports on at least two issues, problems, or concepts in constitutional law
	10.02	Explains how a bill becomes law
	11.02	Explains the different components and participants of the trial process
	12.02	Researches and reports on at least one Supreme Court case
	13.02	Compares and contrasts 5 different political points of view and their characteristics across the left-center-right political spectrum (i.e., conservative, liberal, socialist, communist, anarchist, etc.)
	14.02	Identifies the role of political parties and campaigns in elections
	15.02	Explains the electoral process
	16.02	Writes a letter, article, editorial, or persuasive essay to influence those in power in the local, state, or national community
SS 08.02	**Alaska History & Government**	
	01.02	Uses a variety of sources to analyze the historical contributions and/or influences of significant individuals, groups, and organizations of indigenous Alaskans before western contact (i.e. specific Native AK cultures, traditional Native governance, traditional stories and traditions)
	02.02	Uses a variety of sources to analyze the impact of the relationships between AK Natives and Russians (i.e. Russian Orthodox Church, early fur traders, Russian American Companies, enslavement, and Creoles).
	03.02	Identifies patterns of transformation, competition, supply and demand, and subsistence activities in response to the use of natural resources during the Colonial Russian Period (1741-1867) (i.e. fur, minerals, whaling)
	04.02	Compares and contrasts tribal and western concepts of land ownership and how acting upon those concepts contributes to changes in land use, control, and ownership

	05.02	Describes impacts the Treaty of Cession, the Marshall Trilogy, Mining Act of 1872, Organic Act of 1884 had on Alaskans
	06.02	Describes at least one gold rush (Juneau, Klonkike, Nome) and its impact on natural resource development, land management, and social aspects of Alaskan communities
	07.02	Explains the significance of the Nelson Act of 1905 on education and the subsequent history of education in Alaska (include role of Sheldon Jackson, Tobeluk vs. Lind Case [Molly Hootch])
	08.02	Explains Alaskan's quest for self determination (i.e., full rights as US citizens) through the statehood movement
	09.02	Draws conclusions about the significance of natural resources (i.e., fisheries, timber, Swanson River oil discovery, North Slope oil, "sustained yield" in the AK Constitution) in Alaska's development
	10.02	Explains the impact of military actions on Alaskan communities (e.g., Naval bombardment of Angoon, Aleut internment, WWII [Attu/Kiska], military expeditions, nuclear testing)
	11.02	Describes the historical basis of federal recognition of tribes, the ongoing nature and diversity of tribal governance, and the plenary power of Congress
	12.02	Explains Native efforts toward civil and land rights (i.e., founding of AK Native Brotherhood, Alaska Native Sisterhood, Alaska Federation of Natives, and Tanana Chiefs) and challenge to status quo (i.e., appeals to the Russian government, Ward Cove Packing Co. Case, anti-discrimination acts, women's suffrage)
	13.02	Describes federal policies and legislation that recognized Native rights (AK Citizenship Act, Tlingit-Haida Jurisdiction Act, Indian Citizenship Act of 1925, AK Reorganization Act, ANCSA)
	14.02	Describes the importance of at least three significant individuals in modern Alaska history and/or government: Judge Wichersham, William Paul, Elizabeth Peratrovich, Ernest Gruening, William Hensley, Eben Hopson, Howard Rock,Gov. Jay Hammond, Ted Stevens, Katie John
	15.02	Describes ANCSA and ANILCA and their impact on the state
	16.02	Lists and describes the formation of Alaska Native Corporations and explains their impact on state and local economies
	17.02	Creates a timeline that describes key turning points in recent Alaska history (building of Prudoe Bay pipeline, Molly Hootch case, ANCSA, ANILCA, ANWR, natural and manmade disasters, establishment of corporations, Permanent Fund Dividend)

LEVEL 9

SS Strand	Standard	Social Studies Level 9: Early US History
Core Resource: Pearson, *United States History* Digital Resources: Exam View, Teacher Express, Witness History, *http://www.phschool.com*		
SS 09.01	**People and Cultures: Pre-Columbian America**	
	01.02	Describes the cultures of the North American continent including: Paleo-Indians, Moundbuilders, Hohokam, and Anasazi
	02.02	Compares and contrasts at least two Native American culture regions (i.e., Arctic, Subarctic, Northwest coast, Great Basin, Southwest, Great Plains, Southeast, and Northeast) including lifestyle, political leadership, and subsistence
SS 09.02	**People and Cultures: European Exploration and Conquest**	
	01.02	Compares and contrasts the motivations and goals of different European groups in coming to North America (i.e., Spain, Portugal, France, and Britain)
	02.02	Describes the rise of early colonies (i.e., Roanoke, Jamestown, Plymouth) and discusses key figures (John Smith, Powhatan, John Winthrop, William Penn)
	03.02	Explains the importance of religion in early colonies and the consequences of different perspectives of religious faith (i.e., European-Native relations, the Salem witch trials, Quakers, first Great Awakening)
	04.02	Describes Native American and African American rebellions against European settlers (i.e., Pontiac's Rebellion and Stono Rebellion)
SS 09.03	**People and Cultures: Revolutionary America**	
	01.02	Explains the causes of the American War for Independence
	02.02	Describes key figures and their roles in the American War for Independence (Samuel Adams, John Adams, Patrick Henry, George Washington, Thomas Jefferson, Paul Revere, Thomas Paine, Ben Franklin, King George, Marquis de Lafayette)
SS 09.04	**People and Cultures: The New Nation**	
	01.02	Describes the importance of religion in early America (i.e., the Second Great Awakening, temperance movement)
	02.02	Describes the rise and importance of the Antislavery (Abolitionist) Movement and identifies key figures (Nat Turner, Frederick Douglass, John Brown, Dred Scott, Harriet Tubman, and Harriet Beecher Stowe)
	03.02	Compares and contrasts differing perspectives on slavery (antislavery and proslavery)
	04.02	Explains the causes of the Mexican-American War and identifies key figures (Sam Houston and Santa Ana)
	05.02	Describes the rise and importance of the Women's Movement and identifies key figures (Sojourner Truth, Lucretia Mott, and Elizabeth Stanton)
SS 09.05	**People and Cultures: Civil War and Reconstruction**	
	01.02	Explains the causes of the U.S. Civil War (i.e., slavery, state's rights, westward expansion, the 1860 election of Lincoln)
	02.02	Identifies and explains importance of the key figures of the U.S. Civil War (Abraham Lincoln, Jefferson Davis, Ulysses Grant, "Stonewall" Jackson, Robert E. Lee)
	03.02	Analyzes primary sources of Abraham Lincoln in relation to the U.S. Civil War (i.e., A House Divided Speech, the Gettysburg Address, the Emancipation Proclamation, the 13th Amendment)
	04.02	Analyzes political cartoons from the Reconstruction and explains differing perspectives

SS 09.06	**Time and Change**	
	01.02	Describes the Columbian Exchange and its impact on Europeans, Native Americans, and Africans (i.e., disease, crops, and trade)
	02.02	Creates a timeline of the major events of the American War for Independence
	03.02	Defines *Manifest Destiny* and explains its impact on westward migration with specific attention to the displacement of Native American tribes (i.e., Treaty of Fort Laramie)
	04.02	Creates a timeline of the major events of the U.S. Civil War
	05.02	Defines *infrastructure* and describes the rebuilding and institutional consequences of the Nation after the U.S. Civil War (i.e., the Freedmen's Bureau and the Ku Klux Klan)
SS 09.07	**Geography**	
	01.02	Maps the colonies of Spain, France, and England in North America
	02.02	Maps the Trans-Atlantic Slave Trade routes and destinations
	03.02	Maps the routes that settlers traveled during Manifest Destiny (i.e., the Oregon Trail, the Mormon Trail, the California Trail)
	04.02	Maps the Confederacy states, the Union, and the Border States during the U.S. Civil War
SS 09.08	**Government**	
	01.02	Reads and summarizes the meaning and significance of the Mayflower Compact
	02.02	Describes the political interactions between the colonies, Native American tribes, British and French (i.e., the French and Indian War)
	03.02	Analyzes historical documents that influenced the creation of the U.S. Constitution (i.e., the Magna Carta, the English Bill of Rights, Articles of Confederation, Federalist Papers)
	04.02	Compares and contrasts the perspectives of "patriots" and "loyalists" in Revolutionary America
	05.02	Analyzes the Declaration of Independence and reconstructs the literal meaning (i.e., principles and grievances)
	06.02	Briefly describes the Federal Government created by the United States Constitution (i.e., three branches of government, checks and balances, bicameral legislature), the Bill of Rights (first ten amendments to the Constitution), and the 14th and 15th Amendments
SS 09.09	**Economics**	
	01.02	Analyzes the push and pull factors that led European groups to begin exploration
	02.02	Explains the economic factors which led to the Trans-Atlantic Slave Trade and compares and contrasts the economics of slavery and indentured servitude
	03.02	Analyzes the push and pull factors that led to Manifest Destiny (westward migration) (i.e., the California Gold Rush)
	04.02	Explains the economic factors which led to the U.S. Civil War (i.e., slavery and westward expansion) and the Union victory (i.e., industrialization, large population, resources, military leadership, Emancipation Proclamation)
	05.02	Compares and contrasts slavery and sharecropping

LEVEL 10

SS Strand	Standard	Social Studies Level 10: Late US History
Core Resource: Pearson, *United States History* Digital Resources: Exam View, Teacher Express, Witness History, *http://www.phschool.com*		
SS 10.01	**People and Cultures: Industrial Revolution & the Gilded Age (1870 to 1914)**	
	01.02	Examines the rise of the Industrial Revolution in America and identifies key figures (Andrew Carnegie, John Rockefeller, Thomas Edison)
	02.02	Describes daily life during the Gilded Age and working conditions that led to organized labor movements (i.e., child labor, sweat shops, long working hours, unsafe conditions, low pay)
	03.02	Examines major strikes of the late 1800s (i.e., Railroad strikes, Haymarket Square, Pullman strike)
SS 10.02	**People and Cultures: WWI Era (1914-1919)**	
	01.02	Explains the primary causes of WWI (militarism, alliances, imperialism, and nationalism)
	02.02	Describes the aims of Wilson's Fourteen Points and the League of Nations
	03.02	Analyzes changes in the home front during WWI (i.e., the influenza pandemic, the First Red Scare)
SS 10.03	**People and Cultures: Reform Movements (1920-1928)**	
	01.02	Examines the Women's Movement (i.e., temperance movement, suffrage, Margaret Sanger, 19th Amendment, "flapper's")
	02.02	Explains the causes and effects of Prohibition and identifies key figures and ideas (Carrie Nation, Al Capone, Volstead Act, speakeasies)
SS 10.04	**People and Cultures: WWII Era (1941-1945)**	
	01.02	Explains the causes of WW II (i.e., Treaty of Versailles, German imperialism, bombing of Pearl Harbor)
	02.02	Explains the changing role of Women during WWII (i.e., Rosie the Riveter, Women's Army Corps)
	03.02	Explains the contributions of African-Americans and Native Americans during WWII (Tuskegee Airman, Codetalkers)
	04.02	Examines the internment of Japanese Americans during WWII
	05.02	Examines Alaska's role in WWII (i.e., Battle of Attu and Kiska, relocation of Alaskan Natives)
SS 10.05	**People and Cultures: Cold War to the Modern Era (1945-present)**	
	01.02	Compares and contrasts two decades from the Cold War
	02.02	Examines the Cuban Missile Crisis and identifies key figures (John F. Kennedy, Nikita Khrushchev, and Fidel Castro)
	03.02	Examines the causes of the Vietnam War (i.e., domino theory, Gulf of Tonkin resolution) and the growth of the anti-war/counterculture movement in America in the 1960s and 1970s
	04.02	Examines the rise of Republicanism (i.e, Ronald Reagan) and the end of the Cold War
	05.02	Identifies and explains significance of key figures of the Civil Rights Movements (Martin Luther King Jr., Rosa Parks, Malcolm X, Little Rock 9, Cesar Chavez, Betty Friedan)

	06.02	Identifies and explains significance of key figures of the Modern Era (George H.W. Bush, Saddam Hussein, Bill Clinton, George W. Bush, Osama Ben Ladin, Barrack Obama)
SS 10.06	**Time and Change**	
	01.02	Uses census data from 1790-1940 to describe population changes (i.e., composition, distribution, density)
	02.02	Creates a timeline of the major inventions of the Industrial Revolution (i.e., Bessemer process, telegraph, sewing machine, light bulb, internal combustion engine)
	03.02	Creates a timeline of U.S. Imperialism and expansionism
	04.02	Maps the area known as the Dust Bowl
	05.02	Analyzes the Holocaust
	06.02	Creates a timeline of the major events of the Cold War (i.e., Berlin airlift, Korean War, HUAC Hearings, Sputnik, Vietnam War, Fall of the Berlin Wall)
	07.02	Compares and contrasts the coming home of at least two groups of Veteran's (i.e., WWII, Vietnam, Iraq)
	08.02	Describes major acts of Terrorism (i.e., U.S.S. Cole, Oklahoma City bombing, 9/11)
SS 10.07	**Geography**	
	01.02	Describes major trends in urban and industrial transformation in America (i.e., the development of cities, growth of commerce and transportation)
	02.02	Compares and contrasts the changes in political boundaries before and after World War I
	03.02	Maps the participating countries during WWII (Axis and Allied powers)
	04.02	Maps countries in East and Southeast Asia reflecting post WWII political boundaries (North Korea, South Korea, China, Japan, Vietnam, Laos, Cambodia, Myanmar/Burma, Thailand, Philippines, and Indonesia)
SS 10.08	**Government**	
	01.02	Compares and contrasts the Monroe Doctrine with Roosevelt's "big stick" diplomacy
	02.02	Explains the Manhattan Project and the decision to drop the Atomic Bomb
	03.02	Compares and contrasts treaties after WWI (Treaty of Versailles) and after WWII (Yalta and Potsdam conferences)
	04.02	Describes the effects of the assassination of JFK and the presidential succession
	05.02	Compares and contrasts Plessy vs. Ferguson and Brown v Board of Education
	06.02	Explains the significance of Watergate (i.e., the impeachment and eventual resignation of Nixon)
	07.02	Explains the consequences of 9/11 (i.e., creation of the Dept of Homeland Security, Patriot Act, Afghanistan War, Iraq War, etc.)
SS 10.09	**Economics**	
	01.02	Defines and describes the concepts of horizontal and vertical integration and its relation to monopolies
	02.02	Describes the economic factors that led to the Industrial Revolution in America (i.e., the rise of organized labor, the assembly line, and capital)
	03.02	Explains the push and pull factors that effected immigration from 1870 to 1910
	04.02	Explains the causes of the Great Depression (i.e., stock market crash, Hawley-Smoot Tariff) and the Government's response to help alleviate the problems (i.e., the New Deal)
	05.02	Analyzes issues of supply and demand during WWII (i.e., rationing, scarcity)

	06.02	Analyzes the growth of internet business

LEVEL 11

SS Strand	Standard	Social Studies Level 11: World History
Core Resource: Pearson, *World History* Digital Resources: Exam View, Teacher Express, *http://www.phschool.com*		
SS 11.01	**People and Cultures: Europe**	
	01.02	Describes and maps key Renaissance explorers, including Marco Polo (Italy) and Magellan (Portugal)
	02.02	Explains the origins, growth, and consequences of the Protestant Reformation including key figures (Gutenberg, Martin Luther, Johannes John Calvin, John Wycliffe, Jan Hus)
	03.02	Explains the origins, growth, and consequences of the Enlightenment and Scientific Revolution including key figures (Voltaire, John Locke, Galileo, Sir Isaac Newton, and Copernicus)
	04.02	Explains the origins, growth, and consequences of the French Revolution and key figures (Robespierre and Napoleon)
	05.02	Explains the causes of the Russian Revolution (i.e., monarchy, pogroms) and discuss key figures (Lenin and Stalin)
SS 11.02	**People and Cultures: Africa and the Middle East**	
	01.02	Explains at least one African resistance movement to European imperialism (i.e., Algeria, Zulu, Ethiopia)
	02.02	Analyzes the modern Palestine-Israel conflict
	03.02	Analyzes the causes and consequences of the Iranian Islamic Revolution and identifies key figures (i.e., Mohammed Mosaddeq, Shah Pahlavi, Ayotallah Khomeini, Mahmoud Ahmadinejad)
SS 11.03	**People and Cultures: India and China**	
	01.02	Explains the causes of British imperialism in India, Indian resistance movements, and Indian independence (i.e., Ghandi)
	02.02	Explains the causes and effects of the Opium Wars
	03.02	Compares and contrasts the Taiping Rebellion and Boxer Uprising
	04.02	Explains the causes and consequences of the Chinese Revolution (i.e., communism) and identifies key figures (Mao Zedong)
SS 11.04	**People and Cultures: South America**	
	01.02	Describes pre and post revolutionary Latin America (i.e., Mexico, Haiti, Venezuela, Brazil) and identifies key figures (Hidalgo, Toussaint L'Ouverture, Simone Bolivar, Don Pedro)
	02.02	Analyzes present day issues in South American (i.e., drugs, international indebtedness) and identifies key figures (i.e., Hugo Chavez)
SS 11.05	**Time and Change**	
	01.02	Compares and contrasts the art and literature of two eras (i.e., the Renaissance, Baroque, Romantic, Modern)
	02.02	Explains the origins, growth, and consequences of the Industrial Revolution and key inventions (steam engine and cotton gin) in a global context
	03.02	Describes the indigenous cultures of Australia and explains the push and pull factors of European imperialism (i.e., the penal colony)
	04.02	Compares and contrasts the Panama and Suez Canals and their significance in world trade

	05.02	Analyzes modern genocides (i.e., Rwanda, Darfur, Serbia, Congo)
	06.02	Uses census data from the last 50 years to describe population changes in India and China
SS 11.06	**Geography**	
	01.02	Compares and contrasts two maps to show change over time (i.e., population, migration, political boundaries, colonization, plagues/epidemics)
	02.02	Maps the military conquests of Napoleon and compare to modern European political boundaries
	03.02	Compares and contrasts at least two famines in history (i.e., China, France, India, Ireland, Soviet Union) in relation to their geographic location
	04.02	Maps the partition of Africa during European imperialism to 1914 (i.e., France/Algeria, Britain/South Africa & Kenya, Portugal/Angola, Belgium/Congo)
	05.02	Locates the countries of the Middle East (i.e., Iraq, Iran, Syria, Israel, Jordan, Saudi Arabia, Kuwait, Afghanistan, Lebanon, Egypt, Turkey, Yemen, Oman, UAE, Qatar, and Bahrain) on a map
	06.02	Locates all the countries on the continent of Africa (including Madagascar)
	07.02	Maps the member nations of OPEC and charts world oil consumption
SS 11.07	**Government**	
	01.02	Compares and contrasts at least two systems of government (i.e., democracy, communism, socialism)
	02.02	Analyzes a current crisis in Africa and develops a potential solution (i.e., famine, AIDS, civil wars, genocide)
SS 11.08	**Economics**	
	01.02	Explains how limited resources and human wants cause people to choose some things and give up others
	02.02	Describes how natural resources affected the growth of the Industrial Revolution and names one industry that was affected (i.e., textiles, transportation)
	03.02	Defines infrastructure and identifies key elements (roads, transportation, communication, trade/money)
	04.02	Analyzes current economic issues in Africa in relation to early 20th century European imperialism
	05.02	Explains China's current trend towards capitalism (i.e., Walmart) as a consequence of globalization (i.e., outsourcing, multi-national corporation)
	06.02	Examines the rise of the European Union and its economic consequences (i.e., the euro, freer flow of capital, labor, services, and trade)

LPSD SCIENCE STANDARDS

LEVEL 0

SC Strand	Standard	SCIENCE LEVEL 0
Core Resources: Science, A Closer Look: Teacher Edition, Resource Book/Blackline Masters, Kindergarten; SC Curriculum Guide Levels 0-2 **Digital Resources:** *https://www.mheonline.com*		
SC 00.01	**Science as Inquiry and Process**	
	Develop an understanding of the process of science	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Observing and describing the student's own world to answer simple questions
SC 00.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Asking simple, reasonable questions
SC 00.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Sorting animals by appearance and behavior.
SC 00.04	**Concepts of Physical Science**	
	Demonstrates an understanding of the structure and properties of matter	
	01.02	Classifying matter according to physical properties (i.e., color, size, shape)
SC 00.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Classifying materials as insulators or conductors (i.e., fur, metal, wood, plastic).
SC 00.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Recognizing the three states of matter (solid, liquid, gas) as they relate to water.
SC 00.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Recognizing that objects can be moved without being touched using magnets.
SC 00.08	**Concepts of Life Science**	
	Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution	
	01.02	Sorting Alaskan animals using physical characteristics (e.g., beaks)
	02.02	Describing how an animal uses its traits (e.g., claws, teeth, camouflage)
SC 00.09	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Listing the living and nonliving things in the local environment
	02.02	Identifying and sorting examples of living and non-living things in the local environment
SC 00.10	**Concepts of Earth Science**	
	Demonstrate an understanding of geochemical cycles	
	01.02	Recognizing that there are different types of rocks
	02.02	Recognizing that water is found in many different places (e.g. clouds, rivers, lakes, oceans)
SC 00.11	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Identifying major local land features

SC 00.12	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Observing and recording local weather changes (temperature, precipitation, clouds)
SC 00.13	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Using hand lenses
SC 00.14	**Science and Technology**	
	Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity	
	01.02	Identifying local tools and materials used in everyday life
	02.02	Collecting and recording data with support
SC00.15	**Cultural, Social, Personal Perspectives, and Science**	
	Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and perspectives	
	01.02	List natural events that could occur (e.g. earthquake, tsunami, eruption, flood)
SC 00.16	**History and Nature of Science**	
	Demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base	
	01.02	Asking questions about the natural world

LEVEL 1

SC Strand	Standard	SCIENCE LEVEL 1
Core Resources: Science, A Closer Look: Teacher Edition, Reading Essentials, Grade 1; SC Curriculum Guide Levels 0-2 **Digital Resources:** *https://www.mheonline.com*		
SC 01.01	**Science as Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Observing and describing the student's own world to answer simple questions
SC 01.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Asking simple, reasonable questions
SC 01.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Sorting animals by appearance and behavior.
SC 01.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Classifying matter according to physical properties (i.e., color, size, shape)
SC 01.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Classifying materials as insulators or conductors (i.e., fur, metal, wood, plastic).
SC 01.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Recognizing the effect of temperature on the three states of matter (solid, liquid, gas) as they relate to water.
SC 01.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Recognizing that objects can be moved without being touched using magnets, and falling objects
SC 01.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Sorting Alaskan plants and/or animals using physical characteristics (e.g., leaves, beaks)
	02.02	Describing how an animal uses its traits (e.g., claws, teeth, camouflage) to survive
SC 01.09	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Identifying and sorting examples of living and non-living things in the local environment
	02.02	Organizing a simple food chain of familiar plants and animals
SC 01.10	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Recognizing that most rocks are composed of different substances
	02.02	Diagramming and labeling the water cycle
SC 01.11	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Identifying and comparing a variety of Earth's land features (i.e., rivers, lakes, mountains, valleys)

SC 01.12	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Observing and recording local weather changes (temperature, precipitation, clouds) to make reasonable predictions
SC 01.13	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Recognizing and using appropriate instruments of magnification (e.g., hand lenses, binoculars)
SC 01.14	**Science and Technology** **Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Identifying local tools and materials used in everyday life
SC 01.15	**Cultural, Social, Personal Perspectives and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	List natural events that have occurred locally (e.g. earthquake, tsunami, eruption, flood)
SC 01.16	**History and Nature of Science** **Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Telling about an observation of a single local event
SC 01.17	**Demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base**	
	01.02	Asking questions about the natural world

LEVEL 2

SC Strand	Standard	SCIENCE LEVEL 2
Core Resources: Science, A Closer Look: Teacher Edition, Reading Essentials, Grade 2; SC Curriculum Guide Levels 0-2		
Digital Resources: *https://www.mheonline.com*		
SC 02.01	**Science as Inquiry and Process**	
	Develop an understanding of the process of science	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Observing and describing the student's own world to answer simple questions
SC 02.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Answering, "how do you know?" questions with reasonable answers
SC 02.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Observing local conditions that determine which plants and/or animals survive
SC 02.04	**Concepts of Physical Science**	
	Demonstrates an understanding of the structure and properties of matter	
	01.02	Classifying matter according to physical properties (i.e., color, size, shape, weight, texture, flexibility)
SC 02.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Classifying materials as insulators or conductors (i.e., fur, metal, wood, plastic) and identifying their applications
SC 02.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Recognizing that temperature changes cause changes in phases of substances (e.g. ice changing to liquid, water changing to water vapor, and vice versa)
SC 02.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Recognizing that objects can be moved without being touched (e.g., using magnets, falling objects, static electricity)
SC 02.08	**Concepts of Life Science**	
	Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution	
	01.02	Sorting Alaskan plants and/or animals using physical characteristics (e.g., leaves, beaks)
	02.02	Describing how some traits (e.g., claws, teeth, camouflage) of living organisms have helped them survive as a species
SC 02.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Sorting animals and plants into groups based on appearance and behaviors
	02.02	Observing and comparing external features of plants and of animals that may help them grow, survive, and reproduce
SC 02.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Identifying and sorting examples of living and non-living things in the local environment

	02.02	Organizing a simple food chain of familiar plants and animals
SC 02.11	**Concepts of Earth Science**	
	Demonstrate an understanding of geochemical cycles	
	01.02 02.02	Recognizing that most rocks are composed of combinations of different substances Describing the water cycle to show that water circulates through the rivers, lakes, oceans, and atmosphere of Earth
SC 02.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Identifying and comparing a variety of Earth's land features (i.e., rivers, deltas, lakes, glaciers, mountains, valleys, and islands)
SC 02.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Using recorded weather patterns (e.g., temperature, cloud cover, or precipitation) to make reasonable predictions
SC 02.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Recognizing and using appropriate instruments of magnification (e.g., hand lenses, binoculars, and telescopes)
SC 02.15	**Science and Technology**	
	Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity	
	01.02	Identifying local tools and materials used in everyday life
SC 02.16	**Cultural, Social, Personal Perspectives, and Science**	
	Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives	
	01.02	List natural events that have occurred locally (e.g. earthquake, tsunami, eruption, flood)
SC 02.17	**History and Nature of Science**	
	Demonstrates an understanding of the basis of the advancement of scientific knowledge	
	01.02	Telling about an observation of a single local event
SC 02.18	**Demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base**	
	01.02	Asking questions about the natural world

LEVEL 3

SC Strand	Standard	SCIENCE LEVEL 3
Core Resources: Science, A Closer Look: Teacher Edition, Reading Essentials, Grade 3; SC Curriculum Guide Levels 3-5 **Digital Resources:** *https://www.mheonline.com*		
SC 03.01	**Science as Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Observing and describing the student's own world to answer simple questions
SC 03.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Answering, "how do you know?" questions with reasonable answers
SC 03.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Observing local conditions that determine which plants and/or animals survive
SC 03.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Classifying matter according to physical properties (i.e., color, size, shape, weight, texture, flexibility)
SC 03.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Classifying materials as insulators or conductors (i.e., fur, metal, wood, plastic) and identifying their applications
SC 03.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Recognizing that temperature changes cause changes in phases of substances (e.g. ice changing to liquid, water changing to water vapor, and vice versa)
SC 03.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Recognizing that objects can be moved without being touched (e.g., using magnets, falling objects, static electricity)
SC 03.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Sorting Alaskan plants and/or animals using physical characteristics (e.g., leaves, beaks)
	02.02	Describing how some traits (e.g., claws, teeth, camouflage) of living organisms have helped them survive as a species
SC 03.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Sorting animals and plants into groups based on appearance and behaviors
	02.02	Observing and comparing external features of plants and of animals that may help them grow, survive, and reproduce
SC 03.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Identifying and sorting examples of living and non-living things in the local environment

	02.02	Organizing a simple food chain of familiar plants and animals
SC 03.11	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Recognizing that most rocks are composed of combinations of different substances
	02.02	Describing the water cycle to show that water circulates through the crust, oceans, and atmosphere of Earth
SC 03.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Identifying and comparing a variety of Earth's land features (i.e., rivers, deltas, lakes, glaciers, mountains, valleys, and islands)
SC 03.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Using recorded weather patterns (e.g., temperature, cloud cover, or precipitation) to make reasonable predictions
SC 03.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Recognizing that objects appear smaller the farther away they are
	02.02	Recognizing that objects have properties, locations, and movements that can be observed and described
	03.02	Recognizing and using appropriate instruments of magnification (e.g., binoculars, and telescopes)
SC 03.15	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Identifying local problems and discussing solutions
SC 03.16	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Identifying local tools and materials used in everyday life
SC 03.17	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Listing the positive and negative effects of a single technological development in the local community (e.g., fish trap, fish wheel, four-wheeler, computer)
SC 03.18	**Cultural, Social, Personal Perspectives, and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Exploring local or traditional stories that explain a natural event
SC 03.19	**History and Nature of Science** **Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Comparing the results of multiple observations of a single local event
SC 03.20	**Demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base**	
	01.02	Asking questions about the natural world

LEVEL 4

SC Strand	Standard	SCIENCE LEVEL 4
Core Resources: Science, A Closer Look: Teacher Edition, Reading Essentials, Grade 4; SC Curriculum Guide Levels 3-5 **Digital Resources:** *https://www.mheonline.com*		
SC 04.01	**Science as Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Observing, measuring and collecting data from explorations and using this information to classify, predict, and communicate
SC 04.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Supporting their ideas with observations and peer review
SC 04.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Identifying the local limiting factors (e.g., weather, human influence, species interactions) that determine which plants and/or animals survive
SC 04.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Identifying and comparing the characteristics of gases, liquids, and solids
SC 04.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Investigating the effectiveness of different insulating and conducting materials with respect to flow and record the results
SC 04.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Explaining that temperature changes cause changes in phases of substances (e.g., ice changing to liquid water and liquid water to water vapor)
SC 04.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Simulating that changes in speed or direction of motion are caused by forces
SC 04.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Showing the relationship between physical characteristics of Alaskan organisms and the environment in which they live
	02.02	Describing fossil evidence (e.g., casts, track ways, imprints, etc.) of extinct organisms
SC 04.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Choosing appropriate tools (i.e., hand lens, microscopes, ruler, balance) to examine the basic structural components (e.g., stems, leaves, fish scales, wings) of living things
	02.02	Describing the basic characteristics and requirements of living things
SC 04.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Identifying examples of living and non-living things and the relationship between them (e.g., living things need water, herbivores need plants)

	02.02	Identifying a simple food chain and diagramming how energy flows through it an describing the effects of removing one link
SC 04.11	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Describing that most smaller rocks come from the breaking and weathering of larger rocks as part of the rock cycle
	02.02	Recognizing the physical properties of water as they relate to the rock cycle
SC 04.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Observing models of how waves, wind, water, and ice shape and reshape the Earth's surface by eroding rock and soil
	01.02	Identifying causes (i.e., earthquakes, tsunamis, volcanoes, floods, landslides, and avalanches) of rapid changes on the surface
SC 04.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Recognizing changes to length of daylight over time and its relationship to seasons
	02.02	Observing that heat flows from one object to another
SC 04.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Recognizing that stars are like the sun but are so far away that they look like points of light
	02.02	Recognizing that objects have properties, locations, and movements that can be observed and described
	03.02	Recognizing and using appropriate instruments of magnification (e.g., binoculars, and telescopes)
SC 04.15	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Recognizing that tools (e.g., spear, hammer, hand lens, kayak, computer_ and process (e.g., drying fish, sewing, photography) are an important part of human cultures
SC 04.16	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Identifying the function of a variety of tools (e.g., spear, hammer, hand lens, kayak, computer)
	02.02	Identifying multiple explanations (e.g., oral traditions, folklore, scientific theory) or everyday events (e.g., weather, seasonal changes)
SC 04.17	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Listing the positive and negative effects of scientific discovery
SC 04.18	**Cultural, Social, Personal Perspectives, and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Connecting observations of nature to a local or traditional story that explains a natural event (e.g., animal adaptation, weather, rapid changes to Earth's surface)
SC 04.19	**History and Nature of Science** **Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Recognizing the need for repeated measurements

SC 04.20	Demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base	
	01.02	Using an account of a discovery to recognize that an individual's (e.g. George Washington Carver, Marie Curie) curiosity led to advancements in science

LEVEL 5

SC Strand	Standard	SCIENCE LEVEL 5
Core Resources: Science, A Closer Look: Teacher Edition, Reading Essentials, Grade 5; SC Curriculum Guide Levels 3-6 **Digital Resources:** *https://www.mheonline.com*		
SC 05.01	**Science as Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Using quantitative and qualitative observations to create own inferences and predictions
SC 05.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Supporting their statements with facts from a variety of resources and by identifying their resources
SC 05.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Identifying the local limiting factors (e.g., weather, human influence, species interactions) that determine which plants and/or animals survive
SC 05.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Comparing models that represent matter as solids, liquids, or gases and the changes from one state to another
SC 05.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Classifying the changes (i.e., heat, light, sound, and motion) that electrical energy undergoes in common household appliances (i.e., toaster, blender, radio, light bulb, heater)
SC 05.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Identifying physical and chemical changes based on observable characteristics (e.g., tearing paper vs. burning paper)
SC 05.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Investigating that the greater the force acting on an object, the greater the change in motion will be
SC 05.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Contrasting inherited traits (e.g., flower color, number of limbs) with those that are not (riding a bike, scar from an accident)
	02.02	Making reasonable inferences about fossil organisms based on physical evidence
SC 05.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Identifying and sorting animals into groups using basic external and internal features
	02.02	Explaining how external features and internal systems (i.e., respiratory, excretory, skeletal, circulatory, and digestive) of plants and animals may help them grow, survive, and reproduce

	03.02	Recognizing that organisms are composed of cells
SC 05.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Diagramming how matter and energy are transferred within and between living and nonliving things
	02.02	Organizing a simple food chain of familiar plants animals that traces the source of the energy back to sunlight
SC 05.11	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Observing a model of the rock cycle showing that smaller rocks come from the breaking and weathering of larger rocks and that smaller rocks (e.g., sediments and sands) may combine with plant materials to form soils
SC 05.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Describing how wind and water tear down and build up Earth's surface resulting in new land formations (i.e., deltas, moraines, and canyons)
SC 05.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Observing a model that shows how the regular and predictable motion of the Earth and moon determine the apparent shape (phases) of the moon over time
	02.02	Comparing heat absorption and loss by land and water
SC 05.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Distinguishing between stars, planets, moons, comets, and meteors
	02.02	Recognizing that the earth is in regular and predictable motion and this motion explains the length of a day and year
	03.02	Recognizing and using appropriate instruments of magnification (e.g., binoculars, and telescopes)
SC 05.15	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Identifying a community problem or issue and describing the information needed to develop a scientific solution
SC 05.16	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Investigating a problem or project over a specified period of time and identifying the tools and processes used in that project
	02.02	Comparing multiple explanations (e.g., oral traditions, folklore, scientific theory) of everyday events (e.g., weather, seasonal changes)
SC 05.17	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Describing the various effects of an innovation (e.g., snow machines, airplanes, immunizations) on the safety, health, and environment of the local community
SC 05.18	**Cultural, Social, Personal Perspectives, and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	

	01.02	Telling a local or traditional story that explains a natural event (e.g., animal adaptation, weather rapid changes to Earth's surface) and relating it to a scientific explanation
SC 05.19	**History and Nature of Science** **Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Reviewing and recording results of investigations into the natural world
SC 05.20	**Demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base**	
	01.02	Investigating that scientists' curiosity led to advancements in science

LEVEL 6

SC Strand	Standard	SCIENCE LEVEL 6
Core Resources: Science, A Closer Look: Teacher Edition, Student Text, Reading Essentials, Grade 6; Glencoe Integrated Science, Red Level; SC Curriculum Guide Levels 6-8 **Digital Resources:** *https://www.mheonline.com*		
SC 06.01	**Science as Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Collaborating to design and conduct simple repeatable investigations
SC 06.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Identifying and differentiating fact from opinion
SC 06.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Gathering data to build a knowledge base that contributes to the development of questions about the local environment (e.g., moose browsing, trail usage, river erosion)
SC 06.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Using models to represent matter as it changes from one state to another
SC 06.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Recognizing that energy can exist in many forms (i.e., heat, light, chemical, electrical, mechanical)
SC 06.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Recognizing that most substances can exist as a solid, liquid, or gas depending on temperature
SC 06.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Stating that every object exerts gravitational force on every other object
	02.02	Making waves move through a variety of media
SC 06.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Recognizing sexual and asexual reproduction
	02.02	Recognizing that species survive by adapting to changes in their environment
SC 06.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Using a dichotomous key to classify animals and plants into groups using external or internal features
	02.02	Identifying basic behaviors (e.g., migration, communication, hibernation) used by organisms to meet the requirements of life
	03.02	Describing the levels of organization within a human body (i.e., cells, tissues, organs, systems)
SC 06.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	

	01.02	Recognizing that organisms can cause physical and chemical changes (e.g., digestion, growth, respiration, photosynthesis) to matter and recognizing the importance of energy transfer in these changes
	02.02	Organizing a food web using familiar plants and animals
SC 06.11	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Exploring the rock cycle and its relationship to igneous, metamorphic, and sedimentary rocks
	02.02	Identifying the physical properties of water within the stages of the water cycle
SC 06.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Describing how the formation and composition (i.e., sand, silt, clay, organics) of soils
	02.02	Identifying and describing its layers (i.e., crust, mantle, core)
	03.02	Describing how the surface can change rapidly as a result of geological activities (i.e., earthquakes, tsunamis, volcanoes, floods, landslides, avalanches)
SC 06.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Connecting the water cycle to weather phenomena
	02.02	Identifying that energy transfer is affected by surface conditions (e.g., snow cover, asphalt, vegetation) and that this affects weather
SC 06.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Contrasting characteristics of planets and stars (i.e., light reflecting, light emitting, orbiting, orbited, composition)
	02.02	Defining a light year
SC 06.15	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Recognizing that technology cannot always provide successful solutions for problems or fulfill every human need
SC 06.16	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Identifying and designing a solution to a problem
	02.02	Comparing the student's work to the work of peers in order to identify multiple paths that can be used to investigate a question or problem
SC 06.17	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Describing the various effects of an innovation on a global community
SC 06.18	**Cultural, Social, Personal Perspectives, and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Telling a local or traditional story that explains a natural event (e.g., animal adaptation, weather rapid changes to Earth's surface) and relating it to a scientific explanation
SC 06.19	**History and Nature of Science** **Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Recognizing differences in results of repeated experiments

LEVEL 7

SC Strand	Standard	SCIENCE LEVEL 7
Core Resources: Glencoe Integrated Science, Green Level; SC Curriculum Guide Levels 6-8 **Digital Resources:** *https://www.mheonline.com*		
SC 07.01	**Science as Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Collaborating to design and conduct simple repeatable investigations in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings
SC 07.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Identifying and evaluating the sources used to support scientific statements
SC 07.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Designing and conducting a simple investigation about the local environment
SC 07.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Using physical properties (i.e., density, boiling point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures)
SC 07.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Explaining that energy (i.e., heat, light, chemical, electrical, mechanical) can change form
SC 07.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Recognizing that most substances can exist as a solid, liquid, or gas depending on the motion of its particles
SC 07.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Illustrating that unbalanced forces will cause an object to accelerate
	02.02	Recognizing that electric currents and magnets can exert a force on each other
	03.02	Describing the characteristics of a wave (i.e., amplitude, wavelength, and frequency)
SC 07.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Comparing and contrasting sexual and asexual reproduction
	02.02	Describing possible outcomes of mutations (i.e., no effect, damage, benefit)
SC 07.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Describing the basic structure and function of plant and animal cells
	02.02	Identifying the seven levels of classification of organisms
	03.02	Identifying and describing the functions of human organs (i.e., heart, lungs, brain)
SC 07.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	

	01.02	Recognizing and explaining that organisms can cause physical and chemical changes (e.g., digestion, growth, respiration, photosynthesis) to matter and recognizing the importance of energy transfer in these changes
	02.02	Classifying organisms within a food web as producers, consumers, or decomposers
SC 07.11	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Describing the rock cycle and its relationship to igneous, metamorphic, and sedimentary rocks
	02.02	Explaining the water cycle's connection to changes in the Earth's surface
SC 07.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Identifying strategies (e.g., reforestation, dikes, wind breaks, off road activity guidelines) for minimizing erosion
	02.02	Describing how the movement of the tectonic plates results in both slow changes (e.g., formation of mountains, ocean floors, and basins) and short-term events (e.g., volcanic eruptions, seismic waves, and earthquakes) on the surface
SC 07.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Describing the weather using accepted meteorological terms (e.g., pressure systems, fronts, precipitation)
	02.02	Recognizing the relationship between phase changes (i.e., sublimation, condensation, evaporation) and energy transfer
SC 07.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Comparing and contrasting characteristics of planets and stars (i.e., light reflecting, light emitting, orbiting, orbited, composition)
	02.02	Using light-years to describe distances between objects in the universe
SC 07.15	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Describing how public policy affects the student's life (e.g., public waste disposal)
SC 07.16	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Identifying and designing, testing, and revising solutions to a local problem
	02.02	Comparing the student's work to the work of peers in order to identify multiple paths that can be used to investigate a question or problem
SC 07.17	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Recognizing the effects of a past scientific discovery, invention or scientific breakthrough (e.g., DDT, internal combustion engine)
SC 07.18	**Cultural, social, personal perspectives, and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Investigating the basis of local knowledge (e.g., describing and predicting weather) and sharing that information
SC 07.19	**History and Nature of Science** **Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Explaining differences in results of repeated experiments

SC 07.20	Demonstrates an understanding that scientific knowledge is ongoing and subject to change	
	01.02	Revising a personal idea when presented with experimental/observational data inconsistent with that personal idea (e.g., the rates of falling bodies of different masses)

LEVEL 8

SC Strand	Standard	SCIENCE LEVEL 8
Core Resources: Glencoe Integrated Science, Blue Level; SC Curriculum Guide Levels 6-8 **Digital Resources:** *https://www.mheonline.com*		
SC 08.01	**Science as Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating
	02.02	Collaborating to design and conduct simple repeatable investigations in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings
SC 08.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Recognizing and analyzing differing scientific explanations and models
SC 08.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Conducting research to learn how the local environment is used by a variety of competing interests (e.g., competition for habitat/resources, tourism, oil and mining companies, hunting groups)
SC 08.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Using physical chemical properties (i.e., density, boiling point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures)
SC 08.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Identifying the initial source and resulting change in forms of energy in common phenomena (e.g., sun to tree to wood to stove to cabin heat)
SC 08.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Exploring changes of state with increase or decrease of particle speed associated with heat transfer
	02.02	Exploring through a variety of models (e.g., gumdrops and toothpicks) how atoms may bond together into well-defined molecules or bond together in large arrays
SC 08.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Demonstrating and explaining circular motion
	02.02	Describing the interactions between charges
SC 08.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Describing the role of genes in sexual reproduction (i.e., traits of the offspring)
SC 08.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Placing vertebrates into correct classes of taxonomy based on external, observable features
	02.02	Explaining that most organisms utilize inherited and learned behaviors to meet the basic requirements of life

	03.02	Describing the functions and interdependence of human body systems (i.e., circulatory, respiratory, nervous)
SC 08.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Stating that energy flows and that matter cycles but is conserved within an ecosystem
	02.02	Organizing a food web that shows the cycling of energy and matter
SC 08.11	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Making connections between components of the locally observable geologic environment and the rock cycle
	02.02	Applying knowledge of the water cycle to explain changes in the Earth's surface
SC 08.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Interpreting topographical maps to identify features (i.e., rivers, lakes, mountains, valleys, islands, permafrost and tundra)
	02.02	Using models to show the relationship between convection currents within the mantle and the large-scale movement of the surface
SC 08.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Recognize the relationship between the seasons and Earth's tilt relative to the sun and describing the day/night cycle as caused by the rotation of the Earth every 24 hrs
	02.02	Recognizing types of energy transfer (convection, conduction, and radiation) and how they affect weather
SC 08.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Creating models of the solar system illustrating size, location/position, composition, moons/rings, and conditions
	02.02	Comparing the brightness of a star to its distance and size
SC 08.15	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Describing how public policy affects their lives and participating diplomatically in evidence-based discussions relating to their community
SC 08.16	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Identifying and designing, testing, and revising solutions to a local problem
	02.02	Comparing the student's work to the work of peers in order to identify multiple paths that can be used to investigate and evaluate potential solutions a question or problem
SC 08.17	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Predicting the possible effects of a recent scientific discovery, invention, or scientific breakthrough
SC 08.18	**Cultural, Social, Personal Perspectives and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Describing how local knowledge, culture, and the technologies of various activities (e.g., hunting, fishing, subsistence) influence the development of scientific knowledge
SC 08.19	**History and Nature of Science**	

	Demonstrates an understanding of the basis of the advancement of scientific knowledge	
	01.02	Describing how repeating experiments improves the likelihood of accurate results
SC 08.20	**Demonstrates an understanding that scientific knowledge is ongoing and subject to change**	
	01.02	Revising a personal idea when presented with experimental/observational data inconsistent with that personal idea (e.g., the rates of falling bodies of different masses)

LEVEL 9

SC Strand	Standard	SCIENCE LEVEL 9
Core Resources: Pearson, Integrated Science Explorations Student Text, Teacher Ed, Practice Book; SC Curriculum Guide Levels 9-11 **Digital Resources:** *http://www.phschool.com*		
SC 09.01	**Science As Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, analyzing data, developing models, inferring, and communicating
	02.02	Hypothesizing, designing a controlled experiment, making qualitative and quantitative observations, interpreting data, and using this information to communicate conclusions
SC 09.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Formulating conclusions that are logical and supported by evidence
SC 09.03	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Describing atoms and their base components (i.e., protons, neutrons, electrons)
SC 09.04	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Applying the concepts of heat transfer (i.e., conduction, convection, radiation) to Alaskan dwellings
	02.02	Recognizing simple electrical circuits
SC 09.05	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Recognizing that a chemical reaction has taken place
	02.02	Explaining that in chemical and nuclear reactions, energy (e.g., heat, light, mechanical, and electrical) is transferred into and out of a system
	03.02	Recognizing that atoms emit and absorb electromagnetic radiation
SC 09.06	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Explaining the relationship of motion to an objectís mass and the applied force
	02.02	Recognizing that the gravitational attraction between objects is proportional to their masses and decreasing with their distance
	03.02	Describing the interactions of waves (i.e., reflection, refraction, wave addition)
SC 09.07	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Recognizing that all organisms have chromosomes made of DNA and that DNA determines traits
	02.02	Using probabilities to recognize patterns of inheritance (e.g., Punnett Squares)
	03.02	Inferring evolutionary pathways from evidence (e.g., fossils, geologic samples, recorded history)
SC 09.08	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Describing and comparing the characteristics of phyla/divisions from each kingdom

	02.02	Stating the function of major physiological systems (i.e., circulatory, excretory, digestive, respiratory, reproductive, nervous, immune, endocrine, musculoskeletal, and integumentary)
SC 09.09	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Describing the carbon and nitrogen cycle within an ecosystem and how the continual input of energy from sunlight keeps the process going
	02.02	Identifying dynamic factors (e.g., carrying capacity, limiting factors, biodiversity, and productivity) that affect population size
SC 09.10	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Using a model to demonstrate the rock cycle
	02.02	Applying knowledge of the water cycle to explain changes in the Earth's surface
SC 09.11	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Recognizing the dynamic interaction of erosion and deposition including human causes
	02.02	Describing how the theory of plate tectonics explains the dynamic nature of its surface
SC 09.12	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Recognizing the effect of the moon and sun on tides
	02.02	Explaining the phenomena of the aurora
SC 09.13	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Recognizing that a star changes over time
	02.02	Explaining that the position of stars changes in the expanding universe
	03.02	Identifying the Big Bang Theory
SC 09.14	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Recognizing that the value of any given technology may be different for different groups of people and at different points in time (e.g., different uses of snow machines in different regions of Alaska)
SC 09.15	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Questioning, researching, modeling, simulating, and testing a solution to a problem
SC 09.16	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Predicting and evaluating the possible effects of a recent scientific discovery, invention, or scientific breakthrough
SC 09.17	**Cultural, Social, Personal Perspectives, and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Describing the scientific principles involved in a subsistence activity (e.g., hunting, fishing, gardening)
SC 09.18	**History and Nature of Science** **Demonstrates an understanding of changes in historical perspectives of science**	

	01.02	Identifying those perspectives (i.e., cultural, political, religious, philosophical) that have impacted the advancement of science
SC 09.19	**Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Explaining the importance of innovations (i.e., microscope, immunization, computer)
SC 09.20	**Demonstrates an understanding that scientific knowledge is ongoing and subject to change**	
	01.02	Describing the role of serendipity in scientific discoveries

LEVEL 10

SC Strand	Standard	SCIENCE LEVEL 10
Core Resources: Pearson, Integrated Science Explorations Student Text, Teacher Ed, Practice Book; SC Curriculum Guide Levels 9-11 **Digital Resources:** *http://www.phschool.com*		
SC 10.01	**Science As Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, analyzing data, developing models, inferring, and communicating
	02.02	Reviewing pertinent literature, hypothesizing, making qualitative and quantitative observations, controlling experimental variables, analyzing data statistically (i.e., mean, median, mode), and using this information to draw conclusions, compare results to others, suggest further experimentation, and apply their conclusions to other problems
SC 10.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Examining methodology and conclusions to identify bias and determining if evidence logically supports the conclusions
SC 10.03	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Using the periodic table to describe atoms and their base components (i.e., protons, neutrons, electrons)
SC 10.04	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Examining energy (i.e., nuclear, electromagnetic, chemical, mechanical, thermal) transfers, transformations, and efficiencies by comparing useful energy to total energy
SC 10.05	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Describing the behavior of electrons in chemical bonding
	02.02	Recognizing that radioactivity is a result of the decay of unstable nuclei
	03.02	Comparing the relative wavelengths and applications of different forms of electromagnetic radiation (i.e., x-ray, visible, infrared, microwaves, radio)
SC 10.06	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Recognizing that when one thing exerts a force on another, an equal amount of force is exerted back on it
	02.02	Explaining that different kinds of materials respond to electric and magnetic forces (i.e., conductors, insulators, magnetic and non-magnetic materials)
SC 10.07	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Explaining how the processes of natural selection can cause speciation and extinction
	02.02	Examining issues related to genetics
SC 10.08	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	
	01.02	Describing the structure-function relationship (i.e., joints, lungs)
	02.02	Explaining that cells have specialized structures in which chemical reactions occur

	03.02	Explaining the functions of organs of major systems (i.e., respiratory, digestive, circulatory, reproductive, nervous, musculoskeletal, and excretory)
	04.02	Tracing the pathways of the digestive, circulatory, and excretory systems
SC 10.09	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Relating the carbon cycle to global-climate change
	02.02	Exploring ecological relationships (e.g., competition, niche, feeding relationships, symbiosis)
SC 10.10	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Using a model to explain the processes (i.e., formation, sedimentation, erosion, reformation) of the rock cycle
	02.02	Describing their interrelationships (i.e., water, cycle, carbon cycle, oxygen cycle)
SC 10.11	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Recognizing the dynamic interaction of erosion and deposition including human causes
	02.02	Describing how the theory of plate tectonics explains the dynamic nature of its surface
SC 10.12	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Describing causes, effects, preventions, and mitigations of human impact on climate
SC 10.13	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Recognizing phenomena in the universe (i.e., black holes, nebula)
	02.02	Explaining that the position of stars changes in the expanding universe
	03.02	Describing the Big Bang Theory
SC 10.14	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Identifying that progress in science and invention is highly interrelated to what else is happening in society
SC 10.15	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Questioning, researching, modeling, simulating, and testing multiple solutions to a problem
SC 10.16	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Researching a current problem, identifying possible solutions, and evaluating the impact of each solution
SC 10.17	**Cultural, Social, Personal Perspectives, and Science** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Analyzing the competition for resources by various user groups to describe these interrelationships
SC 10.18	**History and Nature of Science** **Demonstrates an understanding of changes in historical perspectives of science**	

	01.02	Describing how those perspectives (i.e., cultural, political, religious, philosophical) that have impacted the advancement of science
SC 10.19	**Demonstrates an understanding of the basis of the advancement of scientific knowledge**	
	01.02	Using an account of an event to recognize the processes of science used by historically significant scientists
SC 10.20	**Demonstrates an understanding that scientific knowledge is ongoing and subject to change**	
	01.02	Using experimental or observational data to evaluate a hypothesis
SC 10.21	**Demonstrate an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base**	
	01.02	Recognizing the role of these factors on scientific advancements

LEVEL 11

SC Strand	Standard	SCIENCE LEVEL 11
Core Resources: Pearson, Integrated Science Explorations Student Text, Teacher Ed, Practice Book; SC Curriculum Guide Levels 9-11 **Digital Resources:** *http://www.phschool.com*		
SC 11.01	**Science As Inquiry and Process** **Develop an understanding of the process of science**	
	01.02	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, analyzing data, developing models, inferring, and communicating
	02.02	Recognizing and analyzing multiple explanations and models, using this information to revise studentís own explanation or model if necessary
SC 11.02	**Demonstrate an understanding of the attitudes and approaches to scientific inquiry**	
	01.02	Evaluating the credibility of cited sources when conducting the student's own scientific investigation
SC 11.03	**Demonstrate an understanding that interactions with the environment provide an opportunity for understanding scientific concepts**	
	01.02	Conducting research and communicating results to solve a problem (e.g., fish and game management, building permits, mineral rights, land use policies)
SC 11.04	**Concepts of Physical Science** **Demonstrates an understanding of the structure and properties of matter**	
	01.02	Predicting the properties of an element (i.e., reactivity, metal, non-metal) using the periodic table and verifying the predictions through experimentation
SC 11.05	**Demonstrate an understanding of how energy can be transformed, transferred, and conserved**	
	01.02	Demonstrating energy (e.g., nuclear, electromagnetic, chemical, mechanical, thermal) transfers and transformations by comparing useful energy to total energy (entropy)
SC 11.06	**Demonstrate an understanding of the interactions between matter and energy and the effects of these interactions on systems**	
	01.02	Predicting how an atom can interact with other atoms based on its electron configuration and verifying the results
	02.02	Researching applications of nuclear reactions in which a small amount of matter is converted directly into a huge amount of energy (i.e., E=MC2)
SC 11.07	**Demonstrate an understanding of motions, forces, their characteristics, relationships, and effects**	
	01.02	Conducting an experiment to demonstrate that when one thing exerts a force on another, an equal amount of force is exerted back on it
	02.02	Conducting an experiment to explore the relationship between magnetic forces and electric forces to show that they can be thought of as different aspects of a single electromagnetic force (e.g., generators and motors)
SC 11.08	**Concepts of Life Science** **Demonstrate an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection and biological evolution**	
	01.02	Relating the structure of DNA to characteristics of an organism
	02.02	Researching how the processes of natural selection cause changes in species over time
SC 11.09	**Demonstrate an understanding of the structure, function, behavior development, life cycles, and diversity of living organisms**	

	01.02	Describing the structure-function relationship
	02.02	Describing the learned behaviors (e.g., classical conditioning, imprinting, trial and error) that are utilized by living organisms to meet the requirements of life
	03.02	Describing the functions and interdependencies of the organs within the immune system and within the endocrine system
SC 11.10	**Demonstrate an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy**	
	01.02	Relating the carbon cycle to global-climate change
	02.02	Analyzing the potential impacts of changes (e.g., climate change, habitat loss/gain, cataclysms, human activities) within an ecosystem
SC 11.11	**Concepts of Earth Science** **Demonstrate an understanding of geochemical cycles**	
	01.02	Creating a model to demonstrate the rock cycle
	02.02	Integrating knowledge of the water cycle and biogeochemical cycling to explain changes in the Earthís surface
SC 11.12	**Demonstrate an understanding of the forces that shape Earth**	
	01.02	Recognizing the dynamic interaction of erosion and deposition including human causes
	02.02	Describing how the theory of plate tectonics explains the dynamic nature of its surface
SC 11.13	**Demonstrate an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system**	
	01.02	Describing causes, effects, preventions, and mitigations of human impact on climate
	02.02	Exploring causes and effects related to phenomena (e.g., the aurora, solar winds, Coriolis Effect)
SC 11.14	**Demonstrate an understanding of the theories regarding the origin and evolution of the universe**	
	01.02	Describing phenomena in the universe (i.e., black holes, nebula)
	02.02	Using evidence to explain how the position of stars changes in the expanding universe
	03.02	Describing the Big Bang Theory and exploring the evidence that supports it
SC 11.15	**Science and Technology** **Demonstrates an understanding of how to integrate scientific knowledge and technology to address problems**	
	01.02	Researching how social, economic, and political forces strongly influence which technology will be developed and used
SC 11.16	**Demonstrate an understanding that solving problems involves different ways of thinking, perspectives, and curiosity**	
	01.02	Questioning, researching, modeling, simulating, and testing multiple solutions to a problem
SC 11.17	**Demonstrates an understanding of how scientific discoveries and technological innovations affect our lives and society**	
	01.02	Researching a current problem, identifying possible solutions, and evaluating the impact of each solution
SC 11.18	**Cultural, Social, Personal Perspectives, and Society** **Demonstrates an understanding of the dynamic relationships among scientific, cultural, social, and personal perspectives**	
	01.02	Investigating the influences of societal and/or cultural beliefs on science

SC 11.19	**History and Nature of Science**	
	Demonstrates an understanding of the basis of the advancement of scientific knowledge	
	01.02	Describing the importance of logical arguments (i.e., thought experiments by Einstein, Hawking, Newton)
SC 11.20	**Demonstrates an understanding that scientific knowledge is ongoing and subject to change**	
	01.02	Investigating instances when scientists' observations were not in accord with prevailing ideas of the time

LPSD TECHNOLOGY STANDARDS

Technology Level 4	
TE04.01	Creates multimedia presentations with multiple pages and transitions for individual assignments.
TE04.02	Knows types of digital communication tools and each tool's purpose.
TE04.03	Predicts which information sources will provide the desired data or information.
TE04.04	Select and applies digital tools to collect, organize and analyze data.
TE04.05	Identify and articulate the Lake and Peninsula Acceptable Usage Policy.
TE04.06	Recognize and describe the potential risks and dangers associated with various forms of online communication.
TE04.07	Identify and discuss the effects of cyberbullying.
TE04.08	Performs keyboarding skills to 20 wpm using proper technique at 80% minimum accuracy.
TE04.09	Use the help function within software and hardware to troubleshoot issues and problems.
TE04.10	Student can use a spreadsheet with assistance to enter data.
TE04.11	With assistance, can use word processing or the Internet to produce and publish writing.

Technology Level 5	
TE05.01	Creates a cooperative multimedia project that incorporates sound, video, and graphics to clarify and present information.
TE05.02	Describe and illustrate a content-related concept or process using a model, simulation, or concept-mapping software.
TE05.03	Communicates with others by selecting and using a variety of appropriate technology tools.
TE05.04	Selects and applies digital tools to collect, organize, and analyze data.
TE05.05	Explains copyright rules (laws) about using digital text.
TE05.06	Describe cyberbullying and the effect of cyberbullying.
TE05.07	Performs keyboarding skills to 25 wpm using proper technique at 80% minimum accuracy
TE05.08	Can enter/edit data using a simple formula using spreadsheet(s) to perform calculations.
TE05.09	Student can identify common shortcut keys and trackpad features used in creating documents and navigating the computer.
TE05.10	Use word processing/desktop publishing to perform simple editing and formatting.

Technology Level 6	
TE06.01	Collaborates and communicates with peers, experts, or others employing a variety of digital tools to share findings and/or publish work.
TE06.02	Evaluate between fact, opinion, bias, inaccurate, and misleading information by consulting more than one source when using digital tools and the internet for research.
TE06.03	Explains copyright rules (laws) about using video, audio, and/other digital sources in projects and assignments.
TE06.04	Exhibits legal and ethical behavior when using technology.
TE06.05	Describes the benefits and hazards of a new technology.
TE06.06	Determines when it is appropriate and safe to use various personal devices at school.
TE06.07	Performs keyboarding skills to 30 wpm using proper technique at 80% minimum accuracy.
TE06.08	Creates and manipulates graphs and charts, and performs multi-variable calculations using spreadsheet data.
TE06.09	Student actively uses shortcut keys and trackpad features used in creating documents and navigating the computer.
TE06.10	Uses advanced formatting techniques in word process/desktop publishing.

Technology Level 7	
TE07.01	Evaluate the advantages and disadvantages of using different digital mediums.
TE07.02	Creates a self-directed, innovative movie, audio recording, or other multimedia project using digital tools to express original ideas.
TE07.03	Can correctly site digital sources in research projects and writing.
TE07.04	Can evaluate a website for accuracy and relevance.
TE07.05	Reports on safe online communication practices regarding personal information.
TE07.06	Performs keyboarding skills to 35 wpm using proper technique at 80% minimum accuracy
TE07.07	Can independently use word processing/desktop publishing for classroom assignments/projects.
TE07.08	Can independently use spreadsheets for classroom assignments/projects.
TE07.09	Identifies several basic programming languages and gives examples of each language.
TE07.10	Use district approved email to read, send, and receive information.

Technology Level 8	
TE08.01	Explains the basic principals of Local Area Networks, Wide Area Networks, and the World Wide Web.
TE08.02	Knows terms associated with the Internet (URL, http, app, atp, file extensions, os, html, bookmarks, browser, etc.).
TE08.03	Identifies several types of websites (personal, blogs, blogs, portfolios, informational, business, professional, social media), and knows when to utilize each type.
TE08.04	Uses an online tutorial and discusses the benefits and disadvantages of using this method of learning.
TE08.05	Explains the various digital media copyright policies and applies them in a variety of situations (Fair Use, LGPL,GNU, PDL).
TE08.06	Uses multiples sources of information when doing digital research, to include online libraries and databases.
TE08.07	Gather data, examine patterns, and apply information for decision making, using digital tools and resources.
TE08.08	Uses a spreadsheet in a real-life application (e.g., concessions, student store, exercise data, scientific data).
TE08.09	Explains the responsibilities of cyber citizens.
TE08.10	Knows and demonstrates ways to stay safe and be responsible on the internet, in regards to one's personal information, viruses, privacy settings, digital footprint, and password settings.
TE08.11	Participate in a cooperative learning project in an online learning community.

Technology Level 9	
TE09.01	Knows the history of personal computing and makes a digital time line, or other digital media presentation, to show this knowledge.
TE09.02	Explains the difference between three operating systems, and what they do (real-time display of what the hardware is doing).
TE09.03	Explains different types of computers (smartphone, tablet, laptop, desktop, mainframe, server, etc.).
TE09.04	Can identify and explain the internal and physical components of a computer (motherboard, ram, hardrive, drives, CPU, interfaces, keyboards, touchscreens, etc.).
TE09.05	Explains what applications are, and lists the most common ones used for school, including the purpose of each.
TE09.06	Identifies the relationship between a computer's specifications and how they affect computer performance (e.g., RAM, Memory, Processor Speed).
TE09.07	Can analyze common computer problems, and explain solutions to problems as they arise (common display issues, frozen screen, etc.).
TE09.08	Knows the difference between the preferences of a system, an application, and a website.
TE09.09	Can monitor the computer's power, change the power settings, and tell ways to save power on mobile devices.

TE09.10	Saves data to appropriate locations to ensure computer backup.
TE09.11	Understands different file sizes and types, and their relationship to one another.
TE09.12	Knows ways to protect one's personal information and data.
TE09.13	Selects digital tools or resources to use for a real-world task, and justifies the selection based on their efficiency and effectiveness.
TE09.14	Presents, using a form of digital media or computer application (PowerPoint, slideshow, internet site, movie, audio recording, etc.), on one issue related to computers and computer safety.

Technology Level 10	
Completes **THREE** approved technology projects (pick from the list below)	
TE10.01	Is able to proficiently create and update an online portfolio/website to store and display work, to interact with others, to get feedback, and to publish to the "real world".
TE10.02	Identifies several programming languages and demonstrates proficient use of a programming language by creating a simple game (example: scratch).
TE10.03	Can identify "app" development software and is able to proficiently create an application using the software.
TE10.04	Researches "emerging technologies" and discusses the implications of several of these by creating a web presentation.
TE10.05	Completes a large data collection and reporting project. This project should include, but is not limited to, using digital tools to come up with a research question, collect data, draw conclusions, and evaluate and present results.
TE10.08	Lists and explains the criteria that describe a robot, designs and/or builds a prototype. This project should include how robots are used in a chosen job field, and report on what skills are needed in order to use robots in the given field.
TE10.07	Completes a project of the student's choice upon approval of the LPSD Technology Department.

Technology Level 11	
TE11.01	Performs keyboarding skills to 50 WPM using proper technique at 80% minimum accuracy
TE11.02	Completes approved distance technology course or certification program

LPSD CULTURAL AWARENESS STANDARDS

CA Strand	Standard	CULTURAL AWARENESS LEVEL 4
Core Resources: Elements of Art, How to Teach Art to Children, Ed Emberley's Big Green Drawing Book, Ed Emberley's Big Purple Drawing Book, Ed Emberley's Big Red Drawing Book. Drawing With Children, Let's Meet Famous Composers		
CA 04.01	**Art and Culture**	
	01.02	Identifies ways each person or group of people is unique
	02.02	Shares experiences reflecting family culture (camping, fishing, potlucks, hunting, story telling, travel)
	03.02	Participates in observing art forms
	04.02	Practices songs and dances from a variety of cultures including Alaskan native
	05.02	Creates an art form using three of the art elements: line, shape, and texture
	06.02	Participates in public displays of art (e.g., art contests, goose calendar, duck stamp, oratory opportunities, performance)

CA Strand	Standard	CULTURAL AWARENESS LEVEL 5
Core Resources: Children Just Like Me, A Trip Around the World; Crafts of Many Cultures; Alaska, Our 49th State, Eight Stars of Gold; Native American Legends and Activities; Elements of Art; How to Teach Art to Children, A Survival Kit for the Elementary/Middle School Art Teacher; How to Draw and Paint Watercolors		
CA 05.01	**Art and Culture**	
	01.02	Explores different aspects of other worldwide cultures through arts/crafts, holidays, customs, foods, songs, dance, traditional attire
	02.02	Celebrates the characteristics of various cultures represented in the classroom (e.g., food, dances, music, art, clothing)
	03.02	Identifies and gives examples of the four strands of art: dance, music, theatre, visual arts
	04.02	Expresses opinion of art
	05.02	Acts out one folk tale or legend
	06.02	Creates an art form using two of the art elements: color and value

CA Strand	Standard	CULTURAL AWARENESS LEVEL 6
Core Resources: Sharing Alaska Native Culture; Hands on Alaska; Elements of Art, Snips, Snails, & Walnut Whales; Good Earth Art: Environmental Art for Kids		
CA 06.01	**Art and Culture**	
	01.02	Understands that cultures have a distinct organization and hierarchy (elders, clans, sects, totems, caste system, family day, dynasties, kingdoms, symbols) and identifies ways everyone is part of, and connected to a cultural community
	02.02	Identifies four similarities of two Native American cultures
	03.02	Recognizes the purpose of critiquing the arts
	04.02	Creates an art form using two of the art elements, form and space utilizing "found objects" gathered from the local, outdoor environment
	05.02	Reviews musical productions to understand how song and dance contribute to a story (e.g., Music Man, Lion King, West Side Story, Mary Poppins, Wizard of Oz, The Wiz)
	06.02	Portrays a character in a performance with a speaking role

CA Strand	Standard	CULTURAL AWARENESS LEVEL 7
Digital Resources: www.metmuseum.org, http://www.theatre.com, http://www.ankn.uaf.edu/, http://www.akart.org/		
CA 07.01	**Art and Culture**	
	01.02	Identifies traditional role of elders in the local/regional community
	02.02	Identifies and describe the purpose of local/regional cultural practices and rituals (e.g., fish camp, spirit camp, steam bath)
	03.02	Practices, creates, and reports on the techniques of a world wide indigenous art form (e.g., carving, basket weaving, puppetry), including the geographical influences
	04.02	Identifies and shares (e.g., replica, orally, poster, technology based) a symbol (e.g., Kachina dolls, dream catchers, totems, masks, flower arranging pyramids, Aztec calendar) and describes its place in culture
	05.02	Participates in critiquing visual art, addressing the seven elements

CA Strand	Standard	CULTURAL AWARENESS LEVEL 8
Core Resources: Let's Meet Famous Artists **Digital Resources:** www.metmuseum.org		
CA 08.01	**Art and Culture**	
	01.02	Identifies three Alaska Museums or cultural centers and updates ongoing school reference guide
	02.02	Selects and participates in a virtual tour of a museum or performance hall (e.g., Metropolitan Museum, Asian Art Museum, National Art Gallery, Globe, Kennedy Center)
	03.02	Creates a timeline of Western Art History including: prehistoric, Greek/Roman, Medieval, Renaissance, Baroque, 19th century, 20th century
	04.02	Selects and research a music group or dance troupe
	05.02	Chooses an artist from Western Art History, report on style, impact, contribution to culture, and create an artwork in the style of the artist chosen
	06.02	Enters a creative competition

CA Strand	Standard	CULTURAL AWARENESS LEVEL 9
Core Resource: Education Resources		
CA 09.01	**Art and Culture**	
	01.02	Chooses an Alaskan art form (traditional or contemporary), researches the process for creating the art, and creates an original piece
	02.02	Identifies three Alaskan Artists and selects one to describe how Alaska History influenced their art
	03.02	Interprets through performance an event, story, legend from Alaska history using props (e.g., serum, volcano eruption, salmon play)
	04.02	Creates a timeline of history of Asian Art, focusing on one region (e.g., China, Japan, Korea)
	05.02	Chooses an artist from an Asian Art period, reports on style, impact, contribution to culture, and creates an artwork in the style chosen

CA Strand	Standard	CULTURAL AWARENESS LEVEL 10
CA 10.01	**Art and Culture**	
	01.02	Chooses a piece of art, investigates the impact of the geography and period on the art, then creates and shares a piece of art inspired by this investigation
	02.02	Demonstrates an appreciation of art by selecting a favorite dance, music piece, theatrical performance, or visual art, and describes the reasons for appreciation, using the methods of critique
	03.02	Creates and shares either a dance, music piece, theatrical performance or visual art that reflects your own beliefs, values, and traditions

CA Strand	Standard	CULTURAL AWARENESS LEVEL 11
CA 11.01	**Art and Culture**	
	01.02	Attend a live professional performance, or visit a museum or other venue for art (Visit museum, performance, or other venue for art.)
	02.02	Produces and self assess a performance, concert/play, art show, or community celebration including organization, production, advertising

CA Strand	Standard	CULTURAL AWARENESS LEVEL 12
CA 12.01	**Art and Culture**	
	01.02	Participates in independent art project incorporating any culture. *Students will self-critique all art projects, addressing the seven elements.

LPSD EMPLOYABILITY STANDARDS

EM Strand	Standard	EMPLOYABILITY LEVEL 4
Core Resources: Level 4 Wellness Plan		
EM 04.01	**Employability Standards**	
	01.02	Visits local work sites and places of business
	02.02	Understands some basic employability words (e.g., job, career, pay, work, reward, cooperate, share, volunteer, service, caring)
	03.02	Demonstrates being a responsible student by listening, cooperating, sharing, taking turns, following rules, offering help when needed, using good manners
	04.02	Identifies and expresses feelings appropriately
	05.02	Participates in group goal setting process
	06.02	Participates in simple service project that encourages cooperation
	07.02	Participates in group Wellness & Safety Plan

EM Strand	Standard	EMPLOYABILITY LEVEL 5
Core Resources: Level 5 Wellness Plan		
EM 05.01	**Employability Standards**	
	01.02	Demonstrates basic understanding of the skills needed to get and keep a job (e.g., good attendance, basic academic skills, teamwork, respect for authority and punctuality)
	02.02	Understands how appearance and behavior are important in a variety of situations
	03.02	Identifies a variety of non-local jobs
	04.02	Demonstrates being a responsible student by displaying honesty and respect, staying on task, using good manners (e.g., politely interrupting someone, using phone and radio etiquette and interacting appropriately with adults), cleaning up after self and being organized
	05.02	Participates in group and individual goal setting
	06.02	Participates in class service project
	07.02	Participates in group Wellness & Safety Plan

EM Strand	Standard	EMPLOYABILITY LEVEL 6
Core Resources: Level 6 Wellness Plan		
Digital Resources: http://akcis.intocareers.org		
EM 06.01	**Employability Standards**	
	01.02	Understands the connection between a positive attitude towards learning and being successful in life
	02.02	Understands how work can affect quality of life (e.g., wants vs. needs)
	03.02	Investigates several careers
	04.02	Demonstrates being a responsible student by completing tasks, being prepared to work, putting forth best effort, having pride in work, actively participating, and maintaining a positive attitude
	05.02	Communicates feelings in a positive and constructive manner (e.g., empathy, compassion, using “I” messages)
	06.02	Employs group interaction skills for dealing with peer pressure, resolving conflicts, communicating effectively and using humor responsibly

	07.02	Demonstrates resiliency using coping skills
	08.02	Practices decision making and problem solving strategies
	09.02	Practices goal setting process to establish short and long-term goals
	10.02	Completes an education map
	11.02	Volunteers at an event in the community
	12.02	Participates in group Wellness & Safety Plan

EM Strand	**Standard**	**EMPLOYABILITY LEVEL 7**
Core Resources: Level 7 Wellness Plan, Level 7 Assessment and Site Activities **Digital Resources:** http://akcis.intocareers.org		
EM 07.01	**Employability Standards**	
	01.02	Identifies possible strengths and weaknesses of people in general
	02.02	Identifies personal learning styles and develops strategies for more successful learning
	03.02	Practices customer service skills
	04.02	Articulates and demonstrates why good attendance and being on-time are important
	05.02	Displays good manners, positive attitude and best effort in various situations
	06.02	Understands equality and respect for others
	07.02	Uses strategies to deal with shyness, embarrassment, boredom and peer pressure
	08.02	Employs skills to be a team player (e.g., cooperation, acceptance of roles, sportsmanship)
	09.02	Performs basic life skills (e.g., cleaning up, organizing, planning daily activities)
	10.02	Revises education map
	11.02	Recognizes and discusses potential negative consequences due to lack of service and volunteerism
	12.02	Volunteers for three hours and keeps a log of volunteer activities, including a reflection
	13.02	Creates a personal Wellness and Safety Plan

EM Strand	**Standard**	**EMPLOYABILITY LEVEL 8**
Core Resources: Level 8 Wellness Plan, Level 8 Assessment and Site Activities **Digital Resources:** http://akcis.intocareers.org		
EM 08.01	**Employability Standards**	
	01.02	Assesses personal strengths, weaknesses, values and interests
	02.02	Creates a resume, cover letter and list of references
	03.02	Understands and practices interviewing skills and dressing appropriately for interviews
	04.02	Can identify and describe professional communication skills (firm hand shake, eye contact, appropriate introductions, cold-calling businesses, etc.)
	05.02	Lists five post-secondary options and the pros and cons of each
	06.02	Explores three rural careers, three urban careers, and three possibilities for small businesses
	07.02	Understands the need for equality, diversity, civility, and fairness
	08.02	Explores and practices a variety of conflict resolution strategies
	09.02	Consistently demonstrates a strong personal ethic (e.g., punctuality, attendance, best effort, good attitude, honesty, appropriate dress, and positive behavior)

	10.02	Performs basic life skills (e.g., plans day, follows schedule, solves everyday problems)
	11.02	Revises education map
	12.02	Independently volunteers for six hours and keeps a log of volunteer activities, including a reflection
	13.02	Maintains an updated personal Wellness and Safety Plan

EM Strand	**Standard**	**EMPLOYABILITY LEVEL 9**
Core Resources: Level 9 Wellness Plan, Level 9 Assessment and Site Activities **Digital Resources:** http://akcis.intocareers.org		
EM 09.01	**Employability Standards**	
	01.02	Prioritizes three career choices based on personal strengths, weaknesses, values and interests
	02.02	Updates resume and list of references
	03.02	Uses various resources to demonstrate skills to locate and use information about careers, jobs, and postsecondary options
	04.02	Practices professional communication skills (firm hand shake, eye contact, appropriate introductions, cold-calling businesses, etc.)
	05.02	Interviews one person from a career of personal interest
	06.02	Understands the connection between education and career opportunities
	07.02	Understands the connection between career choice and resultant lifestyle
	08.02	Understands that businesses and corporations have a hierarchal structure and a chain of command
	09.02	Understands that both employees and employers have legal rights and responsibilities
	10.02	Displays dependability by exhibiting commitment, follow-through and strong work ethic
	11.02	Demonstrates flexibility, adaptability and resiliency while maintaining a positive attitude (through perseverance, acceptance, problem solving, and patience)
	12.02	Consistently applies non-violent conflict resolution strategies
	13.02	Revises education map
	14.02	Completes team service project following these steps: name three examples of possible service projects, complete needs assessment, evaluate the impact of various projects, design project, complete and evaluate
	15.02	Maintains an updated personal Wellness and Safety Plan

EM Strand	Standard	EMPLOYABILITY LEVEL 10
Core Resources: Level 10 Wellness Plan, Level 10 Assessment and Site Activities **Digital Resources:** http://akcis.intocareers.org		
EM 10.01	**Employability Standards**	
	01.02	Develops a post-secondary plan that includes skills, abilities, strengths, weaknesses, values, and interests.
	02.02	Updates resume, cover letter, list of references; and gathers three letters of recommendation
	03.02	Applies and interviews for a specific job using resume, cover letter, list of references and letters of recommendation
	04.02	Demonstrates and independently uses professional communication skills (firm hand shake, eye contact, appropriate introductions, cold-calling businesses, etc.)
	05.02	Applies skills for creating and maintaining healthy social and professional relationships (uses tact, manners and communication skills)
	06.02	Demonstrates responsibility and accepts consequences of one's choices and actions
	07.02	Revises education map
	08.02	Initiates, coordinates, implements and evaluates a community service project
	09.02	Maintains an updated personal Wellness and Safety Plan

EM Strand	Standard	EMPLOYABILITY LEVEL 11
Core Resources: Level 11 Internship and Service Documents		
EM 11.01	**Employability Standards**	
	01.02	In partnership with an outside agency, initiates, coordinates and evaluates a community service project
	02.02	Obtains an internship locally. Implements employability and independent living skills resulting in a positive performance evaluation and a healthy lifestyle