

Alicia Leary Progress Foundation

Correlated to the Common Core Standards Grade 8 for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects and Grades 6, 7, and 8 for Mathematics

Standards Language Arts/ Literacy Reading	Simulation Episode	Student Workbook	Teacher Handbook 1	Teacher Handbook 2 Literacy Links (LL) Science Project (SCP) Social Studies Project (SSP)
<p>Reading Standards for Informational Text Key Ideas and Details</p> <p>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.</p>	1, 3, 5, 10, 11, 12	3–5, 51, 130	100, 101–103, 390–391, 491	LL 9, 10, 21, 22 SCP 6, 7, 16 SSP 3, 5
<p>2. Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.</p>	1, 3, 5, 7, 8	3–5, 32–33, 51, 54, 80, 87–90	91–92, 308–310, 316	LL 3, 7, 9, 10, 23 SCP 16 SSP 3, 5, 8, 16
<p>3. Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).</p>	6, 12		226–227, 495	LL 11, 14, 15
<p>Craft and Structure</p> <p>4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.</p>	3, 7, 10, 12	78, 139	106, 273, 398, 492, 496	

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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.				SSP 16
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.				LL 20 SSP 16
Integration of Knowledge and Ideas				
7.				
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; recognize when irrelevant evidence is introduced.	6, 7, 10	63–65, 81–82, 116–118	225, 396	LL 18, 19
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.	7		272	
Range of Reading and Level of Text Complexity				LL 1–25
10. By the end of the year, read and comprehend literary nonfiction at the high end of the grades 6–8 text complexity band independently and proficiently.				
Writing Standards Text Types and Purposes	2, 3, 8, 9, 11, 12	18, 23, 107, 131	105, 128, 341, 352–353, 383– 384, 471, 519	SSP 14, 15, 17, 18
1. Write arguments to support claims with clear reasons and relevant evidence. a. Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims,				

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and organize the reasons and evidence logically.				
b. Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.	2, 3, 7, 8, 9, 11, 12	18, 23, 107, 131	105, 129, 272, 342, 352–353, 384, 472, 520	SSP 14, 15, 17, 18
c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.	2, 3, 7, 8, 9, 11, 12	23, 107, 131	129, 272, 342, 384, 472, 520	SSP 7
d. Establish and maintain a formal style.	2, 3, 8, 9, 11, 12	23, 107, 131	129, 342, 384, 472, 520	
e. Provide a concluding statement or section that follows from and supports the argument presented.	2, 3, 8, 9, 11, 12	23, 107, 131	129, 342, 352–353, 384, 472, 520	SSP 18
2. Write informative/ explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.	1, 3, 4, 5, 6, 7, 9, 10, 11	6, 34, 41, 105–106, 119, 135–136	6–7, 42–43, 173, 190, 215, 234, 273, 297, 421, 444	SCP 8, 15, 16, 17, 18
a. 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.				
b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or	1, 3, 4, 5, 6, 7, 9, 10	6, 34, 41, 105–106, 119	6–7, 42–43, 174, 190, 216,	SCP 17, 18

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other information and examples.			234, 273, 298, 422	
c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.	1, 3, 4, 5, 7, 10	6, 34, 41, 119	42–43, 174, 216, 298, 422	
d. Use precise language and domain-specific vocabulary to inform about or explain the topic.	1, 3, 4, 5, 7, 10	6, 34, 119	42–43, 174, 216, 298, 422	
e. Establish and maintain a formal style.	1, 3, 4, 5, 7, 10	6, 34, 119	42–43, 174, 216, 298, 422	
f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	1, 3, 4, 5, 7, 10	6, 34, 119	6–7, 42–43, 174, 216, 298, 422	
3. Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.	2, 6, 7, 12	66, 83	87, 226–227, 257	
a. 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.				
b. Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.	2, 6, 7	66, 83	88, 225, 226– 227, 258	SSP 8
c. Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show	2, 6, 7	66, 83	88, 258	

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the relationships among experiences and events.				
d. Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.	2, 6, 7	66, 83	88, 226–227, 258	
e. Provide a conclusion that follows from and reflects on the narrated experiences or events.	2, 6, 7	66, 83	88, 226–227, 258	
Production and Distribution of Writing 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.)	1–12	66, 83, 119	42, 88, 129, 173, 215, 257, 341, 383, 421, 471, 519	
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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 8 on page 52.)				SCP 17, 18 SSP 19
6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.	8, 10, 11, 12	137	317, 398	SCP 19

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Research to Build and Present Knowledge 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.	3, 5, 6, 9, 10, 11, 12		104, 190, 233– 234, 360, 397, 447, 495	SCP 1–21 SSP 1–21
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.	1, 2, 3, 4, 5, 6, 7, 11, 12	52	11, 62, 93, 104, 150, 189, 233– 234, 272, 447, 495	SCP 2, 3, 6, 9, 11, 12–13 SSP 2, 3, 4, 5, 11, 12–13, 14, 15
9. a.				
b.				
Range of Writing 10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	1–12	6, 18, 23, 28, 34, 35, 41, 66, 71, 76, 83, 107, 119, 131	6–7, 12, 42–43, 63, 87–88, 105, 128–129, 148, 173–174, 190– 191, 216–217, 234, 257–258, 272–273, 297– 298, 317, 341– 342, 351–352, 359, 360, 383– 384, 398, 421– 422, 447, 448,	LL 23 SCP 17, 18 SSP 6, 17, 18

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			471–472, 519–520	
Speaking and Listening Standards Comprehension and Collaboration 1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grade 7 topics, texts, and issues</i> , 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.	1–12		8–9, 57–60, 92–97, 105, 144–146, 182–186, 228–230, 264–266, 311–314, 354–357, 392–394, 336–341, 488–491	LL 10, 23, 25
b. Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.	1–12		8–9, 57–60, 92–97, 144–146, 182–186, 228–230, 264–266, 311–314, 354–357, 392–394, 336–341, 488–491	LL 10, 15, 16, 23, 24
c. Pose questions that connect the ideas of several speakers and respond to others’ questions and comments with relevant evidence, observations, and ideas.	1–12		8–9, 53, 57–60, 92–97, 144–146, 150, 182–186, 228–230, 233, 264–266,	LL 3, 24, 25

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			272, 311–314, 354–357, 392– 394, 336–341, 488–491	
d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.	4, 6		149, 232–233	SSP 4
2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.	1		11	
3. Delineate a speaker’s argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.	2, 4, 9		53, 149, 353	
Presentation of Knowledge and Ideas 4. Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.	2, 3, 4, 5, 6, 7, 8, 9, 12		53, 63, 104– 105, 150, 190, 233, 272, 317, 353, 360, 495	LL 16 SCP 9, 20 SSP 20
5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.	2, 3, 8, 12		63, 104–105, 317, 494, 495	SCP 19 SSP 19
6. Adapt speech to a variety of contexts and tasks,				SCP 4, 7

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demonstrating command of formal English when indicated or appropriate. (See grade 8 Language standards 1 and 3 on page 52 for specific expectations.)				
Language Standards Conventions of Standard English				
1. a.				
b.				
c.				
d. Recognize and correct inappropriate shifts in verb voice and mood.*				SCP 20, 21
2. a.				
b.				
c. Spell correctly.	1–12	6, 23, 41, 66, 83, 83, 119, 131	43, 88, 174, 258, 298, 342, 384, 422, 472, 520	
Knowledge of Language 3. a.				
Vocabulary Acquisition and Use 4. Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on <i>grade 8 reading and content</i> , choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or	1, 4, 6, 9, 12	2, 38, 62, 104	3–4, 140, 223– 224, 349, 359, 483	

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function in a sentence) as a clue to the meaning of a word or phrase.				
b. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., <i>precede</i> , <i>recede</i> , <i>secede</i>).	1		3	
c. 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.	1–12		4, 52, 92, 140, 178, 224, 262, 305, 315, 349, 388, 434, 484	SCP 3
d. 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).	5, 7, 8, 10, 11, 12	79, 86, 127, 134	178, 179, 262, 268, 305, 315, 388, 434, 483, 485	SSP 10
5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.	3, 7, 10, 12	78, 139	106, 273, 398, 492, 496	
a. Interpret figures of speech (e.g. verbal irony, puns) in context.				
b. Use the relationship between particular words to better understand each of the words.	3, 5, 10	31, 50	91–92, 177, 387, 396	
c.				
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	1–12	2, 31, 38, 50, 62, 78, 86, 104, 127, 134	4, 52, 92, 140, 178, 262, 305, 349, 388, 434, 484	LL 8, 11, 12, 15, 16, 18 SCP 2 SSP 7, 10

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comprehension or expression.				
Reading Standards for Literacy in History/Social Studies Key Ideas and Details 1. Cite specific textual evidence to support analysis of primary and secondary sources.	1, 3, 5, 12	3–5, 51	101–103, 491	LL 9, 10 SSP 3, 5
2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.	1, 5, 7, 8	3–5, 51, 54, 80, 87–90	308–310	LL 7, 9, 10, 23 SSP 3, 5, 16
3. Identify key steps in a text’s description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).	1, 5	7	9, 215–216	LL 11
Craft and Structure 4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.	1, 2, 5, 6, 8, 10, 11, 12	50, 62, 86	4, 52, 177–178, 223–224, 305, 388, 434, 484	SSP 7, 8, 10
5. Describe how a text presents information (e.g., sequentially, comparatively, causally).				LL 8, 14, 15, 16, 17, 18, 19
6. Identify aspects of a text that reveal an author’s point of view or purpose (e.g., loaded language, inclusion or avoidance of particular facts).	10	116–118		LL 20 SSP 16
Integration of Knowledge and Ideas 7. Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other				LL 2

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information in print and digital texts.				
8. Distinguish among fact, opinion, and reasoned judgment in a text.				LL 18, 19
9.				
Range of Reading and Level of Text Complexity 10. By the end of grade 8, read and comprehend history/social studies texts in the grades 6–8 text complexity band independently and proficiently.	4, 6, 8	67, 87	142–143	LL 10, 11, 12, 14, 15, 19, 22, 23 SSP 3–10, 16
Reading Standards for Literacy in Science and Technical Subjects Key Ideas and Details 1.				
2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.				LL 7, 23 SCP 7
3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.				SCP 19
Craft and Structure 4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 6–8 texts and topics</i> .				SCP 3, 12
5. Analyze the structure an author uses to organize a text, including how the major sections contribute to				LL 8, 14, 15, 16, 17, 18, 19

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the whole and to an understanding of the topic.				SCP 16
6.				
Integration of Knowledge and Ideas 7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).	10		398	SCP 15, 19
8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.				LL 18, 19
9.				
Range of Reading and Level of Text Complexity 10. By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.				SCP 3–10, 16
Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects Text Types and Purposes 1. Write arguments focused on <i>discipline-specific content</i> . a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.	3, 7, 8, 9		129, 272, 341, 352–353	
b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or	3, 7, 8, 9		130, 272, 342, 352–353	

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text, using credible sources.				
c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.	3, 8		130, 342	
d. Establish and maintain a formal style.	3, 8		130, 342	
e. Provide a concluding statement or section that follows from and supports the argument presented.	3, 8, 9		130, 342, 352–353	
2. Write informative/ explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.	1, 2, 3, 5, 6, 7, 9, 12	105–106, 135–136	42–43, 63, 106, 190, 215, 234, 272	SCP 8, 17, 18
b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.	1, 2, 3, 5, 6, 7, 9	105–106	42–43, 63, 106, 190, 216, 234, 272	SCP 17, 18
c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.	1, 5		42-43, 216	

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d. Use precise language and domain-specific vocabulary to inform about or explain the topic.	1, 5		42-43, 216	
e. Establish and maintain a formal style and objective tone.	1, 5		42-43, 216	
f. Provide a concluding statement or section that follows from and supports the information or explanation presented.	1, 5		42-43, 216	
Production and Distribution of Writing	1, 3, 5, 8		42, 130, 215, 341	
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.				
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.				SCP 17, 18 SSP 19
6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.	10, 12	137	398	SCP 19
Research to Build and Present Knowledge	5, 6, 9, 10, 12		190, 233–234, 360, 397, 495	SCP 1–21 SSP 1–21
7. Conduct short research projects to answer a				

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question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.				
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.	1, 2, 5, 6, 7, 10, 12	52	11, 62, 189, 234, 272, 397, 495	SCP 2, 3, 6, 9, 11, 12–13 SSP 2, 3, 4, 5, 11, 12–13, 14, 15
9. Draw evidence from informational texts to support analysis reflection, and research.	12		495	SCP 14, 17, 18 SSP 14, 17, 18
Range of Writing 10. Write routinely over extended time frames (time for 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.	1, 2, 3, 4, 5, 8, 9		12, 63, 106, 129–130, 148, 190–191, 215–216, 317, 341–341, 352–353	SCP 17

Standards Math	Simulation Episode	Student Workbook	Teacher Handbook 1	Teacher Handbook 2 Math Links (ML) Science Project (SCP)
Grade 6 Ratios and Proportional Relationships 6.RP Understand ratio concepts and use ratio reasoning to solve problems. 1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	1, 4, 5, 11	44–46, 59	63, 148, 149, 438–440	ML 14, 15
2. Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.				ML 14
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. a. 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.				ML 14
b. Solve unit rate problems including those involving unit pricing and constant speed.	5	56, 58–58	189	
c. 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.	3, 5, 7, 8, 9	26–27, 29, 56, 58–59, 74–75, 94, 98–99	94–96, 189	ML 8, 9, 10, 17, 19, 25
d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing	1	11–12		ML 13

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quantities.				
Grade 7 Ratios and Proportional Relationships 7.RP Analyze proportional relationships and use them to solve real-world and mathematical problems. 1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	5	56, 58, 59	189	
2. Recognize and represent proportional relationships between quantities. a. 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.	1, 4	10, 44		ML 14, 15, 22 SCP 8, 15, 21
b.				
c. Represent proportional relationships by equations.	1, 4	10, 44		ML 14, 15, 22 SCP 8, 15, 21
d.				
3. Use proportional relationships to solve multistep ratio and percent problems.	3, 5, 7, 8, 9	26, 27, 29, 56, 58, 59, 74–75, 94, 98–99	94–96, 189	ML 8, 9, 10, 14, 15, 17, 19, 22, 25
Grade 6 The Number System 6.NS Apply and extend previous understandings of multiplication and division to divide fractions by fractions. 1.				

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<p>Compute fluently with multi-digit numbers and find common factors and multiples.</p> <p>2. Fluently divide multi-digit numbers using the standard algorithm.</p>	2, 7, 12	22, 74–75, 141, 144		ML 4, 9, 16, 18, 24
<p>3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>	1, 2, 3, 4, 9	10–11, 21–22, 26, 27, 29, 44–46, 98–99		ML 7, 8, 9, 10, 14, 15, 24, 25
<p>4.</p>				
<p>Apply and extend previous understandings of numbers to the system of rational numbers.</p> <p>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.</p>	7		264–265, 272–272	SCP 19
<p>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.</p> <p>a. 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.</p>	7		264–265	
<p>b.</p>				

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c.				
7. a.				
b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	11	123, 124		
c.				
d.				
8.				
Grade 7 The Number System 7.NS Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. 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. a. Describe situations in which opposite quantities combine to make 0.	7		264–265	
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.	7		272–273	
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	7		272–273	

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value of their difference, and apply this principle in real-world contexts.				
d. Apply properties of operations as strategies to add and subtract rational numbers.	4	44		
2. a.				
b.				
c. Apply properties of operations as strategies to multiply and divide rational numbers.	3, 9	26, 27, 29, 98–99		ML 8, 9, 10, 22, 24
d. 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.	1, 3, 7, 9	11, 26, 27, 29, 75, 98–99		ML 8, 9, 11, 14, 15, 25
3. Solve real-world and mathematical problems involving the four operations with rational numbers.	1, 2, 3, 5, 7, 9	10–11.21–22, 26, 27, 29, 56, 58, 59, 98–99	189, 272–273	ML 1–10, 17, 18, 19, 22, 24, 25
Grade 8 The Number System 8.NS Know that there are numbers that are not rational, and approximate them by rational numbers.				
1.				
2.				
Grade 6 Expressions and Equations 6.EE Apply and extend previous understandings of arithmetic to algebraic expressions.				
1.				
2. Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with	4, 6	44–45, 70		ML 9, 12, 14, 15, 21, 22, 23, 24, 25

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numbers and with letters standing for numbers.				
b. 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.				ML 7
c. 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).	4, 6, 11	44–45, 70, 122–125	436–437, 447	ML 11, 12, 13, 22, 23
3. Apply the properties of operations to generate equivalent expressions.	11	122		
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).	11	122		
Reason about and solve one-variable equations and inequalities.				ML 13, 24, 25
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.				
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	4, 6	44–45, 70		ML 9, 12, 14, 15, 21, 22, 23, 24, 25

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on the purpose at hand, any number in a specified set.				
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.	4, 6	44–45, 70		ML 9, 12, 14, 15, 21, 22, 23, 24, 25
8.				
Represent and analyze quantitative relationships between dependent and independent variables. 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.				ML 21
Grade 7 Expressions and Equations 7.EE Use properties of operations to generate equivalent expressions. 1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	1, 6	10–11, 70		
2.				
Solve real-life and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi-step real-life and mathematical problems	2, 3, 4, 5, 6	21–22, 26, 27, 29, 44, 56, 58, 59	189, 272–272	ML 1–10, 14, 15, 17, 18, 19, 21, 22, 23, 24, 25

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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.				
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. a. 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.	1, 4, 6	10–11, 44, 70		ML 9, 14, 15, 21, 22, 23, 24, 25
b.				
Grade 8 Expressions and Equations 8.EE Work with radicals and integer exponents.				
1.				
2.				
3.				
4.				
Understand the connections between proportional relationships, lines, and linear equations.				
5.				

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6.				
Analyze and solve linear equations and pairs of simultaneous linear equations.				
7. a.				
b.				
8. a.				
b.				
c.				
Grade 8 Functions 8.F Define, evaluate, and compare functions. 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.				ML 21
2.				
3.				
Use functions to model relationships between quantities.				
4.				
5.				
Grade 6 Geometry 6.G Solve real-world and mathematical problems involving area, surface area, and volume. 1.				
2.				
3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find	4	46		

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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.				
4.				
Grade 7 Geometry 7G Draw, construct, and describe geometrical figures and describe the relationships between them. 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.	2, 4, 11	44, 46	63, 127, 438–440	ML 14, 15
2.				
3.				
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 4.				
5.				
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.	11	122–125	436–437, 447	ML 11, 112, 13, 15, 23
Grade 8 Geometry 8G Understand congruence and similarity using physical models, transparencies, or geometry software. 1. a.				

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b.				
c.				
2.				
3.				
4.				
5.				
Understand and apply the Pythagorean Theorem.				
6.				
7.				
8.				
Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.				
9.				
Grade 6 Statistics and Probability 6.SP Develop understanding of statistical variability.	3, 11, 12		104, 447, 495	
1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.				
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.	10, 12	11, 141–144		ML 16, 18, 20, 24
3.				
Summarize and describe distributions.				
4.				
5. Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations.	3		104	

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b.				
c. Giving quantitative measures of center (median and/or mean) and variability (inter-quartile 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.	3, 10, 12	11, 141–144	104	ML 16, 18, 20, 24
d. 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.	9	142		
Grade 7 Statistics and Probability 7.SP Use random sampling to draw inferences about a population.	8	93		
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.				
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.	8	93		
Draw informal comparative inferences about two	10, 12	111, 141–144		ML 16, 18, 20,

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<p>populations.</p> <p>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.</p>				24
4.				
<p>Investigate chance processes and develop, use, and evaluate probability models.</p> <p>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.</p>	1	10–11		
6.				
<p>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.</p> <p>a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.</p>	1	10–11		
b.				
8. a.				
b. Represent sample spaces for compound events	1, 6	9, 69		

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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.				
c. Design and use a simulation to generate frequencies for compound events.				
Grade 8 Statistics and Probability 8.SP Investigate patterns of association in bivariate data.				
1.				
2.				
3.				
4.				