

Kalliope Performing Arts Center

Correlated to the Common Core Standards Grades 9 and 10 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)
Reading Standards for Informational Text Key Ideas and Details 1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	1, 2, 3, 5, 7, 10, 11	15,16–17, 51, 55, 75–76, 111–112, 123–125	6, 61, 63–64, 112–113, 455–456	LL 9, 10, 21, 22 SCP 8 SSP 3, 4, 6, 7, 8, 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.	1, 2, 3, 5, 7, 8, 10, 11	3, 7, 15, 51–53, 75, 89, 111–112, 123–125	112–113, 201, 211, 411, 413–414, 453, 455–456	LL 3, 7, 9, 10, 23 SCP 3, 5, 8, 9, 10 SSP 4, 5, 6, 8, 16
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.	4, 9	99–100	154, 371, 373–374	SCP 16
Craft and Structure 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).	1–12	2, 14, 26, 31, 38, 50, 62, 74, 86, 98, 110, 122, 134	5, 60, 107, 115, 150, 199, 200, 201, 240, 280, 322, 371, 410, 452, 500	SCP 3, 4, 6, 10, 12 SSP 3, 6, 10, 12, 16

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)
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).	5		201, 203–204	
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.				LL 20
Integration of Knowledge and Ideas 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.	5, 6		206–207, 211, 252	SSP 4
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.	3	27–28	108, 109–110, 117	LL 18, 19
9. Analyze seminal U.S. documents of historical and literary significance (e.g., 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.	3, 12		118, 512	SSP 7
Range of Reading and Level of Text Complexity 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	2, 3, 4, 5, 6, 8, 9, 10, 11	65, 111–112, 123–125	63–64, 109–110, 153–154, 203–204, 206–207, 324–325,	LL 1–25 SCP 3–10, 16 SSP 3–10, 16

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)
end of the range. By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9–10 text complexity band independently and proficiently.			373–374, 413–415, 455–456	
Writing Standards Text Types and Purposes 1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. <ul style="list-style-type: none"> a. 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. 	2, 3, 4, 7	18, 29, 77, 78	70, 95, 141, 161, 282–283, 313	
<ul style="list-style-type: none"> b. 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. 	2, 3, 4, 7	18, 29, 77, 78	70, 96, 142, 161, 282–283, 314	
<ul style="list-style-type: none"> c. 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. 	2, 3, 7	18, 29, 78	96, 142, 314	
<ul style="list-style-type: none"> d. Establish and maintain a formal style and objective tone while attending to the norms and 	2, 3, 4, 7	18, 29, 78	70, 96, 142, 314	

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conventions of the discipline in which they are writing.				
e. Provide a concluding statement or section that follows from and supports the argument presented.	2, 3, 7	18, 29, 78	70, 96, 142, 282–283, 314	
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. a. 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.	1, 4, 8, 9, 10, 11, 12	6, 42, 54, 90, 101, 126, 137	48, 185, 235, 359, 405, 411, 414, 487, 503- 504, 507, 537	SCP 7, 14, 15, 17, 18, 19 SSP 14, 15, 17, 18, 19
b. 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.	1, 4, 8, 9, 10, 11, 12	6, 42, 54, 90, 101, 126, 137	48-49, 186, 236, 360, 406, 414, 488, 503- 504, 507, 538	SCP 14, 15, 17, 18, 19 SSP 14, 15, 17, 18, 19
c. Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.	1, 4, 8, 9, 11, 12	6, 42, 54, 90, 101, 126, 137	49, 186, 236, 360, 406, 488, 538	
d. Use precise language and domain-specific vocabulary to manage the complexity of the	1, 4, 8, 9, 11, 12	6, 42, 54, 90, 101, 126, 137	49, 186, 236, 360, 406, 419,	

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topic.			422, 488, 538	
e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.	1, 4, 8, 9, 10, 11, 12	6, 42, 54, 90, 101, 126, 137	49, 186, 236, 360, 406, 419, 422, 488, 503- 504, 507, 538	SCP 20 SSP 18
f. 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).	1, 4, 8, 9, 11, 12	6, 42, 54, 90, 101, 126, 137	49, 186, 236, 360, 406, 488, 503-504, 507, 538	SCP 15, 17 SSP 17
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.	5, 6, 10	66, 113	210, 243–244, 251, 275, 447	
a. 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.				
b. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.	5, 6, 10	66, 113	210, 243–244, 251, 276, 448	
c. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.	6, 10	66, 113	243–244, 251, 276, 448	
d. Use precise words and phrases, telling details,	6, 10, 12	66, 113	243–244, 276,	

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and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.			448, 513	
e. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.	6, 10	66, 113	243–244, 276, 448	
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	6, 18, 29, 42, 54, 66, 78, 90, 101, 113, 126, 137	48, 95, 141, 185, 235, 275, 313, 359, 405, 447, 487, 537	SCP 20
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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 on page 54.)	1–12	6, 18, 29, 42, 54, 63–64, 66, 78, 90, 101, 113, 126, 137	49, 96, 142, 186, 236, 276, 285, 286, 290, 314, 360, 406, 448, 488, 538	SCP 18 SSP 18
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.	2, 6, 7, 10		71, 246, 251, 289–290, 419, 423	SCP 7, 8, 9, 11, 19 SSP 3, 5, 10, 11
Research to Build and Present Knowledge 7. Conduct short as well as more sustained research	7, 11, 12		290, 463, 512	SCP 1–21 SSP 1–21

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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.				
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.	2, 3, 6, 7, 10, 11, 12		67, 117, 118, 246, 290, 411, 453, 462, 512	SCP 2, 7, 8, 9, 11, 12–13, 19 SSP 2, 3, 5, 9, 10, 11, 12–13, 18
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 tasks, purposes, and audiences.	1–12	6, 18, 29, 42, 54, 66, 78, 90, 101, 113, 126, 137	6, 8, 16, 48–49, 61, 70, 71, 95–96, 118, 141, 160, 185–186, 210, 212, 235–236, 251, 275–276, 282–283, 313–314, 359–360, 380, 381, 405–406, 422, 423, 44–448,	LL 23 SCP 6, 14, 15, 17, 18, 19 SSP 9, 14, 15, 17, 18, 19

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			462, 487–488, 503–504, 513, 537–538	
Speaking and Listening Standards Comprehension and Collaboration 1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on <i>grades 9–10 topics, texts, and issues</i> , building on others’ ideas and expressing their own clearly and persuasively.	1–12		10–13, 16, 65–67, 111–114, 117, 155–158, 205–208, 212, 245–248, 252, 284–287, 326–330, 375–378, 416–419, 457–460, 505–509	LL 10, 23, 25
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.	1–12		10–13, 65–67, 111–114, 155–158, 205–208, 245–248, 284–287, 326–330, 375–378, 416–419, 457–460, 505–509	LL 10, 15, 16, 23, 24
c. Propel conversations by posing and responding to questions that relate the current discussion to	1–12		10–13, 17, 65–67, 111–114,	LL 2, 24, 25 SCP 19

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broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.			155–158, 205–208, 211, 245–248, 249, 284–287, 326–330, 335, 375–378, 416–419, 457–460, 463, 505–509	SSP 7
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.	1–12		10–13, 65–67, 111–114, 155–158, 205–208, 245–248, 284–287, 326–330, 375–378, 381, 416–419, 457–460, 505–509	LL 15, 23
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.	6, 8, 11, 12		251, 335, 463, 512	
3. Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.	4, 7, 12		161, 283, 512	SCP 20
Presentation of Knowledge and Ideas 4. Present information, findings, and supporting	5, 6, 7, 8, 9, 11, 12		210, 249, 283, 335, 381, 463,	SCP 7, 20 SSP 7, 20

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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.			512	
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.	4, 6, 8, 11		161, 251, 335, 463	SCP 20 SSP 20
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 on pages 54 for specific expectations.)	7, 9, 12		281, 381, 512	SCP 1, 20 SSP 1, 20
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, attending to such features as the date and origin of the information.	3, 11	123–125	112–113	LL 9, 10, 22 SSP 8, 9
2. Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.	3, 11	123–125	112–113	LL 9, 10, 23 SSP 4, 5, 6
3. Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.	4		153–154	SSP 7

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Craft and Structure 4. Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social studies.	3, 9		107, 370, 371	SSP 3, 6, 10, 12
5. Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.	5		203–204	LL 17
6. Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.	9		377	LL 19, 20
Integration of Knowledge and Ideas 7. Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.	8		326–327	LL 2 SCP 3
8. Assess the extent to which the reasoning and evidence in a text support the author’s claims.	4	40–41		
9.				
Range of Reading and Level of Text Complexity 10. By the end of grade 10, read and comprehend history/social studies texts in the grades 9–10 text complexity band independently and proficiently.	3, 5, 8, 9, 11, 12	123–125	111–114, 118, 203, 204, 326–327, 329, 377, 512	LL 10, 12, 13 SSP 3–10, 16
Reading Standards for Literacy in Science and Technical Subjects Key Ideas and Details 1. Cite specific textual evidence to support analysis of				SCP 8

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science and technical texts, attending to the precise details of explanations or descriptions.				
2. Determine the central ideas or conclusions of a text; trace the text’s explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.				SCP 3, 5, 8, 9, 10
3.				
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 9–10 texts and topics</i> .				SCP 3, 4, 6, 10, 12
5. Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., <i>force, friction, reaction force, energy</i>).				LL 16 SCP 16
6.				
Integration of Knowledge and Ideas 7. Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.				LL 2 SCP 7
8.				
9.				
Range of Reading and Level of Text Complexity				LL 16

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10. By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 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> .	3, 7, 9	77	141, 382	
a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.	3, 7, 9	77	142, 382	
b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience’s knowledge level and concerns.	3		142	
c. 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.	3		142	
d. Establish and maintain a formal style and	3		142	

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objective tone while attending to the norms and conventions of the discipline in which they are writing.				
e. Provide a concluding statement or section that follows from or supports the argument presented.	3		142	
2. Write informative/ explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic and organize 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.				SCP 7, 14, 15, 17 SSP 14, 15, 17, 18, 19
b. 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.				SCP 7, 14, 15, 17 SSP 14, 15, 17, 18, 19
c.				
d.				
e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.				SCP 20 SSP 18

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f. 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).				SCP 15, 17 SSP 17
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.	3		141	SCP 20
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.	3		142	SCP 18 SSP 18
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.				SCP 7, 8, 9, 11, 19 SSP 3, 5, 10, 11
Research to Build and Present Knowledge 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.				SCP 1–21 SSP 1–21
8. Gather relevant information from multiple authoritative print and digital sources, using	3		118	SCP 2, 7, 8, 9, 11, 12–13, 19

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)
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.				SSP 2, 3, 5, 9, 10, 11, 12–13, 18
9. Draw evidence from informational texts to support analysis reflection, and research.				SCP 8 SSP 8, 9
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.	3		141–142	SCP 6, 14, 15, 17, 18, 19 SSP 9, 14, 15, 17, 18, 19

Standards Math	Simulation Episode	Student Workbook	Teacher Handbook 1	Teacher Handbook 2 Math Links
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, 2, 4, 9, 10	10, 11, 22, 47, 104–107, 116–119	15, 116–17, 375–376, 380, 381, 416–417, 422	ML 14, 15, 20
2.				
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.	3, 5, 7,	57–58, 81–82	117	
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.	1, 2, 3, 4, 7, 8, 9	11, 21, 22, 33, 83, 104–105	16–17, 69, 161–162, 333, 334, 381	ML 8, 9, 10, 17, 19, 25
d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	9		381	ML 13
Grade 7 Ratios and Proportional Relationships 7.RP	3, 5, 7	57, 58, 81	117, 210	

Standards Math	Simulation Episode	Student Workbook	Teacher Handbook 1	Teacher Handbook 2 Math Links
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.				
2. Recognize and represent proportional relationships between quantities.	1, 4, 9	47, 104, 107	15	ML 14, 15, 22
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.				
b.				
c. Represent proportional relationships by equations.	1, 4, 9	47, 104–107	15	ML 14, 15, 22
d.				
3. Use proportional relationships to solve multistep ratio and percent problems.	1, 2, 3, 4, 7, 8, 9	10, 11, 21, 22, 33, 47, 83, 104–107	15, 16–17, 69, 161–162, 333, 334, 381	ML 8, 9, 10, 14, 15, 17, 19, 20, 22, 25
Grade 6 The Number System 6.NS Apply and extend previous understandings of multiplication and division to divide fractions by fractions.				
1.				
Compute fluently with multi-digit numbers and find common factors and multiples.				
2. Fluently divide multi-digit numbers using the standard algorithm.	2, 3, 4, 7, 11, 12	21, 22, 33, 85, 129–131, 143	161–162, 290, 509, 512	ML 4, 9, 16, 18, 24

Standards Math	Simulation Episode	Student Workbook	Teacher Handbook 1	Teacher Handbook 2 Math Links
3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	2, 3, 5, 7, 8, 9, 10	21, 22, 33, 58, 81–83, 95, 107, 116–118, 129–131		ML 7, 8, 9, 10, 11, 14, 15, 17, 19, 25
4.				
Apply and extend previous understandings of numbers to the system of rational numbers.				
5.				
6. a.				
b.				
c.				
7. a.				
b.				
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. a.				
b.				
c.				
d. Apply properties of operations as strategies to add and subtract rational numbers.	8, 12	95, 142		
2. a.				
b.				
c. Apply properties of operations as strategies to multiply and divide rational numbers.	4, 9	104–107	161	ML 8, 9, 10, 22, 24

Standards Math	Simulation Episode	Student Workbook	Teacher Handbook 1	Teacher Handbook 2 Math Links
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, 2, 3, 4	10, 11, 21, 33	17, 161	ML 8, 9, 10, 14, 15, 25
3. Solve real-world and mathematical problems involving the four operations with rational numbers.	1, 2, 3, 4, 5, 7, 8, 9, 12	10, 11, 21, 22, 33, 47, 57, 58, 81–83, 93–95, 104–107, 143	15, 16–17, 69, 161–161, 333, 334, 512	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. 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.	10	116		
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).	10	116		
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	1, 4, 8, 9, 12	10, 47, 95, 104–106, 142	15	ML 9, 12, 14, 15, 21, 22, 23, 24, 25

Standards Math	Simulation Episode	Student Workbook	Teacher Handbook 1	Teacher Handbook 2 Math Links
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, 8, 10	45–46, 93–95, 116–118	160, 421	ML 11, 12, 13, 22, 23
3.				
4.				
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 on the purpose at hand, any number in a specified set.	1, 4, 8, 9, 10, 12	10, 47, 95, 104–106, 116–118, 142	15	ML 9, 12, 14, 15, 21, 22, 23, 24, 25
7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$	1, 4, 8, 9, 10, 12	10, 47, 95, 104–106, 116,		ML 9, 14, 15, 21, 22, 23, 24,

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and $px = q$ for cases in which p , q and x are all nonnegative rational numbers.		118, 142		25
8.				
<p>Represent and analyze quantitative relationships between dependent and independent variables.</p> <p>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.</p>				ML 21
<p>Grade 7</p> <p>Expressions and Equations 7.EE</p> <p>Use properties of operations to generate equivalent expressions.</p> <p>1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.</p>	1, 4, 8, 9, 12	10, 11, 47, 95, 104–107, 142	15	
2.				
<p>Solve real-life and mathematical problems using numerical and algebraic expressions and equations.</p> <p>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</p>	2, 3, 4, 5, 7, 8, 9, 10, 12	21, 22, 33, 57, 58, 81–83, 93–95, 116–119, 143	69, 161–162, 327, 333, 334, 381, 512	ML 1–10, 14, 15, 17, 18, 19, 21, 22, 24, 25

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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, 8, 9, 10, 12	10, 47, 95, 104–106, 116–118, 142		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. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.	4		161	
4.				
Understand the connections between proportional relationships, lines, and linear equations.				
5.				
6.				
Analyze and solve linear equations and pairs of simultaneous linear equations.				
7. a.				

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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.	6	69–71		ML 21
2. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	6	69–71		ML 21
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. 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.	10	116–119	421	ML 24
2.				

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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.	10	119		
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.	4, 9, 10	47, 104–107, 116–119	375–376, 380, 381, 416–417, 422	ML 14, 15
2.				
3.				
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 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.	10	116–117	421	
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.	4, 10	44–45	160, 421	ML 11, 12, 14, 15, 23
Grade 8 Geometry 8G				

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Understand congruence and similarity using physical models, transparencies, or geometry software.				
1. a.				
b.				
c.				
2.				
3.				
4.				
5.				
Understand and apply the Pythagorean Theorem.				
6.				
7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	10	116–118		
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.	1, 2, 6		16, 70–71, 251	
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.	11	129–131	462	ML 16, 18, 24
3.				

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Summarize and describe distributions.	6	69–71		
4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.				
5. Summarize numerical data sets in relation to their context, such as by:	2, 6		70–71, 251	
a. Reporting the number of observations.				
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	2		70–71	
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.				ML 16, 18, 24
d.				
Grade 7 Statistics and Probability 7.SP Use random sampling to draw inferences about a population.	3, 6	32, 33	116, 251	
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	3, 6	32, 33	116, 251	

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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.				
Draw informal comparative inferences about two populations. 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.	11	129–131		ML 16, 18, 24
4.				
Investigate chance processes and develop, use, and evaluate probability models. 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.	1	10, 11	15	ML 20
6.				
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. <ol style="list-style-type: none"> a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. 	1	10, 11	15	ML 20

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b.				
8. a.				
b. 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.	1, 4, 12	9, 141, 142	15, 157, 507–508, 511	
c.				
Grade 8 Statistics and Probability 8.SP Investigate patterns of association in bivariate data. 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.	6	69–71	250	
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.	6	70–71		
3.				
4.				