

Common Core State Standards Alignment

English Language Arts



Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of FIRST® LEGO® League Challenge either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Grade 4

Cluster	Indicator	Indicator Statement	Addressed
Reading: Literature	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.	-
	RL.4.2	Determine a theme of a story, drama, or poem from details in the text; 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).	
	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).	
	RL.4.5	Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.	
	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.	
	RL.4.7	Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.	
	RL.4.8	(not applicable to literature)	
	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.	
	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.	
Reading: Informational 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.	•
	RI.4.2	Determine the main idea of a text and explain how it is supported by key details; summarize the text.	•
	RI.4.3	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.	-
	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.	•
	RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.	-
	RI.4.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.	-
	RI.4.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.	•
	RI.4.8	Explain how an author uses reasons and evidence to support particular points in a text.	-

	RI.4.9	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.	●
	RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.	-
Reading: Foundational Skills	RF.4.3	Know and apply grade-level phonics and word analysis skills in decoding words.	-
	RF.4.3.A	Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.	-
	RF.4.4	Read with sufficient accuracy and fluency to support comprehension.	-
	RF.4.4.A	Read on-level text with purpose and understanding.	-
	RF.4.4.B	Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.	-
	RF.4.4.C	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	-
Writing	W.4.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.	-
	W.4.1.A	Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.	-
	W.4.1.B	Provide reasons that are supported by facts and details.	-
	W.4.1.C	Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).	-
	W.4.1.D	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.	-
	W.4.2.A	Introduce a topic clearly and group related information in paragraphs and sections include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.	-
	W.4.2.B	Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.	-
	W.4.2.C	Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).	-
	W.4.2.D	Use precise language and domain-specific vocabulary to inform about or explain the topic.	-
	W.4.2.E	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.	-
	W.4.3.A	Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.	-
	W.4.3.B	Use dialogue and description to develop experiences and events or show the responses of characters to situations.	-
	W.4.3.C	Use a variety of transitional words and phrases to manage the sequence of events.	-
	W.4.3.D	Use concrete words and phrases and sensory details to convey experiences and events precisely.	-
	W.4.3.E	Provide a conclusion that follows from the narrated experiences or events.	-
	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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 4 on page 29.)	-
	W.4.6	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.	-
	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.	●

	W.4.9.A	Apply grade 4 Reading standards to literature (e.g., “Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”).	
	W.4.9.B	Apply grade 4 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text”).	-
	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.	-
Speaking & Listening	SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.	●
	SL.4.1.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.	●
	SL.4.1.B	Follow agreed-upon rules for discussions and carry out assigned roles.	●
	SL.4.1.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.	●
	SL.4.1.D	Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.	●
	SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	●
	SL.4.3	Identify the reasons and evidence a speaker provides to support particular points.	-
	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.	-
Language	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 grade 4 Language standards 1 on page 28 for specific expectations.)	-
	L.4.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	●
	L.4.1.A	Use relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why).	-
	L.4.1.B	Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses.	-
	L.4.1.C	Use modal auxiliaries (e.g., can, may, must) to convey various conditions.	-
	L.4.1.D	Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag).	-
	L.4.1.E	Form and use prepositional phrases.	-
	L.4.1.F	Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.	-
	L.4.1.G	Correctly use frequently confused words (e.g., to, too, two; there, their).	-
	L.4.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	-
	L.4.2.A	Use correct capitalization.	-
	L.4.2.B	Use commas and quotation marks to mark direct speech and quotations from a text.	-
	L.4.2.C	Use a comma before a coordinating conjunction in a compound sentence.	-
	L.4.2.D	Spell grade-appropriate words correctly, consulting references as needed.	-
	L.4.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.	●
	L.4.3.A	Choose words and phrases to convey ideas precisely.	-
	L.4.3.B	Choose punctuation for effect.	-
	L.4.3.C	Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).	-
	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.	-
	L.4.4.A	Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.	-

	L.4.4.B	Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph).	-
	L.4.4.C	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.	
	L.4.5.A	Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context.	
	L.4.5.B	Recognize and explain the meaning of common idioms, adages, and proverbs.	
	L.4.5.C	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 words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).	-

Grade 5

Cluster	Indicator	Indicator Statement	Addressed
Reading: Literature	RL.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.	
	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).	
	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.	
	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.	
	RL.5.6	Describe how a narrator's or speaker's point of view influences how events are described.	
	RL.5.7	Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).	
	RL.5.8	(not applicable to literature)	
	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.	
	RL.5.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity band independently and proficiently.	
Reading: Informational Text	RI.5.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from 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.	•
	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.	-
	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.	•
	RI.5.5	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.	-
	RI.5.6	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.	-
	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.	•
	RI.5.8	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).	-
	RI.5.9	Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.	•

	RI.5.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently.	-
Reading: Foundational Skills	RF.5.3	Know and apply grade-level phonics and word analysis skills in decoding words.	-
	RF.5.3.A	Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.	-
	RF.5.4	Read with sufficient accuracy and fluency to support comprehension.	-
	RF.5.4.A	Read on-level text with purpose and understanding.	-
	RF.5.4.B	Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.	-
	RF.5.4.C	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	-
Writing	W.5.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.	-
	W.5.1.A	Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer's purpose.	-
	W.5.1.B	Provide logically ordered reasons that are supported by facts and details.	-
	W.5.1.C	Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically).	-
	W.5.1.D	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.	-
	W.5.2.A	Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.	-
	W.5.2.B	Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.	-
	W.5.2.C	Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).	-
	W.5.2.D	Use precise language and domain-specific vocabulary to inform about or explain the topic.	-
	W.5.2.E	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.	-
	W.5.3.A	Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.	-
	W.5.3.B	Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.	-
	W.5.3.C	Use a variety of transitional words, phrases, and clauses to manage the sequence of events.	-
	W.5.3.D	Use concrete words and phrases and sensory details to convey experiences and events precisely.	-
	W.5.3.E	Provide a conclusion that follows from the narrated experiences or events	-
	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 standards 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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 5 on page 29.)	-
	W.5.6	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.	-
	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.	●

	W.5.9.A	Apply grade 5 Reading standards to literature (e.g., “Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”).	
	W.5.9.B	Apply grade 5 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).	
	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.	-
Speaking & Listening	SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.	●
	SL.5.1.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.	●
	SL.5.1.B	Follow agreed-upon rules for discussions and carry out assigned roles.	●
	SL.5.1.C	Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.	●
	SL.5.1.D	Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.	●
	SL.5.2	Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	●
	SL.5.3	Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.	-
	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 grade 5 Language standards 1 and 3 on page 28 for specific expectations.)	-
Language	L.5.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	●
	L.5.1.A	Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.	-
	L.5.1.B	Form and use the perfect (e.g., I had walked; I have walked; I will have walked) verb tenses.	-
	L.5.1.C	Use verb tense to convey various times, sequences, states, and conditions.	-
	L.5.1.D	Recognize and correct inappropriate shifts in verb tense.	-
	L.5.1.E	Use correlative conjunctions (e.g., either/or, neither/nor).	-
	L.5.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	-
	L.5.2.A	Use punctuation to separate items in a series.	-
	L.5.2.B	Use a comma to separate an introductory element from the rest of the sentence.	-
	L.5.2.C	Use a comma to set off the words yes and no (e.g., Yes, thank you), to set off a tag question from the rest of the sentence (e.g., It's true, isn't it?), and to indicate direct address (e.g., Is that you, Steve?).	-
	L.5.2.D	Use underlining, quotation marks, or italics to indicate titles of works.	-
	L.5.2.E	Spell grade-appropriate words correctly, consulting references as needed.	-
	L.5.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.	●
	L.5.3.A	Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.	-
	L.5.3.B	Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.	-
	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.	-
	L.5.4.A	Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.	-

	L.5.4.B	Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).	-
	L.5.4.C	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.	
	L.5.5.A	Interpret figurative language, including similes and metaphors, in context.	
	L.5.5.B	Recognize and explain the meaning of common idioms, adages, and proverbs.	
	L.5.5.C	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 words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly moreover, in addition).	-

Grade 6

Cluster	Indicator	Indicator Statement	Addressed
Reading: Literature	RL.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 how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	
	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.	
	RL.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.	
	RL.6.6	Explain how an author develops the point of view of the narrator or speaker in a text.	
	RL.6.7	Compare and contrast the experience of reading a story, drama, or poem 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.	
	RL.6.8	(not applicable to literature)	
	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.	
	RL.6.10	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 needed at the high end of the range.	
Reading: Informational Text	RI.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	•
	RI.6.2	Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	•
	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).	-
	RI.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	•
	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.	-
	RI.6.6	Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.	-
	RI.6.7	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.	•
	RI.6.8	Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.	-
	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)	

	RI.6.10	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.	-
Writing	W.6.1	Write arguments to support claims with clear reasons and relevant evidence.	-
	W.6.1.A	<i>Introduce claim(s) and organize the reasons and evidence clearly.</i>	-
	W.6.1.B	<i>Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.</i>	-
	W.6.1.C	<i>Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.</i>	-
	W.6.1.D	<i>Establish and maintain a formal style.</i>	-
	W.6.1.E	<i>Provide a concluding statement or section that follows from the argument presented.</i>	-
	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.	-
	W.6.2.A	<i>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.</i>	-
	W.6.2.B	<i>Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.</i>	-
	W.6.2.C	<i>Use appropriate transitions to clarify the relationships among ideas and concepts.</i>	-
	W.6.2.D	<i>Use precise language and domain-specific vocabulary to inform about or explain the topic.</i>	-
	W.6.2.E	<i>Establish and maintain a formal style.</i>	-
	W.6.2.F	<i>Provide a concluding statement or section that follows from the information or explanation presented.</i>	-
	W.6.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.	-
	W.6.3.A	<i>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.</i>	-
	W.6.3.B	<i>Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.</i>	-
	W.6.3.C	<i>Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.</i>	-
	W.6.3.D	<i>Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events.</i>	-
	W.6.3.E	<i>Provide a conclusion that follows from the narrated experiences or events.</i>	-
	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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 6 on page 53.)	-
	W.6.6	Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.	-
	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.	●
	W.6.9.A	<i>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”).</i>	
	W.6.9.B	<i>Apply grade 6 Reading standards to literary nonfiction (e.g., “Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not”).</i>	

	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.	-
Speaking & Listening	SL.6.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.	●
	SL.6.1.A	<i>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.</i>	●
	SL.6.1.B	<i>Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.</i>	●
	SL.6.1.C	<i>Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.</i>	●
	SL.6.1.D	<i>Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.</i>	●
	SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.	●
	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.	-
	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.	●
	SL.6.5	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.	-
	SL.6.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards 1 and 3 above for specific expectations.)	-
Language	L.6.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	●
	L.6.1.A	<i>Ensure that pronouns are in the proper case (subjective, objective, possessive).</i>	-
	L.6.1.B	<i>Use intensive pronouns (e.g., myself, ourselves).</i>	-
	L.6.1.C	<i>Recognize and correct inappropriate shifts in pronoun number and person.</i>	-
	L.6.1.D	<i>Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents).</i>	-
	L.6.1.E	<i>Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.</i>	-
	L.6.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	-
	L.6.2.A	<i>Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.</i>	-
	L.6.2.B	<i>Spell correctly.</i>	-
	L.6.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.	●
	L.6.3.A	<i>Vary sentence patterns for meaning, reader/listener interest, and style.</i>	-
	L.6.3.B	<i>Maintain consistency in style and tone.</i>	-
	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.	-
	L.6.4.A	<i>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.</i>	-
	L.6.4.B	<i>Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible).</i>	-
	L.6.4.C	<i>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.</i>	-
	L.6.4.D	<i>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).</i>	-
	L.6.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.	
	L.6.5.A	<i>Interpret figures of speech (e.g., personification) in context.</i>	

	L.6.5.B	Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words.	
	L.6.5.C	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.	-

Grade 7

Cluster	Indicator	Indicator Statement	Addressed
Reading: Literature	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.	
	RL.7.2	Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.	
	RL.7.3	Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).	
	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.	
	RL.7.5	Analyze how a drama's or poem's form or structure (e.g., soliloquy, sonnet) contributes to its meaning.	
	RL.7.6	Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.	
	RL.7.7	Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).	
	RL.7.8	(not applicable to literature)	
	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.	
	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 needed at the high end of the range.	
Reading: Informational 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.	●
	RI.7.2	Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.	●
	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).	-
	RI.7.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.	●
	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	-
	RI.7.6	Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.	-
	RI.7.7	Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).	-
	RI.7.8	Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims.	-
	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	-

	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.	-
Writing	W.7.1	Write arguments to support claims with clear reasons and relevant evidence.	-
	W.7.1.A	<i>Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically.</i>	-
	W.7.1.B	<i>Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.</i>	-
	W.7.1.C	<i>Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.</i>	-
	W.7.1.D	<i>Establish and maintain a formal style.</i>	-
	W.7.1.E	<i>Provide a concluding statement or section that follows from and supports the argument presented.</i>	-
	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.	-
	W.7.2.A	<i>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., readings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.</i>	-
	W.7.2.B	<i>Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.</i>	-
	W.7.2.C	<i>Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.</i>	-
	W.7.2.D	<i>Use precise language and domain-specific vocabulary to inform about or explain the topic.</i>	-
	W.7.2.E	<i>Establish and maintain a formal style.</i>	-
	W.7.2.F	<i>Provide a concluding statement or section that follows from and supports the information or explanation presented.</i>	-
	W.6.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.	-
	W.7.3.A	<i>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.</i>	-
	W.7.3.B	<i>Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.</i>	-
	W.7.3.C	<i>Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.</i>	-
	W.7.3.D	<i>Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.</i>	-
	W.7.3.E	<i>Provide a conclusion that follows from and reflects on the narrated experiences or events.</i>	-
	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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 7 listed above.)	-
	W.7.6	Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.	-
	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.	●
	W.7.9.A	<i>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”).</i>	

	W.7.9.B	Apply grade 7 Reading standards to literary nonfiction (e.g. “Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims”).	
	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.	-
Speaking & Listening	SL.7.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 7 topics, texts, and issues, building on others’ ideas and expressing their own clearly.	●
	SL.7.1.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.	●
	SL.7.1.B	Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.	●
	SL.7.1.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.	●
	SL.7.1.D	Acknowledge new information expressed by others and, when warranted, modify their own views.	●
	SL.7.2	Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) 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 and sufficiency of the evidence.	-
	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 grade 7 Language standards 1 and 3 on page 53 for specific expectations.)	-
Language	L.7.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	●
	L.7.1.A	Explain the function of phrases and clauses in general and their function in specific sentences.	-
	L.7.1.B	Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas.	-
	L.7.1.C	Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers.	-
	L.7.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	-
	L.7.2.A	Use a comma to separate coordinate adjectives (e.g., It was a fascinating, enjoyable movie but not He wore an old[,] green shirt).	-
	L.7.2.B	Spell correctly.	-
	L.7.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.	●
	L.7.3.A	Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.	-
	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.	-
	L.7.4.A	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.	-
	L.7.4.B	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel).	-
	L.7.4.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.	
	L.7.4.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).	-

	L.7.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.	
	L.7.5.A	<i>Interpret figures of speech (e.g., literary, biblical, and mythological allusions) in context.</i>	
	L.7.5.B	<i>Use the relationship between particular words (e.g., synonym/antonym, analogy) to better understand each of the words.</i>	
	L.7.5.C	<i>Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., refined, respectful, polite, diplomatic, condescending).</i>	
	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.	-

Grade 8

Cluster	Indicator	Indicator Statement	Addressed
Reading: Literature	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.	
	RL.8.2	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; provide an objective summary of the text.	
	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	
	RL.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.	
	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.	
	RL.8.6	Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.	
	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.	
	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.8.10	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 needed at the high end of the range.	
	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.	
Reading: Informational 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.	●
	RI.8.2	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.	●
	RI.8.3	Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).	-
	RI.8.4	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.	●
	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.	-
	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.	-
	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.	-
	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; recognize when irrelevant evidence is introduced.	-

	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.	-
	RI.8.10	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	W.8.1	Write arguments to support claims with clear reasons and relevant evidence.	-
	W.8.1.A	<i>Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.</i>	-
	W.8.1.B	<i>Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.</i>	-
	W.8.1.C	<i>Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.</i>	-
	W.8.1.D	<i>Establish and maintain a formal style.</i>	-
	W.8.1.E	<i>Provide a concluding statement or section that follows from and supports the argument presented.</i>	-
	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.	-
	W.8.2.A	<i>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.</i>	-
	W.8.2.B	<i>Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.</i>	-
	W.8.2.C	<i>Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.</i>	-
	W.8.2.D	<i>Use precise language and domain-specific vocabulary to inform about or explain the topic.</i>	-
	W.8.2.E	<i>Establish and maintain a formal style.</i>	-
	W.8.2.F	<i>Provide a concluding statement or section that follows from and supports the information or explanation presented.</i>	-
	W.8.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.	-
	W.8.3.A	<i>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.</i>	-
	W.8.3.B	<i>Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.</i>	-
	W.8.3.C	<i>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.</i>	-
	W.8.3.D	<i>Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.</i>	-
	W.8.3.E	<i>Provide a conclusion that follows from and reflects on the narrated experiences or events.</i>	-
	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. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 8 as shown above.)	-
	W.8.6	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.	-
	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.	●
	W.8.9.A	<i>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”).</i>	
	W.8.9.B	<i>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; recognize when irrelevant evidence is introduced”).</i>	
	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.	-
Speaking & Listening	SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly.	●
	SL.8.1.A	<i>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.</i>	●
	SL.8.1.B	<i>Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.</i>	●
	SL.8.1.C	<i>Pose questions that connect the ideas of several speakers and respond to others’ questions and comments with relevant evidence, observations, and ideas.</i>	●
	SL.8.1.D	<i>Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.</i>	●
	SL.8.2	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.	●
	SL.8.3	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.	-
	SL.8.4	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.	●
	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 grade 8 Language standards 1 and 3 on page 53 for specific expectations.)	-
Language	L.8.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	●
	L.8.1.A	<i>Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.</i>	-
	L.8.1.B	<i>Form and use verbs in the active and passive voice.</i>	-
	L.8.1.C	<i>Form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.</i>	-
	L.8.1.D	<i>Recognize and correct inappropriate shifts in verb voice and mood.</i>	-
	L.8.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	-
	L.8.2.A	<i>Use punctuation (comma, ellipsis, dash) to indicate a pause or break.</i>	-
	L.8.2.B	<i>Use an ellipsis to indicate an omission.</i>	-
	L.8.2.C	<i>Spell correctly.</i>	-
	L.8.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.	●
	L.8.3.A	<i>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).</i>	-
	L.8.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.	-

L.8.4.A	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.	-
L.8.4.B	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., precede, recede, secede).	-
L.8.4.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.	-
L.8.4.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).	-
L.8.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.	-
L.8.5.A	Interpret figures of speech (e.g. verbal irony, puns) in context.	-
L.8.5.B	Use the relationship between particular words to better understand each of the words.	-
L.8.5.C	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.	-

Grade 6-8

Cluster	Indicator	Indicator Statement	Addressed
Reading Standards for Literacy in History/Social Studies, Science, and Technical Subjects	RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.	●
	RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.	-
	RST.6-8.3	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.	●
	RST.6-8.4	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 grades 6–8 texts and topics.	●
	RST.6-8.5	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic	-
	RST.6-8.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.	-
	RST.6-8.7	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).	-
	RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.	●
	RST.6-8.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.	-
	RST.6-8.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.	●
Writing Standards	WHST.6-8.1	Write arguments focused on discipline-specific content.	-
	WHST.6-8.1.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.	-
	WHST.6-8.1.B	Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.	-
	WHST.6-8.1.C	Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.	-
	WHST.6-8.1.D	Establish and maintain a formal style.	-
	WHST.6-8.1.E	Provide a concluding statement or section that follows from and supports the argument presented.	-
	WHST.6-8.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.	-
	WHST.6-8.2.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.	-

	WHST.6-8.2.B	<i>Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.</i>	-
	WHST.6-8.2.C	<i>Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.</i>	-
	WHST.6-8.2.D	<i>Use precise language and domain-specific vocabulary to inform about or explain the topic.</i>	-
	WHST.6-8.2.E	<i>Establish and maintain a formal style and objective tone.</i>	-
	WHST.6-8.2.F	<i>Provide a concluding statement or section that follows from and supports the information or explanation presented.</i>	-
	WHST.6-8.3	(See note; not applicable as a separate requirement)	
	WHST.6-8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	●
	WHST.6-8.5	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	-
	WHST.6-8.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.	-
	WHST.6-8.7	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.	●
	WHST.6-8.8	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.	●
	WHST.6-8.9	Draw evidence from informational texts to support analysis, reflection, and research.	●
	WHST.6-8.10	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.	-

Common Core State Standards Alignment

Mathematics



Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of FIRST® LEGO® League Challenge either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

All Grades

Cluster	Indicator	Indicator Statement	Addressed
Mathematical Practice	MP1	Make sense of problems and persevere in solving them.	•
	MP2	Reason abstractly and quantitatively.	•
	MP3	Construct viable arguments and critique the reasoning of others.	•
	MP4	Model with mathematics.	•
	MP5	Use appropriate tools strategically.	•
	MP6	Attend to precision.	•
	MP7	Look for and make use of structure.	•
	MP8	Look for and express regularity in repeated reasoning.	•

Grade 4

Cluster	Indicator	Indicator Statement	Addressed
Operations and Algebraic Thinking	4.OA.A.1	Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	-
	4.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.	-
	4.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.	-
	4.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.	-
	4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i>	•
Number and Operations in Base Ten	4.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. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i>	-
	4.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.	-
	4.NBT.A.3	Use place value understanding to round multi-digit whole numbers to any place.	-

	4.NBT.B.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm.	-
	4.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.	-
	4.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.	-
Number and Operations - Fractions	4.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.	-
	4.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.	-
	4.NF.B.3	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.	-
	4.NF.B.3.A	<i>Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</i>	-
	4.NF.B.3.B	<i>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: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.</i>	-
	4.NF.B.3.C	<i>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.</i>	-
	4.NF.B.3.D	<i>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.</i>	-
	4.NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	-
	4.NF.B.4.A	<i>Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.</i>	-
	4.NF.B.4.B	<i>Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)</i>	-
	4.NF.B.4.C	<i>Apply and extend previous understandings of multiplication to multiply a fraction by 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?</i>	-
	4.NF.C.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100 and use this technique to add two fractions with respective denominators 10 and 100.4 For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.	
	4.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.	
	4.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.	

Measurement and Data	4.MD.A.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36)	•
	4.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.	-
	4.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.	•
	4.MD.B.4	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.	-
	4.MD.C.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	•
	4.MD.C.5.A	<i>An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles.</i>	-
	4.MD.C.5.B	<i>An angle that turns through n one-degree angles is said to have an angle measure of n degrees.</i>	-
	4.MD.C.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	-
	4.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.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	-
	4.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.	-
	4.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.	-

Grade 5

Cluster	Indicator	Indicator Statement	Addressed
Operations and Algebraic Thinking	5.OA.A.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	-
	5.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 $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.	-

	5.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 and Operations in Base Ten	5.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.	-
	5.NBT.A.2	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.	-
	5.NBT.A.3	Read, write, and compare decimals to thousandths.	-
	5.NBT.A.3.A	<i>Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.</i>	
	5.NBT.A.3.B	<i>Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</i>	
	5.NBT.A.4	Use place value understanding to round decimals to any place.	-
	5.NBT.B.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	-
	5.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.	-
	5.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 and Operations - Fractions	5.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, $a/b + c/d = (ad + bc)/bd$.)	
	5.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 $3/7 < 1/2$.	
	5.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?	
	5.NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	
	5.NF.B.4.A	<i>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 $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)</i>	

	5.NF.B.4.B	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.	
	5.NF.B.5	Interpret multiplication as scaling (resizing), by:	-
	5.NF.B.5.A	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.	
	5.NF.B.5.B	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.	
	5.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.	-
	5.NF.B.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	-
	5.NF.B.7.A	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.	
	5.NF.B.7.B	Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.	
	5.NF.B.7.C	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?	
Measurement and Data	5.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.	•
	5.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.	
	5.MD.C.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	
	5.MD.C.3.A	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.	
	5.MD.C.3.B	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.	
	5.MD.C.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	
	5.MD.C.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	
	5.MD.C.5.A	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.	
	5.MD.C.5.B	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.	
	5.MD.C.5.C	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.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).	-
	5.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.	-
	5.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.	●
	5.G.B.4	Classify two-dimensional figures in a hierarchy based on properties.	-

Grade 6

Cluster	Indicator	Indicator Statement	Addressed
Ratios and Proportional Relationships	6.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.”	-
	6.RP.A.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. 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	-
	6.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.	-
	6.RP.A.3.A	<i>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.</i>	
	6.RP.A.3.B	<i>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?</i>	
	6.RP.A.3.C	<i>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.</i>	
	6.RP.A.3.D	<i>Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing</i>	
The Number System	6.NS.A	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 $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/by$.) 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?	
	6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.	-
	6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	-
	6.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 $4(9 + 2)$.	
	6.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.	-
	6.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.	-
	6.NS.C.6.A	<i>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.</i>	
	6.NS.C.6.B	<i>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.</i>	
	6.NS.C.6.C	<i>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.</i>	
	6.NS.C.7	Understand ordering and absolute value of rational numbers.	
	6.NS.C.7.A	<i>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.</i>	
	6.NS.C.7.B	<i>Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C.</i>	
	6.NS.C.7.C	<i>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.</i>	
	6.NS.C.7.D	<i>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.</i>	
	6.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. dollars represents a debt greater than 30 dollars.	-
Expressions and Equations	6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.	
	6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.	-
	6.EE.A.2.A	<i>Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as $5 - y$.</i>	-
	6.EE.A.2.B	<i>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.</i>	-
	6.EE.A.2.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). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$.	-
	6.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 $3y$.	-
	6.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.	
	6.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.	-
	6.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.	-
	6.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.	-
	6.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.	-
	6.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.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.	-
	6.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 $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	
	6.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.	-
	6.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 and Probability	6.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.	-
	6.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.	-
	6.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.	-
	6.SP.B.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	-
	6.SP.B.5	Summarize numerical data sets in relation to their context, such as by:	-

	6.SP.B.5.A	Reporting the number of observations.	-
	6.SP.B.5.B	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	-
	6.SP.B.5.C	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.	-
	6.SP.B.5.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.	

Grade 7

Cluster	Indicator	Indicator Statement	Addressed
Ratios and Proportional Relationships	7.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 $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.	-
	7.RP.A.2	Recognize and represent proportional relationships between quantities.	-
	7.RP.A.2.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.	
	7.RP.A.2.B	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	
	7.RP.A.2.C	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 $t = pn$.	
	7.RP.A.2.D	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.	
	7.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.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.	-
	7.NS.A.1.A	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.	
	7.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.	
	7.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.	
	7.NS.A.1.D	Apply properties of operations as strategies to add and subtract rational numbers.	
	7.NS.A.2	Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	
	7.NS.A.2.A	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.	
	7.NS.A.2.B	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.	
	7.NS.A.2.C	Apply properties of operations as strategies to multiply and divide rational numbers.	
	7.NS.A.2.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.	
	7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers.	-

Expressions and Equations	7.EE.A.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	-
	7.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.”	-
	7.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 $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ 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.	-
	7.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.	-
	7.EE.B.4.A	<i>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?</i>	
	7.EE.B.4.B	<i>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.</i>	
Geometry	7.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.	
	7.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.	
	7.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.	
	7.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.	-
	7.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.	-
	7.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 and Probability	7.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.	
	7.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.	
	7.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.	
	7.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.	
	7.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.	-
	7.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.	
	7.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.	
	7.SP.C.7.A	<i>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.</i>	
	7.SP.C.7.B	<i>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?</i>	
	7.SP.C.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	
	7.SP.C.8.A	<i>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.</i>	
	7.SP.C.8.B	<i>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.</i>	
	7.SP.C.8.C	<i>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?</i>	

Grade 8

Cluster	Indicator	Indicator Statement	Addressed
The Number System	8.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.	
	8.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 $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.	
Expressions and Equations	8.EE.A.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $32 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.	
	8.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 $\sqrt{2}$ is irrational.	
	8.EE.A.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. For example, estimate the population of the United States as 3×10^8 and the population of the world as 7×10^9 , and determine that the world population is more than 20 times larger.	
	8.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.	
	8.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.	-
	8.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 .	
	8.EE.C.7	Solve linear equations in one variable.	
	8.EE.C.7.A	<i>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).</i>	
	8.EE.C.7.B	<i>Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</i>	
	8.EE.C.8	Analyze and solve pairs of simultaneous linear equations.	
	8.EE.C.8.A	<i>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.</i>	
	8.EE.C.8.B	<i>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.</i>	
	8.EE.C.8.C	<i>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.</i>	
Functions	8.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	-
	8.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.	
	8.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.	
	8.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.	
	8.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.	
Geometry	8.G.A.1	Verify experimentally the properties of rotations, reflections, and translations:	-
	8.G.A.1.A	<i>Lines are taken to lines, and line segments to line segments of the same length.</i>	
	8.G.A.1.B	<i>Angles are taken to angles of the same measure.</i>	
	8.G.A.1.C	<i>Parallel lines are taken to parallel lines.</i>	
	8.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.	-
	8.G.A.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	
	8.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.	
	8.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.	
	8.G.B.6	Explain a proof of the Pythagorean Theorem and its converse.	
	8.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.	-
	8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	-
Statistics and Probability	8.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.	
	8.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.	
	8.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.	
	8.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?	
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Next Generation Science Standards Alignment

Performance Expectations



CHALLENGE

Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of FIRST® LEGO® League Challenge either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Grade 4

Cluster	Indicator	Indicator Statement	Addressed
Energy	4-PS3-1	Use evidence to construct an explanation relating the speed of an object to the energy of that object.	-
	4-PS3-2	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	
	4-PS3-3	Ask questions and predict outcomes about the changes in energy that occur when objects collide.	-
	4-PS3-4	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	-
Waves and Their Applications in Technologies for Information Transfer	4-PS4-1	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	
	4-PS4-2	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	
	4-PS4-3	Generate and compare multiple solutions that use patterns to transfer information.	
From Molecules to Organisms: Structures and Processes	4-LS1-1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	
	4-LS1-2	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.	
Earth's Place in the Universe	4-ESS1-1	Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	
Earth's Systems	4-ESS2-1	Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.	
	4-ESS2-2	Analyze and interpret data from maps to describe patterns of Earth's features.	
Earth and Human Activity	4-ESS3-1	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	-
	4-ESS3-2	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	-

Grade 5

Cluster	Indicator	Indicator Statement	Addressed
Matter and Its Interactions	5-PS1-1	Develop a model to describe that matter is made of particles too small to be seen.	
	5-PS1-2	Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.	

	5-PS1-3	Make observations and measurements to identify materials based on their properties.	
	5-PS1-4	Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	
Motion and Stability: Forces and Interactions	5-PS2-1	Support an argument that the gravitational force exerted by Earth on objects is directed down.	-
Energy	5-PS3-1	Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	
From Molecules to Organisms: Structures and Processes	5-LS1-1	Support an argument that plants get the materials they need for growth chiefly from air and water.	
Ecosystems: Interactions, Energy, and Dynamics	5-LS2-1	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	
Earth's Place in the Universe	5-ESS1-1	Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	
Earth's Systems	5-ESS2-1	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	
	5-ESS2-2	Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	
Earth and Human Activity	5-ESS3-1	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	-

Grade 3-5

Cluster	Indicator	Indicator Statement	Addressed
Engineering Design	3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	•
	3-5 ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	•
	3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	-

Grade 6-8

Cluster	Indicator	Indicator Statement	Addressed
Motion and Stability: Forces and Interactions	MS-PS2-1	Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.	-
	MS-PS2-2	Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	-
	MS-PS2-3	Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.	
	MS-PS2-4	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.	
	MS-PS2-5	Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	
Energy	MS-PS3-1	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.	-

	MS-PS3-2	Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.	
	MS-PS3-3	Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.	
	MS-PS3-4	Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.	
	MS-PS3-5	Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	-
Engineering Design	MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	-
	MS-ETS1-2	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.	-
	MS-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	-
	MS-ETS1-4	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	-
<i>Only Middle School science standards that could be addressed are listed in this table instead of the full standard listing.</i>			

21st Century Skills Alignment

Student Outcomes

Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of <i>FIRST</i> ® LEGO® League Challenge either by actions that the coach or teacher takes when working with the students or by conditions established by the program.



CHALLENGE

Core Subjects

Cluster	Indicator Statement	Addressed
Global Awareness	Using 21st century skills to understand and address global issues	•
	Learning from and working collaboratively with individuals representing diverse cultures, religions and lifestyles in a spirit of mutual respect and open dialogue in personal, work and community contexts	•
	Understanding other nations and cultures, including the use of non-English languages	-
Financial, economic, business and entrepreneurial literacy	Knowing how to make appropriate personal economic choices	-
	Understanding the role of the economy in society	-
	Using entrepreneurial skills to enhance workplace productivity and career options	-
Civic literacy	Participating effectively in civic life through knowing how to stay informed and understanding governmental processes	•
	Exercising the rights and obligations of citizenship at local, state, national and global levels	-
	Understanding the local and global implications of civic decisions	•
Health literacy	Obtaining, interpreting and understanding basic health information and services and using such information and services in ways that are health enhancing	-
	Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction	-
	Using available information to make appropriate health-related decisions	-
	Establishing and monitoring personal and family health goals	-
	Understanding national and international public health and safety issues	-
Environmental literacy	Demonstrate knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water and ecosystems	-
	Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)	-
	Investigate and analyze environmental issues, and make accurate conclusions about effective solutions	-
	Take individual and collective action towards addressing environmental Challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)	-

Learning and Innovation Skills

Cluster	Indicator Statement	Addressed
Creativity and Innovation	Use a wide range of idea creation techniques (such as brainstorming)	•
	Create new and worthwhile ideas (both incremental and radical concepts)	•
	Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts	•

	Develop, implement and communicate new ideas to others effectively	●
	Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work	●
	Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas	●
	View failure as an opportunity to learn; understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes	●
	Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur	-
Critical Thinking and Problem Solving	Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation	●
	Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems	●
	Effectively analyze and evaluate evidence, arguments, claims and beliefs	●
	Analyze and evaluate major alternative points of view	●
	Synthesize and make connections between information and arguments	●
	Interpret information and draw conclusions based on the best analysis	●
	Reflect critically on learning experiences and processes	●
	Solve different kinds of non-familiar problems in both conventional and innovative ways	●
	Identify and ask significant questions that clarify various points of view and lead to better solutions	●
Communication and Collaboration	Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●
	Listen effectively to decipher meaning, including knowledge, values, attitudes and intentions	●
	Use communication for a range of purposes (e.g. to inform, instruct, motivate and persuade)	●
	Utilize multiple media and technologies, and know how to judge their effectiveness a priority as well as assess their impact	-
	Communicate effectively in diverse environments (including multi-lingual)	-
	Demonstrate ability to work effectively and respectfully with diverse teams	●
	Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal	●
	Assume shared responsibility for collaborative work, and value the individual contributions made by each team member	●
	Articulate thoughts and ideas effectively using oral, written and nonverbal communication skills in a variety of forms and contexts	●

Information, Media and Technology Skills

Cluster	Indicator Statement	Addressed
Information Literacy	Access information efficiently (time) and effectively (sources)	●
	Evaluate information critically and competently	●
	Use information accurately and creatively for the issue or problem at hand	●
	Manage the flow of information from a wide variety of sources	●
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information	-
Media Literacy	Understand both how and why media messages are constructed, and for what purposes	-
	Examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors	-
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media	-
	Understand and utilize the most appropriate media creation tools, characteristics and conventions	-
	Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments	-

ICT Literacy	Use technology as a tool to research, organize, evaluate and communicate information	●
	Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy	-
	Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies	-

Life and Career Skills

Cluster	Indicator Statement	Addressed
Flexibility and Adaptability	Adapt to varied roles, jobs responsibilities, schedules and context	●
	Work effectively in a climate of ambiguity and changing priorities	●
	Incorporate feedback effectively	●
	Deal positively with praise, setbacks and criticism	●
	Understand, negotiate and balance diverse views and beliefs to reach workable solutions, particularly in multi-cultural environments	●
Initiative and Self-Direction	Set goals with tangible and intangible success criteria	●
	Balance tactical (short-term) and strategic (long-term) goals	●
	Utilize time and manage workload efficiently	●
	Monitor, define, prioritize and complete tasks without direct oversight	●
	Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise	●
	Demonstrate initiative to advance skill levels towards a professional level	-
	Demonstrate commitment to learning as a lifelong process	●
	Reflect critically on past experiences in order to inform future progress	●
Social and Cross-Cultural Skills	Know when it is appropriate to listen and when to speak	●
	Conduct themselves in a respectable, professional manner	●
	Respect cultural differences and work effectively with people from a range of social and cultural backgrounds	●
	Respond open-mindedly to different ideas and values	●
	Leverage social and cultural differences to create new ideas and increase both innovation and quality of work	●
Productivity and Accountability	Set and meet goals, even in the face of obstacles and competing pressure	●
	Prioritize, plan and manage work to achieve the intended result	●
	Demonstrate additional attributes associated with producing high quality products including the abilities to:	●
	<div> <ul style="list-style-type: none"> - Work positively and ethically - Manage time and projects effectively - Multi-task - Participate actively, as well as be reliable and punctual </div> <div> <ul style="list-style-type: none"> - Present oneself professionally and with proper etiquette - Collaborate and cooperate effectively with teams - Respect and appreciate team diversity - Be accountable for results </div>	
Leadership and Responsibility	Use interpersonal and problem-solving skills to influence and guide others toward a goal	●
	Leverage strengths of others to accomplish a common goal	●
	Inspire others to reach their very best via example and selflessness	●
	Demonstrate integrity and ethical behavior in using influence and power	●
	Act responsibly with the interests of the larger community in mind	●

Computer Science Standards Alignment

Standards



CHALLENGE

Legend

•	The standard is clearly addressed by program activities.
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Grades 3-5

Cluster	Indicator	Indicator Statement	Addressed
Computing Systems	1B-CS-01	Describe how internal and external parts of computing devices function to form a system.	-
	1B-CS-02	Model how computer hardware and software work together as a system to accomplish tasks.	-
	1B-CS-03	Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.	-
Networks & the Internet	1B-NI-04	Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination.	-
	1B-NI-05	Discuss real-world cybersecurity problems and how personal information can be protected.	-
Data & Analysis	1B-DA-06	Organize and present collected data visually to highlight relationships and support a claim.	•
	1B-DA-07	Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.	•
Algorithms & Programming	1B-AP-08	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.	•
	1B-AP-09	Create programs that use variables to store and modify data.	-
	1B-AP-10	Create programs that include sequences, events, loops, and conditionals.	•
	1B-AP-11	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.	•
	1B-AP-12	Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.	-
	1B-AP-13	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.	•
	1B-AP-14	Observe intellectual property rights and give appropriate attribution when creating or remixing programs.	-
	1B-AP-15	Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.	•
	1B-AP-16	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.	•
	1B-AP-17	Describe choices made during program development using code comments, presentations, and demonstrations.	•
Impacts of Computing	1B-IC-18	Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices.	-
	1B-IC-19	Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.	-
	1B-IC-20	Seek diverse perspectives for the purpose of improving computational artifacts.	-

	1B-IC-21	Use public domain or creative commons media, and refrain from copying or using material created by others without permission.	-
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Grades 6-8

Cluster	Indicator	Indicator Statement	Addressed
Computing Systems	2-CS-01	Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.	-
	2-CS-02	Design projects that combine hardware and software components to collect and exchange data.	-
	2-CS-03	Systematically identify and fix problems with computing devices and their components.	-
Networks & the Internet	2-NI-04	Model the role of protocols in transmitting data across networks and the Internet.	-
	2-NI-05	Explain how physical and digital security measures protect electronic information.	-
	2-NI-06	Apply multiple methods of encryption to model the secure transmission of information.	-
Data & Analysis	2-DA-07	Represent data using multiple encoding schemes.	-
	2-DA-08	Collect data using computational tools and transform the data to make it more useful and reliable.	-
	2-DA-09	Refine computational models based on the data they have generated.	-
Algorithms & Programming	2-AP-10	Use flowcharts and/or pseudocode to address complex problems as algorithms.	●
	2-AP-11	Create clearly named variables that represent different data types and perform operations on their values.	-
	2-AP-12	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.	-●
	2-AP-13	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.	●
	2-AP-14	Create procedures with parameters to organize code and make it easier to reuse.	●
	2-AP-15	Seek and incorporate feedback from team members and users to refine a solution that meets user needs.	●
	2-AP-16	Incorporate existing code, media, and libraries into original programs, and give attribution.	-
	2-AP-17	Systematically test and refine programs using a range of test cases.	●
	2-AP-18	Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.	●
	2-AP-19	Document programs in order to make them easier to follow, test, and debug.	●
Impacts of Computing	2-IC-20	Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.	-
	2-IC-21	Discuss issues of bias and accessibility in the design of existing technologies.	-
	2-IC-22	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.	-
	2-IC-23	Describe tradeoffs between allowing information to be public and keeping information private and secure.	-

ISTE Standards Alignment

Student Standards



CHALLENGE

Legend

•	The standard is clearly addressed by program activities.
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All Grades

Cluster	Indicator	Indicator Statement	Addressed
Empowered Learner	1	Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.	•
	1a	Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.	•
	1b	Students build networks and customize their learning environments in ways that support the learning process.	
	1c	Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.	-
	1d	Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.	-
Digital Citizen	2	Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.	-
	2a	Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.	
	2b	Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.	-
	2c	Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.	-
	2d	Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.	-
Knowledge Constructor	3	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.	•
	3a	Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.	•
	3b	Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.	-
	3c	Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.	•
	3d	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.	•
Innovative Designer	4	Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.	•
	4a	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.	•
	4b	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.	-
	4c	Students develop, test and refine prototypes as part of a cyclical design process.	-
	4d	Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.	•

Computational Thinker	5	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.	●
	5a	<i>Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.</i>	-
	5b	<i>Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.</i>	-
	5c	<i>Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.</i>	●
	5d	<i>Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.</i>	●
Creative Communicator	6	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.	●
	6a	<i>Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.</i>	●
	6b	<i>Students create original works or responsibly repurpose or remix digital resources into new creations.</i>	●
	6c	<i>Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.</i>	-
	6d	<i>Students publish or present content that customizes the message and medium for their intended audiences.</i>	●
Global Collaborator	7	Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.	●
	7a	<i>Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.</i>	-
	7b	<i>Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.</i>	●
	7c	<i>Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.</i>	●
	7d	<i>Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.</i>	-

ITEEA Standards Alignment

Student Standards



Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of FIRST® LEGO® League Challenge either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Grades 3-5

Cluster	Indicator	Indicator Statement	Addressed
The Nature of Technology	1	Students will develop an understanding of the characteristics and scope of technology.	•
	C	<i>Things that are found in nature differ from things that are human-made in how they are produced and used.</i>	-
	D	<i>Tools, materials, and skills are used to make things and carry out tasks.</i>	-
	E	<i>Creative thinking and economic and cultural influences shape technological development.</i>	-
	2	Students will develop an understanding of the core concepts of technology.	•
	F	<i>A subsystem is a system that operates as a part of another system.</i>	-
	G	<i>When parts of a system are missing, it may not work as planned.</i>	-
	H	<i>Resources are the things needed to get a job done, such as tools and machines, materials, information, energy, people, capital, and time.</i>	-
	I	<i>Tools are used to design, make, use, and assess technology.</i>	-
	J	<i>Materials have many different properties.</i>	-
	K	<i>Tools and machines extend human capabilities, such as holding, lifting, carrying, fastening, separating, and computing.</i>	•
	L	<i>Requirements are the limits to designing or making a product or system.</i>	•
	3	Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.	•
	B	<i>Technologies are often combined.</i>	•
	C	<i>Various relationships exist between technology and other fields of study.</i>	-
Technology and Society	4	Students will develop an understanding of the cultural, social, economic, and political effects of technology.	•
	B	<i>When using technology, results can be good or bad.</i>	•
	C	<i>The use of technology can have unintended consequences.</i>	•
	5	Students will develop an understanding of the effects of technology on the environment.	-
	B	<i>Waste must be appropriately recycled or disposed of to prevent unnecessary harm to the environment.</i>	-
	C	<i>The use of technology affects the environment in good and bad ways.</i>	-
	6	Students will develop an understanding of the role of society in the development and use of technology.	•
	B	<i>Because people's needs and wants change, new technologies are developed, and old ones are improved to meet those changes.</i>	-
	C	<i>Individual, family, community, and economic concerns may expand or limit the development of technologies.</i>	-
	7	Students will develop an understanding of the influence of technology on history.	-
	B	<i>People have made tools to provide food, to make clothing, and to protect themselves.</i>	-
Design	8	Students will develop an understanding of the attributes of design.	•
	C	<i>The design process is a purposeful method of planning practical solutions to problems.</i>	•
	D	<i>Requirements for a design include such factors as the desired elements and features of a product or system or the limits that are placed on the design.</i>	•
	9	Students will develop an understanding of engineering design.	•

	C	The engineering design process involves defining a problem, generating ideas, selecting a solution, testing the solution(s), [making, evaluating, and presenting].	●
	D	When designing an object it is important to be creative and consider all ideas.	●
	E	Models are used to communicate & test design ideas & processes.	●
	10	Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.	●
	C	Troubleshooting is a way of finding out why something does not work so that it can be fixed.	●
	D	Invention and innovation are creative ways to turn ideas into real things.	●
	E	The process of experimentation, which is common in science, can also be used to solve technological problems.	●
Abilities for a Technological World	11	Students will develop abilities to apply the design process.	●
	D	Identify and collect information about everyday problems that can be solved by technology, and generate ideas and requirements for solving a problem.	●
	E	The process of designing involves presenting some possible solutions in visual form and then selecting the best solution(s)... .	-
	F	Test and evaluate the solutions for the design problem.	●
	G	Improve the design solutions.	●
	12	Students will develop abilities to use and maintain technological products and systems.	●
	D	Follow step-by-step directions to assemble a product.	●
	E	Select and safely use tools, products, and systems for specific tasks.	-
	F	Use computers to access and organize information.	●
	G	Use common symbols, such as numbers and words, to communicate key ideas.	●
	13	Students will develop abilities to assess the impact of products and systems.	●
	C	Compare, contrast and classify collected information in order to identify patterns.	-
	D	Investigate and assess the influence of a specific technology on the individual, family, community, and environment.	●
	E	Examine the trade-offs of using a product or system and decide when it could be used.	-
The Designed World	14	Students will develop an understanding of and be able to select and use medical technologies.	-
	D	Vaccines are designed to prevent diseases from developing and spreading; medicines are designed to relieve symptoms and stop diseases from developing.	-
	E	Technological advances have made it possible to create new devices, to repair or replace certain parts of the body, and to provide a means for mobility.	-
	F	Many tools & devices have been designed to help provide clues about health and to provide a safe environment.	-
	15	Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.	-
	C	Artificial ecosystems are human-made environments that are designed to function as a unit and are comprised of humans, plants, and animals.	-
	D	Most agricultural waste can be recycled.	-
	E	Many processes used in agriculture require different procedures, products or systems.	-
	16	Students will develop an understanding of and be able to select and use energy and power technologies.	-
	C	Energy comes in different forms.	-
	D	Tools, machines, products, and systems use energy in order to do work.	-
	17	Students will develop an understanding of and be able to select and use information and communication technologies.	-
	D	The processing of information through the use of technology can be used to help humans make decisions and solve problems.	-
	E	Information can be acquired & sent through a variety of technological sources, including print & electronic media.	-
	F	Communication technology is the transfer of messages among people and/or machines over distances through the use of technology.	-
	G	Letters, characters, icons, and signs are symbols that represent ideas, quantities, elements and operations.	-
	18	Students will develop an understanding of and be able to select and use transportation technologies.	-

	D	<i>The use of transportation allows people and goods to be moved from place to place.</i>	-
	E	<i>A transportation system may lose efficiency/fail if a part is missing/malfunctioning or a subsystem isn't working.</i>	-
	19	Students will develop an understanding of and be able to select and use manufacturing technologies.	-
	C	<i>Processing systems convert natural materials into products.</i>	-
	D	<i>Manufacturing processes include designing products, gathering resources, and using tools to separate, form, and combine materials in order to produce products.</i>	-
	E	<i>Manufacturing enterprises exist because of a consumption of goods.</i>	-
	20	Students will develop an understanding of and be able to select and use construction technologies.	-
	C	<i>Modern communities are usually planned according to guidelines.</i>	-
	D	<i>Structures need to be maintained.</i>	-
	E	<i>Many systems are used in buildings.</i>	-

Grades 6-8

Cluster	Indicator	Indicator Statement	Addressed
The Nature of Technology	1	Students will develop an understanding of the characteristics and scope of technology.	●
	F	<i>New products and systems can be developed to solve problems or to help do things that could not be done without the help of technology.</i>	●
	G	<i>The development of technology is a human activity and is the result of individual or collective needs and the ability to be creative.</i>	●
	H	<i>Technology is closely linked to creativity, which has resulted in innovation.</i>	●
	I	<i>Corporations can often create demand for a product by bringing it onto the market and advertising it.</i>	-
	2	Students will develop an understanding of the core concepts of technology.	●
	M	<i>Technological systems include input, processes, output, and at times, feedback.</i>	●
	N	<i>Systems thinking involves considering how every part relates to others.</i>	-
	O	<i>An open-loop system has no feedback path and requires human intervention, while a closed-loop system uses feedback.</i>	-
	P	<i>Technological systems can be connected to one another.</i>	-
	Q	<i>Malfunctions of any part of a system may affect the function and quality of the system.</i>	-
	R	<i>Requirements are the parameters placed on the development of a product or system.</i>	●
	S	<i>Trade-off is a decision process recognizing the need for careful compromises among competing factors.</i>	●
	T	<i>Different technologies involve different sets of processes.</i>	-
	U	<i>Maintenance is the process of inspecting and servicing a product or system on a regular basis in order for it to continue functioning properly, to extend its life, or to upgrade its quality.</i>	-
	V	<i>Controls are mechanisms or particular steps that people perform using information about the system that causes systems to change.</i>	-
	3	Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.	●
	D	<i>Technological systems often interact with one another.</i>	●
	E	<i>A product, system, or environment developed for one setting may be applied to another setting.</i>	-
	F	<i>Knowledge gained from other fields of study has a direct effect on the development of technological products and systems.</i>	-
Technology and Society	4	Students will develop an understanding of the cultural, social, economic, and political effects of technology.	●
	D	<i>The use of technology affects humans in various ways, including their safety, comfort, choices, and attitudes about technology's development and use.</i>	-
	E	<i>Technology, by itself, is neither good nor bad, but decisions about the use of products and systems can result in desirable or undesirable consequences.</i>	●
	F	<i>The development and use of technology poses ethical issues.</i>	-
	G	<i>Economic, political, and cultural issues are influenced by the development and use of technology.</i>	-
	5	Students will develop an understanding of the effects of technology on the environment.	-
	D	<i>The management of waste produced by technological systems is an important societal issue.</i>	-
	E	<i>Technologies can be used to repair damage caused by natural disasters and to break down waste from the use of various products and systems.</i>	-

	F	Decisions to develop and use technologies often put environmental and economic concerns in direct competition with one another.	-
	6	Students will develop an understanding of the role of society in the development and use of technology.	●
	D	Throughout history, new technologies have resulted from the demands, values, and interests of individuals, businesses, industries, and societies.	-
	E	The use of inventions and innovations has led to changes in society and the creation of new needs and wants.	●
	F	Social and cultural priorities and values are reflected in technological devices.	-
	G	Meeting societal expectations is the driving force behind the acceptance and use of products and systems.	-
	7	Students will develop an understanding of the influence of technology on history.	-
	C	Many inventions and innovations have evolved using slow and methodical processes of tests and refinements.	-
	D	The specialization of function has been at the heart of many technological improvements.	-
	E	The design and construction of structures for service or convenience have evolved from the development of techniques for measurement, controlling systems, and the understanding of spatial relationships.	-
	F	In the past, an invention or innovation was not usually developed with the knowledge of science.	-
Design	8	Students will develop an understanding of the attributes of design.	●
	E	Design is a creative planning process that leads to useful products and systems.	●
	F	There is no perfect design.	-
	G	Requirements for design are made up of criteria and constraints.	●
	9	Students will develop an understanding of engineering design.	●
	F	Design involves a set of steps, which can be performed in different sequences and repeated as needed.	●
	G	Brainstorming is a group problem-solving design process in which each person in the group presents his or her ideas in an open forum.	●
	H	Modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.	●
	10	Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.	●
	F	Troubleshooting is a problem-solving method used to identify the cause of a malfunction in a technological system.	●
	G	Invention is a process of turning ideas and imagination into devices and systems. Innovation is the process of modifying an existing product or system to improve it.	●
	H	Some technological problems are best solved through experimentation.	●
Abilities for a Technological World	11	Students will develop abilities to apply the design process.	●
	H	Apply a design process to solve problems in and beyond the laboratory- classroom.	●
	I	Specify criteria and constraints for the design.	●
	J	Make two-dimensional and three-dimensional representations of the designed solution.	●
	K	Test and evaluate the design in relation to pre-established requirements, such as criteria and constraints, and refine as needed.	●
	L	Make a product or system and document the solution.	●
	12	Students will develop abilities to use and maintain technological products and systems.	●
	H	Use information provided in manuals, protocols, or by experienced people to see and understand how things work.	-
	I	Use tools, materials, and machines safely to diagnose, adjust, and repair systems.	-
	J	Use computers and calculators in various applications.	●
	K	Operate and maintain systems in order to achieve a given purpose.	●
	13	Students will develop abilities to assess the impact of products and systems.	●
	F	Design and use instruments to gather data.	-
	G	Use data collected to analyze and interpret trends in order to identify the positive and negative effects of a technology.	-
	H	Identify trends and monitor potential consequences of technological development.	-
	I	Interpret and evaluate the accuracy of the information obtained and determine if it is useful.	-

The Designed World	14	Students will develop an understanding of and be able to select and use medical technologies.	-
	G	<i>Advances and innovations in medical technologies are used to improve health care.</i>	-
	H	<i>Sanitation processes used in the disposal of medical products help to protect people from harmful organisms and disease, and shape the ethics of medical safety.</i>	-
	I	<i>The vaccines developed for use in immunization require specialized technologies to support environments in which sufficient amounts of vaccines are produced.</i>	-
	J	<i>Genetic engineering involves modifying the structure of DNA to produce novel genetic make-ups.</i>	-
	15	Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.	-
	F	<i>Technological advances in agriculture directly affect the time and number of people required to produce food for a large population.</i>	-
	G	<i>A wide range of specialized equipment and practices is used to improve the production of food, fiber, fuel, and other useful products and in the care of animals.</i>	-
	H	<i>Biotechnology applies the principles of biology to create commercial products or processes.</i>	-
	I	<i>Artificial ecosystems are humanmade complexes that replicate some aspects of the natural environment.</i>	-
	J	<i>The development of refrigeration, freezing, dehydration, preservation, and irradiation provide long-term storage of food and reduce the health risks caused by tainted food.</i>	-
	16	Students will develop an understanding of and be able to select and use energy and power technologies.	-
	E	<i>Energy is the capacity to do work.</i>	-
	F	<i>Energy can be used to do work, using many processes.</i>	-
	G	<i>Power is the rate at which energy is converted from one form to another or transferred from one place to another, or the rate at which work is done.</i>	-
	H	<i>Power systems are used to drive and provide propulsion to other technological products and systems.</i>	-
	I	<i>Much of the energy used in our environment is not used efficiently.</i>	-
	17	Students will develop an understanding of and be able to select and use information and communication technologies.	-
	H	<i>Information and communication systems allow information to be transferred from human to human, human to machine, and machine to human.</i>	-
	I	<i>Communication systems are made up of a source, encoder, transmitter, receiver, decoder, and destination.</i>	-
	J	<i>The design of a message is influenced by such factors as the intended audience, medium, purpose, and nature of the message.</i>	-
	K	<i>The use of symbols, measurements, and drawings promotes a clear communication by providing a common language to express ideas.</i>	-
	18	Students will develop an understanding of and be able to select and use transportation technologies.	-
	F	<i>Transporting people and good involves a combination of individuals and vehicles.</i>	-
	G	<i>Transportation vehicles are made up of subsystems, such as structural propulsion, suspension, guidance, control, and support, that must function together for a system to work effectively.</i>	-
	H	<i>Governmental regulations often influence the design and operation of transportation systems.</i>	-
	I	<i>Processes, such as receiving, holding, storing, loading, moving, unloading, delivering, evaluating, marketing, managing, communicating, and using conventions are necessary for the entire transportation system to operate efficiently.</i>	-
	19	Students will develop an understanding of and be able to select and use manufacturing technologies.	-
	F	<i>Manufacturing systems use mechanical processes that change the form of materials through the processes of separating, forming, combining, and conditioning.</i>	-
	G	<i>Manufactured goods may be classified as durable and nondurable.</i>	-
	H	<i>The manufacturing process includes the designing, development, making, and servicing of products and systems.</i>	-
	I	<i>Chemical technologies are used to modify or alter chemical substances.</i>	-
	J	<i>Materials must first be located before they can be extracted from the earth through such processes as harvesting, drilling, and mining.</i>	-
	K	<i>Marketing a product involves informing the public about it as well as assisting in selling and distributing it.</i>	-

	20	Students will develop an understanding of and be able to select and use construction technologies.	-
	<i>F</i>	<i>The selection of designs for structures is based on factors such as building laws and codes, style, convenience, cost, climate, and function.</i>	-
	<i>G</i>	<i>Structures rest on a foundation.</i>	-
	<i>H</i>	<i>Some structures are temporary, while others are permanent.</i>	-
	<i>I</i>	<i>Buildings generally contain a variety of subsystems.</i>	-

Social and Emotional Learning Standards Alignment

Student Standards

This alignment covers the CASEL Core SEL Competencies and the Ohio K-12 Social and Emotional Learning Standards. The Ohio standards were used because they provided grade level learning standards aligned to the CASEL core competencies.



CHALLENGE

Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of FIRST® LEGO® League Challenge either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Grades 3-5

Cluster	Indicator	Indicator Statement	Addressed
Self-Awareness	A1	Demonstrate an awareness of personal emotions	-
	A1. 1.b	Identify a range of personal emotions	-
	A1. 2.b	Identify that emotions are valid, even if others feel differently	-
	A1. 3.b	Consider when it is necessary to process emotions in a safe place, independently or with the guidance of a trusted adult	-
	A1. 4.b	Describe how current events trigger emotions	-
	A2	Demonstrate awareness of personal interests and qualities, including strengths and challenges	•
	A2. 1.b	Identify personal strengths based on interests and qualities	-
	A2. 2.b	Demonstrate a skill or talent that builds on personal strengths	•
	A3	Demonstrate awareness of and willingness to seek help for self or others	•
	A3. 1.b	Describe how a trusted adult can provide academic, social or emotional support or assistance for self and others	•
	A3. 2.b	Seek help and acknowledge constructive feedback from others that addresses challenges and builds on strengths	•
	A3. 3.b	Utilize strategies that support safe practices for self and others	-
	A4	Demonstrate a sense of personal responsibility, confidence and advocacy	•
	A4. 1.b	Identify and describe how personal choices and behavior impacts self and others	-
	A4. 2.b	Demonstrate confidence in the ability to complete a range of tasks and address challenges while expressing positive attitudes towards self	•
	A4. 3.b	Identify ways to respectfully advocate for academic and personal needs	•
Self-Management	B1	Regulate emotions and behaviors by using thinking strategies that are consistent with brain development	-
	B1. 1.b	Demonstrate strategies to express a range of emotions within the expectations of the setting	-
	B1. 2.b	Describe possible outcomes associated with verbal and nonverbal expression of emotions in different settings	-
	B1. 3.b	Apply strategies to regulate emotions and manage behaviors	-
	B2	Set, monitor, adapt and evaluate goals to achieve success in school and life	•
	B2. 1.b	Identify goals for academic success and personal growth	•
	B2. 2.b	Identify school, family and community resources, with adult support, that may assist in achieving a goal	•
	B2. 3.b	Plan steps needed to reach a short-term goal	•
	B2. 4.b	Identify alternative strategies with guidance toward a specified goal	-
	B3	Persevere through challenges and setbacks in school and life	•
	B3. 1.b	Identify strategies for persevering through challenges and setbacks	•
	B3. 2.b	Identify the cause of a challenge or setback and with assistance, develop a plan of action	-

Social Awareness	C1	Recognize, identify and empathize with the feelings and perspective of others	●
	C1. 1.b	Identify verbal and nonverbal cues representing feelings in others	-
	C1. 2.b	Identify and acknowledge others' viewpoints, knowing that both sides do not have to agree but can still be respectful	●
	C1. 3.b	Demonstrate empathetic reactions in response to others' feelings and emotions	-
	C2	Demonstrate consideration for and contribute to the well-being of the school, community and world	●
	C2. 1.b	Identify reasons for making positive contributions to the school and community	●
	C2. 2.b	Demonstrate citizenship in the classroom and school community	●
	C2. 3.b	Perform activities that contribute to classroom, school, home and broader community	●
	C2. 4.b	Identify areas of improvement for school or home and develop an action plan to address these areas	-
	C3	Demonstrate an awareness and respect for human dignity, including the similarities and differences of all people, groups and cultures	●
	C3. 1.b	Discuss positive and negative opinions people may have about other people or groups, even if they aren't always true	-
	C3. 2.b	Participate in cross-cultural activities and acknowledge that individual and group differences may complement each other	-
	C3. 3.b	Define and practice civility and respect virtually and in-person	●
	C4	Read social cues and respond constructively	●
	C4. 1.b	Identify others' reactions by tone of voice, body language and facial expressions	●
	C4. 2.b	Identify ways that norms differ among various families, cultures and social groups	-
	C4. 3.b	Recognize that individuals' needs for privacy and boundaries differ and respect those differences	●
Relationship Skills	D1	Apply positive verbal and non-verbal communication and social skills to interact effectively with others and in groups	●
	D1. 1.b	Apply active listening and effective communication skills to increase cooperation and relationships	●
	D1. 2.b	Demonstrate the ability to give and receive feedback in a respectful way	●
	D1. 3.b	Describe the positive and negative impact of communicating through social and digital media	-
	D2	Develop and maintain positive relationships	●
	D2. 1.b	Identify what creates a feeling of belonging in various relationships	-
	D2. 2.b	Demonstrate behaviors associated with inclusiveness in a variety of relationships	●
	D2. 3.b	Distinguish the helpful and harmful impact of peer pressure on self and others	-
	D3	Demonstrate the ability to prevent, manage and resolve interpersonal conflicts in constructive ways	●
	D3. 1.b	Identify and demonstrate personal behaviors to prevent conflict	●
	D3. 2.b	Apply conflict resolution skills to manage disagreements and maintain personal safety	-
	D3. 3.b	Generate ideas to reach a compromise and find resolution during conflict	-
Responsible Decision-Making	E1	Develop, implement and model effective decision and critical thinking skills	●
	E1. 1.b	Generate possible solutions or responses to a problem or needed decision recognizing that there may be more than one perspective	●
	E1. 2.b	Implement strategies to solve a problem	●
	E2	Identify potential outcomes to help make constructive decisions	●
	E2. 1.b	Identify factors that can make it hard to make the best decisions at home or at school	-
	E2. 2.b	Identify reliable sources of adult help in various settings	-
	E2. 3.b	Predict possible future outcomes of personal actions in various settings	-
	E3	Consider the ethical and civic impact of decisions	●
	E3. 1.b	Demonstrate the ability to respect the rights of self and others	●
	E3. 2.b	Demonstrate safe practices to guide actions	-
	E3. 3.b	Consider various perspectives and sources of information when participating in group decision-making	●
	E4	Explore and approach new situations with an open mind and curiosity while recognizing that some outcomes are not certain or comfortable	●
	E4. 1.b	Explore new opportunities to expand one's knowledge and experiences	●
	E4. 2.b	Develop and practice strategies to appropriately respond in unfamiliar situations	-
	E4. 3.b	Practice the ability to manage transitions and adapt to changing situations and responsibilities in school and life	●

Middle Grades

Cluster	Indicator	Indicator Statement	Addressed
Self-Awareness	A1	Demonstrate an awareness of personal emotions	-
	A1. 1.c	Identify, recognize and name personal complex emotions	-
	A1. 2.c	Explain that emotions may vary based on the situation, including people and places	-
	A1. 3.c	Utilize appropriate time and place to safely process emotions, independently, with a trusted adult or with peers	-
	A1. 4.c	Explain how others' responses to current events can impact emotions	-
	A2	Demonstrate awareness of personal interests and qualities, including strengths and challenges	●
	A2. 1.c	Describe how personal interests, qualities and strengths may help with decision making to accomplish personal goals	●
	A2. 2.c	Investigate a potential career path that builds on personal strengths and addresses challenges	●
	A3	Demonstrate awareness of and willingness to seek help for self or others	●
	A3. 1.c	Seek appropriate support from a trusted adult when help is needed academically, socially or emotionally	●
	A3. 2.c	Develop and implement a plan of action, based on support or constructive feedback, that addresses challenges and builds on strengths	●
	A3. 3.c	Identify and utilize appropriate processes for reporting unsafe behaviors or situations for self and others	-
	A4	Demonstrate a sense of personal responsibility, confidence and advocacy	●
	A4. 1.c	Describe how personal responsibility is linked to being accountable for one's choices and behavior	●
Self-Management	B1	Regulate emotions and behaviors by using thinking strategies that are consistent with brain development	-
	B1. 1.c	Describe the relationship between thoughts, emotions and behavior and apply strategies to regulate response	-
	B1. 2.c	Analyze positive and negative consequences of expressing emotions in different settings	-
	B1. 3.c	Apply productive self- monitoring strategies to reframe thoughts and behaviors	-
	B2	Set, monitor, adapt and evaluate goals to achieve success in school and life	●
	B2. 1.c	Recognize the importance of short and long-term goals for success in school and life	●
	B2. 2.c	Identify school, family and community resources that may assist in achieving a goal	●
	B2. 3.c	Set a short-term school or life goal with action steps to achieve success	●
	B2. 4.c	Monitor progress toward a specified goal by developing checkpoints and adjusting the plan or action steps as needed	-
	B3	Persevere through challenges and setbacks in school and life	●
	B3. 1.c	Utilize strategies for persevering through challenges and setbacks	●
	B3. 2.c	Reframe a challenge or setback into an opportunity, with assistance	-
Social Awareness	C1	Recognize, identify and empathize with the feelings and perspective of others	●
	C1. 1.c	Determine if verbal and nonverbal cues correspond to the feelings expressed by others	-
	C1. 2.c	Demonstrate respect across school, community, face-to- face and virtual settings, when viewpoints or perceptions differ	●
	C1. 3.c	Demonstrate empathy through understanding of others' feelings and acknowledgement of their perspective	-
	C2	Demonstrate consideration for and contribute to the well-being of the school, community and world	●
	C2. 1.c	Explain the importance of civic mindedness	-
	C2. 2.c	Pursue opportunities to contribute to school or the broader community	●
	C2. 3.c	Explore a school or community need and generate possible solutions	●
	C2. 4.c	Engage in an activity to improve school, home or community	●
	C3	Demonstrate an awareness and respect for human dignity, including the similarities and differences of all people, groups and cultures	●
	C3. 1.c	Discuss how positive or negative stereotypes of an individual or group can be unconscious and may lead to discrimination and prejudice	-

	C3. 2.c	Participate in cross-cultural activities and demonstrate respect for individuals from different social and cultural groups	-
	C3. 3.c	Demonstrate respect for human dignity virtually and in- person	●
	C4	Read social cues and respond constructively	●
	C4. 1.c	Generate positive responses to various social situations	●
	C4. 2.c	Recognize that social cues are based on rules and expectations and can change based upon context	-
	C4. 3.c	Recognize that personal and group needs can differ and identify positive actions to balance the needs of all	●
Relationship Skills	D1	Apply positive verbal and non-verbal communication and social skills to interact effectively with others and in groups	●
	D1. 1.c	Demonstrate the ability to actively listen and understand multiple perspectives	●
	D1. 2.c	Offer and acknowledge constructive feedback to strengthen connections and improve communication outcomes with others	●
	D1. 3.c	Interact on social and digital media responsibly and understand the potential impact on reputation and relationships	-
	D2	Develop and maintain positive relationships	●
	D2. 1.c	Participate in a healthy network of personal and school relationships	●
	D2. 2.c	Demonstrate inclusiveness in relationship building	●
	D2. 3.c	Utilize strategies to manage social pressures	-
	D3	Demonstrate the ability to prevent, manage and resolve interpersonal conflicts in constructive ways	●
	D3. 1.c	Recognize and acknowledge different perspectives of others to prevent conflict	●
	D3. 2.c	Use a non-judgmental voice during conflict resolution to maintain safe relationships	-
	D3. 3.c	Exchange ideas and negotiate solutions to resolve conflicts, seeking support when needed	-
Responsible Decision-Making	E1	Develop, implement and model effective decision and critical thinking skills	●
	E1. 1.c	Demonstrate critical thinking skills when solving problems or making decisions, recognizing there may be more than one perspective	●
	E1. 2.c	Gather evidence to support and solve academic and social challenges	●
	E2	Identify potential outcomes to help make constructive decisions	●
	E2. 1.c	Generate ideas for recognizing when something may be getting in the way of making a responsible decision and ways to possibly reduce or limit its influence	-
	E2. 2.c	Identify reliable sources of adult help in various settings and actively seek adults for support	●
	E2. 3.c	Utilize knowledge of outcomes to inform future decisions	●
	E3	Consider the ethical and civic impact of decisions	●
	E3. 1.c	Apply honesty, respect and compassion to the decision- making process	●
	E3. 2.c	Demonstrate safe practices to guide actions for self and toward others	-
	E3. 3.c	Research opportunities for participation in civic-minded activities that contribute to the larger community	●
	E4	Explore and approach new situations with an open mind and curiosity while recognizing that some outcomes are not certain or comfortable	●
	E4. 1.c	Engage in new opportunities to expand one's knowledge and experiences	●
	E4. 2.c	Recognize that new opportunities or unfamiliar situations may require productive struggle	-
	E4. 3.c	Demonstrate ability to manage transitions and adapt to changing situations and responsibilities in school and life	●