

INVENTION PROJECT® STANDARD ALIGNMENTS

RESCUE SQUAD™ ALIGNED TO COMMON CORE, NEXT GENERATION SCIENCE, AND CASEL STANDARDS

UNIT ONE: ECOSYSTEM EXPLORATIONS

NEXT GENERATION SCIENCE STANDARDS K-6

K-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

K-LS1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

- K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS3 EARTH AND HUMAN ACTIVITY

- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

2-PS1 MATTER AND ITS INTERACTIONS

- 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- 3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
- 3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

5-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- 5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.

5-ESS3 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.

3-5 ETS1 ENGINEERING DESIGN

- 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.

MS-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- 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-ETS1 ENGINEERING DESIGN

- 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

- g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

- b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.

- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

COUNTING AND CARDINALITY K.CC

Know number names and the count sequence.

- K.CC1. Count to 100 by ones and by tens.
- K.CC3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Count to tell the number of objects.

- K.CC4. Understand the relationship between numbers and quantities; connect counting to cardinality.
 - c. Understand that each successive number name refers to a quantity that is one larger.

Compare numbers.

- K.CC7. Compare two numbers between 1 and 10 presented as written numerals.

MEASUREMENT AND DATA K.MD

Describe and compare measurable attributes.

- K.MD1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- K.MD2. Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

GEOMETRY K.G

Analyze, compare, create, and compose shapes.

- K.G5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

NUMBER AND OPERATIONS IN BASE TEN 1.NBT

Extend the counting sequence.

- 1.NBT1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

MEASUREMENT AND DATA 1.MD

Represent and interpret data.

- 1.MD4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

GEOMETRY 1.G

Reason with shapes and their attributes.

- 1.G2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

NUMBER AND OPERATIONS IN BASE TEN 2.NBT

Understand place value.

- 2.NBT2. Count within 1000; skip-count by 5s, 10s, and 100s.

GEOMETRY 2.G

Reason with shapes and their attributes.

- 2.G1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

GEOMETRY 3.G

Reason with shapes and their attributes.

- 3.G1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

GEOMETRY 4.G

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

- 4.G1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

RESPONSIBLE DECISION-MAKING

- Identifying Problems
- Analyzing Situations
- Solving Problems
- Evaluating
- Reflecting

UNIT TWO: NATURE'S ENGINEERING

NEXT GENERATION SCIENCE STANDARDS K-6

K-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

K-LS1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

- K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2 EARTH'S SYSTEMS

- K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3 EARTH AND HUMAN ACTIVITY

- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

2-PS1 MATTER AND ITS INTERACTIONS

- 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

2-LS4 BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- 3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
- 3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

3-LS4 BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

- 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
- 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

4-PS3 ENERGY

- 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.

4-LS1 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-ESS3 EARTH AND HUMAN ACTIVITY

- 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.

5-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- 5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.

5-ESS3 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.

3-5-ETS1 ENGINEERING DESIGN

- 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.

MS-PS2 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-LS2 ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS

- MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

- MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- MS-LS2-5. Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

MS-ETS1 ENGINEERING DESIGN

- 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under

discussion).

- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when

writing or speaking.

- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RH

GRADE SIX-EIGHT

- RH3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- RH4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

COUNTING AND CARDINALITY K.CC

Know number names and the count sequence.

- K.CC1. Count to 100 by ones and by tens.
- K.CC3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Count to tell the number of objects.

- K.CC4. Understand the relationship between numbers and quantities; connect counting to cardinality.
 - c. Understand that each successive number name refers to a quantity that is one larger.

Compare numbers.

- K.CC7. Compare two numbers between 1 and 10 presented as written numerals.

MEASUREMENT AND DATA K.MD

Describe and compare measurable attributes.

- K.MD1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

NUMBER AND OPERATIONS IN BASE TEN 1.NBT

Extend the counting sequence.

- 1.NBT1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

MEASUREMENT AND DATA 1.MD

Measure lengths indirectly and by iterating length units.

- 1.MD2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

Represent and interpret data.

- 1.MD4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

NUMBER AND OPERATIONS IN BASE TEN 2.NBT

Understand place value.

- 2.NBT2. Count within 1000; skip-count by 5s, 10s, and 100s.

MEASUREMENT AND DATA 2.MD

Measure and estimate lengths in standard units.

- 2.MD1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- 2.MD3. Estimate lengths using units of inches, feet, centimeters, and meters.

MEASUREMENT AND DATA 4.MD

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

- 4.MD1. 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), ...*

GEOMETRY 4.G

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

- 4.G1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

RELATIONSHIP SKILLS

- Communication
- Relationship Building
- Teamwork

UNIT THREE: LIGHTS – BIOLUMINESCENCE AND LEDS

NEXT GENERATION SCIENCE STANDARDS K-6

K-LS1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

- K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS3 EARTH AND HUMAN ACTIVITY

- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

1-PS4 WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER

- 1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.

1-LS1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

- 1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

2-PS1 MATTER AND ITS INTERACTIONS

- 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

3-LS4 BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

- 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

4-PS3 ENERGY

- 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-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

4-LS1 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.

5-LS1 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.

5-ESS3 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.

MS-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
- 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.

MS-LS1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

- MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

MS-ESS3 EARTH AND HUMAN ACTIVITY

- MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS FOR INFORMATIONAL TEXT R!

KINDERGARTEN

- RI1. With prompting and support, ask and answer questions about key details in a text.
- RI2. With prompting and support, identify the main topic and retell key details of a text.
- RI4. With prompting and support, ask and answer questions about unknown words in a text.
- RI10. Actively engage in group reading activities with purpose and understanding.

GRADE ONE

- RI1. Ask and answer questions about key details in a text.
- RI2. Identify the main topic and retell key details of a text.
- RI4. Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
- RI5. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

- RI10. With prompting and support, read informational texts appropriately complex for grade 1.

GRADE TWO

- RI1. Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
- RI4. Determine the meaning of words and phrases in a text relevant to a *grade 2 topic or subject area*.
- RI5. Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.
- RI10. By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

GRADE THREE

- RI1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RI2. Determine the main idea of a text; recount the key details and explain how they support the main idea.
- RI3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
- RI4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.
- RI5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
- RI10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2–3 text complexity band independently and proficiently.

GRADE FOUR

- RI1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- RI2. Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- RI3. 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.
- RI4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*.

- RI10. 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.

GRADE FIVE

- RI2. Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- RI3. 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.
- RI4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.
- RI10. 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.

GRADE SIX

- RI3. Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
- RI4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
- RI10. 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.

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
 - d. Recognize and name all upper- and lowercase letters of the alphabet.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (e.g., *the, of, to, you, she, my, is, are, do, does*).
- RF4. Read emergent-reader texts with purpose and understanding.

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Recognize the distinguishing features of a sentence (e.g., first word, capitalization, ending punctuation).
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

- b. Decode regularly spelled one-syllable words.
- g. Recognize and read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Decode regularly spelled two-syllable words with long vowels.
 - f. Recognize and read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Decode multisyllable words.
 - d. Read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if

something is not understood.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print many upper- and lowercase letters.
 - b. Use frequently occurring nouns and verbs.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Capitalize the first word in a sentence and the pronoun I.
 - d. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print all upper- and lowercase letters.
 - b. Use common, proper, and possessive nouns.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

- b. Use end punctuation for sentences.
- d. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - i. Produce simple, compound, and complex sentences.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Use correct capitalization.
 - d. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
 - a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - e. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
 - a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - b. Spell correctly.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
 - 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.
- L5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
 - a. Interpret figures of speech (e.g., personification) in context.
- L6. 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.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-MANAGEMENT

- Stress Management
- Self-Discipline
- Goal Setting

UNIT FOUR: WATER POLLUTION

NEXT GENERATION SCIENCE STANDARDS K-6

K-ESS2 EARTH'S SYSTEMS

- K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3 EARTH AND HUMAN ACTIVITY

- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

2-PS1 MATTER AND ITS INTERACTIONS

- 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3-LS4 BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

- 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

4-ESS3 EARTH AND HUMAN ACTIVITY

- 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.
- 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

5-ESS3 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.

3-5-ETS1 ENGINEERING DESIGN

- 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.

MS-ESS3 EARTH AND HUMAN ACTIVITY

- MS-ESS3-3. Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

MS-ETS1 ENGINEERING DESIGN

- 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-ETS1-4. 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

WRITING W

GRADE FOUR

- W4. 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.)

- W8. 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.

GRADE FIVE

- W4. 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.)
- W8. 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.

GRADE SIX

- W4. 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.)

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and*

texts with peers and adults in small and larger groups.

- a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
 - d. Explain their own ideas and understanding in light of the discussion.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
 - d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE SIX

- SL1. 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.

- b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.

- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
 - a. Interpret figurative language, including similes and metaphors, in context.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.

- L5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
 - a. Interpret figures of speech (e.g., personification) in context.
- L6. 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.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

COUNTING AND CARDINALITY K.CC

Know number names and the count sequence.

- K.CC1. Count to 100 by ones and by tens.

Count to tell the number of objects.

- K.CC4. Understand the relationship between numbers and quantities; connect counting to cardinality.
 - c. Understand that each successive number name refers to a quantity that is one larger.

NUMBER AND OPERATIONS IN BASE TEN 1.NBT

Extend the counting sequence.

- 1.NBT1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

NUMBER AND OPERATIONS IN BASE TEN 2.NBT

Understand place value.

- 2.NBT2. Count within 1000; skip-count by 5s, 10s, and 100s.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying Emotions

- Accurate Self-Perception
- Recognizing Strengths

UNIT FIVE: EARTH AND HUMAN ACTIVITY

NEXT GENERATION SCIENCE STANDARDS K-6

K-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

K-LS1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES

- K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

K-ESS2 EARTH'S SYSTEMS

- K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

K-ESS3 EARTH AND HUMAN ACTIVITY

- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
- K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

2-PS1 MATTER AND ITS INTERACTIONS

- 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

2-LS4 BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

3-PS2 MOTION AND STABILITY: FORCES AND INTERACTIONS

- 3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
- 3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

3-LS4 BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY

- 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

- 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

4-LS1 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.

5-ESS3 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.

MS-LS2 ECOSYSTEMS: INTERACTIONS, ENERGY, AND DYNAMICS

- MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS FOR LITERATURE RL

KINDERGARTEN

- RL10. Actively engage in group reading activities with purpose and understanding.

GRADE FOUR

- RL10. 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.

GRADE FIVE

- RL10. 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.

GRADE SIX

- RL10. 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 STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.

- a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (*e.g., listening to others and taking turns speaking about the topics and texts under discussion*).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- SL5. Add drawings or other visual displays to descriptions as desired to provide additional detail.
- SL6. Speak audibly and express thoughts, feelings, and ideas clearly.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.

- a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
- b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL5. Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
- SL6. Produce complete sentences when appropriate to task and situation. (See grade 1 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- SL5. Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
- SL6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - d. Explain their own ideas and understanding in light of the discussion.
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.

- SL6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 on page 28 for specific expectations.)

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
 - d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL5. Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
- SL6. 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.)

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL5. Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
- SL6. 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.)

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

- SL5. Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print many upper- and lowercase letters.
 - b. Use frequently occurring nouns and verbs.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Capitalize the first word in a sentence and the pronoun I.
 - d. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print all upper- and lowercase letters.
 - b. Use common, proper, and possessive nouns.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - b. Use end punctuation for sentences.
 - d. Use conventional spelling for words with common spelling patterns and for frequently occurring irregular words.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when

writing or speaking.

- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - i. Produce simple, compound, and complex sentences.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
 - a. Choose words and phrases for effect.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Use correct capitalization.
 - d. Spell grade-appropriate words correctly, consulting references as needed.

- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
 - a. Choose words and phrases to convey ideas precisely.
 - b. Choose punctuation for effect.
- L4. 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.
 - a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - d. Use underlining, quotation marks, or italics to indicate titles of works.
 - e. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
 - a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - b. Spell correctly.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.

- L4. 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.
 - 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.
- L5. Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
 - a. Interpret figures of speech (e.g., personification) in context.
- L6. 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.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RH

GRADE SIX-EIGHT

- RH3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- RH4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

GEOMETRY K.G

Analyze, compare, create, and compose shapes.

- K.G5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

GEOMETRY 1.G

Reason with shapes and their attributes.

- 1.G2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

GEOMETRY 2.G

Reason with shapes and their attributes.

- 2.G1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

GEOMETRY 4.G

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

- 4.G1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SOCIAL AWARENESS

- Perspective-Taking
- Empathy
- Appreciating Diversity

DESIGN THINKING PROJECT™ ALIGNED TO COMMON CORE, NEXT GENERATION SCIENCE, AND CASEL STANDARDS

UNIT ONE: DESIGNERS AND INVENTORS

NEXT GENERATION SCIENCE STANDARDS K-6

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

3-5-ETS1 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.

MS-ETS1 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - d. Read grade-appropriate irregularly spelled words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- SL4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
- SL6. Speak audibly and express thoughts, feelings, and ideas clearly.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

- SL4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL6. Produce complete sentences when appropriate to task and situation. (See grade 1 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- SL4. Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
- SL6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
- SL6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 on page 28 for specific expectations.)

GRADE FOUR

- SL1. 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.

- b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL4. 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.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL4. 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.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.
- SL4. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.

- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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.

READING STANDARDS FOR LITERACY IN HISTORY/SOCIAL STUDIES RH

GRADE SIX-EIGHT

- RH3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- RH4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

GEOMETRY K.G

Analyze, compare, create, and compose shapes.

- K.G5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

GEOMETRY 1.G

Reason with shapes and their attributes.

- 1.G2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

GEOMETRY 2.G

Reason with shapes and their attributes.

- 2.G1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

GEOMETRY 4.G

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

- 4.G1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

RELATIONSHIP SKILLS

- Communication
- Teamwork

UNIT TWO: EMPATHY AND DESIGN THINKING

NEXT GENERATION SCIENCE STANDARDS K-6

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

3-5-ETS1 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.

MS-ETS1 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS FOR LITERATURE RL

KINDERGARTEN

- RL1. With prompting and support, ask and answer questions about key details in a text.
- RL3. With prompting and support, identify characters, settings, and major events in a story.
- RL4. Ask and answer questions about unknown words in a text.
- RL10. Actively engage in group reading activities with purpose and understanding.

GRADE ONE

- RL1. Ask and answer questions about key details in a text.
- RL3. Describe characters, settings, and major events in a story, using key details.
- RL10. With prompting and support, read prose and poetry of appropriate complexity for grade 1.

GRADE TWO

- RL1. Ask and answer such questions as *who*, *what*, *where*, *when*, *why*, and *how* to demonstrate understanding of key details in a text.
- RL3. Describe how characters in a story respond to major events and challenges.
- RL10. By the end of the year, read and comprehend literature, including stories and poetry, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

GRADE THREE

- RL1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RL3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
- RL10. By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 2–3 text complexity band independently and proficiently.

GRADE FOUR

- RL1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- RL3. 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).
- RL10. 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.

GRADE FIVE

- RL10. 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.

GRADE SIX

- RL10. 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 STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

- c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).
- RF4. Read emergent-reader texts with purpose and understanding.

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - b. Decode regularly spelled one-syllable words.
 - g. Recognize and read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Decode regularly spelled two-syllable words with long vowels.
 - f. Recognize and read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Decode multisyllable words.
 - d. Read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - a. Read grade-level text with purpose and understanding.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FOUR

- SL1. 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.

- b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple

relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - i. Produce simple, compound, and complex sentences.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
 - a. Use sentence-level context as a clue to the meaning of a word or phrase.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

- a. Use correct capitalization.
- d. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
 - a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - e. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
 - a. Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - b. Spell correctly.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.

- 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.
- L6. 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.

READING STANDARDS FOR LITERACY IN HISTORY/SOCIAL STUDIES RH

GRADE SIX-EIGHT

- RH3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- RH4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

GEOMETRY K.G

Analyze, compare, create, and compose shapes.

- K.G5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

GEOMETRY 1.G

Reason with shapes and their attributes.

- 1.G2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

GEOMETRY 2.G

Reason with shapes and their attributes.

- 2.G1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons,

and cubes.

GEOMETRY 4.G

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

- 4.G1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SOCIAL AWARENESS

- Perspective-Taking
- Empathy

UNIT THREE: SCALE, DECISIONS, AND PROTOTYPES

NEXT GENERATION SCIENCE STANDARDS K-6

2-PS1 MATTER AND ITS INTERACTIONS

- *2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.*
- *2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.*

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

5-PS1 MATTER AND ITS INTERACTIONS

- 5-PS1-3. Make observations and measurements to identify materials based on their properties.

3-5-ETS1 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.

MS-ETS1 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - d. Read grade-appropriate irregularly spelled words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (*e.g., listening to others and taking turns speaking about the topics and texts under discussion*).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading,

or listening.

- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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.

READING STANDARDS FOR LITERACY IN HISTORY/SOCIAL STUDIES RH

GRADE SIX-EIGHT

- RH3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- RH4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

COUNTING AND CARDINALITY K.CC

Know number names and the count sequence.

- K.CC1. Count to 100 by ones and by tens.

MEASUREMENT AND DATA K.MD

Describe and compare measurable attributes.

- K.MD1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

- K.MD2. Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*

GEOMETRY K.G

Analyze, compare, create, and compose shapes.

- K.G5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

NUMBER AND OPERATIONS IN BASE TEN 1.NBT

Extend the counting sequence.

- 1.NBT1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

MEASUREMENT AND DATA 1.MD

Measure lengths indirectly and by iterating length units.

- 1.MD2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

GEOMETRY 1.G

Reason with shapes and their attributes.

- 1.G2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

NUMBER AND OPERATIONS IN BASE TEN 2.NBT

Understand place value.

- 2.NBT2. Count within 1000; skip-count by 5s, 10s, and 100s.

MEASUREMENT AND DATA 2.MD

Measure and estimate lengths in standard units.

- 2.MD1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- 2.MD3. Estimate lengths using units of inches, feet, centimeters, and meters.

GEOMETRY 2.G

Reason with shapes and their attributes.

- 2.G1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

GEOMETRY 4.G

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

- 4.G1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

RESPONSIBLE DECISION-MAKING

- Analyzing Situations
- Solving Problems
- Evaluating
- Reflecting

UNIT FOUR: REFLECT AND PROTECT

NEXT GENERATION SCIENCE STANDARDS K-6

2-PS1 MATTER AND ITS INTERACTIONS

- *2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.*

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3-5-ETS1 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.

MS-ETS1 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.

- a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - d. Read grade-appropriate irregularly spelled words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

WRITING W

GRADE FOUR

- W2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

GRADE FIVE

- W2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

GRADE SIX

- W2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

- a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- SL6. Speak audibly and express thoughts, feelings, and ideas clearly.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL6. Produce complete sentences when appropriate to task and situation. (See grade 1 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- SL6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).

- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 on page 28 for specific expectations.)

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print many upper- and lowercase letters.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.

- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print all upper- and lowercase letters.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- L6. Acquire and use accurately grade-appropriate conversational, general academic,

and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Use correct capitalization.
 - d. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
 - a. Choose words and phrases to convey ideas precisely.
- L4. 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.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - e. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - b. Spell correctly.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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.

READING STANDARDS FOR LITERACY IN HISTORY/SOCIAL STUDIES RH

GRADE SIX-EIGHT

- RH3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- RH4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST3. Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.
- RST4. 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*.

COMMON CORE STATE STANDARDS FOR MATHEMATICS K-6

GEOMETRY K.G

Analyze, compare, create, and compose shapes.

- K.G5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

GEOMETRY 1.G

Reason with shapes and their attributes.

- 1.G2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

GEOMETRY 2.G

Reason with shapes and their attributes.

- 2.G1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

GEOMETRY 4.G

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

- 4.G1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying Emotions
- Accurate Self-Perception
- Recognizing Strengths
- Self-Confidence

UNIT FIVE: PITCHING, LISTENING, AND DEALS

NEXT GENERATION SCIENCE STANDARDS K-6

K-2-ETS1 ENGINEERING DESIGN

- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

3-5-ETS1 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.

MS-ETS1 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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS K-6

READING STANDARDS: FOUNDATIONAL SKILLS RF

KINDERGARTEN

- RF1. Demonstrate understanding of the organization and basic features of print.
 - a. Follow words from left to right, top to bottom, and page by page.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - c. Read common high-frequency words by sight (*e.g., the, of, to, you, she, my, is, are, do, does*).

GRADE ONE

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.

GRADE TWO

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.

GRADE THREE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - d. Read grade-appropriate irregularly spelled words.

GRADE FOUR

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

GRADE FIVE

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

WRITING W

GRADE FOUR

- W2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- W4. 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.)

GRADE FIVE

- W2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- W4. 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.)

GRADE SIX

- W2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- W4. 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.)

SPEAKING AND LISTENING STANDARDS SL

KINDERGARTEN

- SL1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
 - b. Continue a conversation through multiple exchanges.
- SL2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- SL4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.

- SL5. Add drawings or other visual displays to descriptions as desired to provide additional detail.
- SL6. Speak audibly and express thoughts, feelings, and ideas clearly.

GRADE ONE

- SL1. Participate in collaborative conversations with diverse partners about *grade 1 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL5. Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
- SL6. Produce complete sentences when appropriate to task and situation. (See grade 1 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE TWO

- SL1. Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- SL4. Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
- SL5. Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
- SL6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 2 Language standards 1 and 3 on page 26 for specific expectations.)

GRADE THREE

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
- SL2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
- SL5. Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
- SL6. Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 on page 28 for specific expectations.)

GRADE FOUR

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL4. 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.
- SL5. Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

GRADE FIVE

- SL1. 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.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL4. 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.

- SL5. Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

GRADE SIX

- SL1. 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.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- SL2. 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.
- SL4. 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.
- SL5. Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.

LANGUAGE STANDARDS L

KINDERGARTEN

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print many upper- and lowercase letters.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *kindergarten reading and content*.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts.

GRADE ONE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - a. Print all upper- and lowercase letters.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 1 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., *because*).

GRADE TWO

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grade 2 reading and content*, choosing flexibly from an array of strategies.
- L6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., *When other kids are happy that makes me happy*).

GRADE THREE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on *grade 3 reading and content*, choosing flexibly from a range of strategies.
- L6. Acquire and use accurately grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and temporal relationships (e.g., *After dinner that night we went looking for them*).

GRADE FOUR

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
 - f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - a. Use correct capitalization.
 - d. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
 - a. Choose words and phrases to convey ideas precisely.
- L4. 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.
- L6. 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 FIVE

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - e. Spell grade-appropriate words correctly, consulting references as needed.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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 SIX

- L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - b. Spell correctly.
- L3. Use knowledge of language and its conventions when writing, speaking, reading, or listening.
- L4. 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.
- L6. 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.

READING STANDARDS FOR LITERACY IN HISTORY/SOCIAL STUDIES RH

GRADE SIX-EIGHT

- RH3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).
- RH4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.

READING STANDARDS FOR LITERACY IN SCIENCE AND TECHNICAL SUBJECTS RST

GRADE SIX-EIGHT

- RST4. 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*.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-MANAGEMENT

- Impulse Control
- Stress Management
- Self-Discipline
- Organizational Skills