

NATIONAL INVENTORS HALL OF FAME EDUCATION PROGRAMS® EXPLORE NATIONAL STANDARD ALIGNMENT

MARBLE ARCADE KINDERGARTEN

NEXT GENERATION SCIENCE STANDARDS

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-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.

COMMON CORE STATE STANDARDS FOR MATHEMATICS

COUNTING AND CARDINALITY K.CC

Know number names and the count sequence.

- K.CC2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
- 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).

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.

GEOMETRY K.G

Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

- K.G1. Describe objects in the environment using names of shapes, and describe the relative

positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS

READING STANDARDS FOR INFORMATIONAL TEXT RI

- RI1. With prompting and support, ask and answer questions about key details in a text.
- RI3. With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
- RI4. With prompting and support, ask and answer questions about unknown words in a text.

READING STANDARDS: FOUNDATIONAL SKILLS RF

- 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.
- RF2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.

SPEAKING AND LISTENING STANDARDS SL

- 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).
- 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.
- SL3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- SL6. Speak audibly and express thoughts, feelings, and ideas clearly.

LANGUAGE STANDARDS L

- 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.
- 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.

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying one's emotions
- Having a growth mindset
- Developing interests and a sense of purpose

SELF-MANAGEMENT

- Managing one's emotions
- Identifying and using stress-management strategies
- Setting personal and collective goals
- Using planning and organizational skills

SOCIAL AWARENESS

- Recognizing strengths in others

RELATIONSHIP SKILLS

- Communicating effectively
- Developing positive relationships
- Practicing teamwork and collaborative problem-solving
- Resolving conflicts constructively
- Seeking or offering support and help when needed

RESPONSIBLE DECISION-MAKING

- Demonstrating curiosity and open-mindedness
- Learning to make a reasoned judgment after analyzing information, data, facts
- Anticipating and evaluating the consequences of one's actions
- Recognizing how critical thinking skills are useful both inside & outside of school

GRADE ONE

NEXT GENERATION SCIENCE STANDARDS

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.

COMMON CORE STATE STANDARDS FOR MATHEMATICS

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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS

READING STANDARDS FOR INFORMATIONAL TEXT RI

- RI1. Ask and answer questions about key details in a text.
- RI3. Describe the connection between two individuals, events, ideas, or pieces of information in 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.

- RI7. Use the illustrations and details in a text to describe its key ideas.

READING STANDARDS: FOUNDATIONAL SKILLS RF

- RF1. Demonstrate understanding of the organization and basic features of print.
- RF2. Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - g. Recognize and read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SPEAKING AND LISTENING STANDARDS SL

- 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).
 - c. Ask questions to clear up any confusion about the topics and texts under discussion.
- SL2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- SL6. Produce complete sentences when appropriate to task and situation. (See grade 1 Language standards 1 and 3 on page 26 for specific expectations.)

LANGUAGE STANDARDS L

- 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.
- 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).

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying one's emotions

- Having a growth mindset
- Developing interests and a sense of purpose

SELF-MANAGEMENT

- Managing one's emotions
- Identifying and using stress-management strategies
- Setting personal and collective goals
- Using planning and organizational skills

SOCIAL AWARENESS

- Recognizing strengths in others

RELATIONSHIP SKILLS

- Communicating effectively
- Developing positive relationships
- Practicing teamwork and collaborative problem-solving
- Resolving conflicts constructively
- Seeking or offering support and help when needed

RESPONSIBLE DECISION-MAKING

- Demonstrating curiosity and open-mindedness
- Learning to make a reasoned judgment after analyzing information, data, facts
- Anticipating and evaluating the consequences of one's actions
- Recognizing how critical thinking skills are useful both inside & outside of school

GRADE TWO

NEXT GENERATION SCIENCE STANDARDS

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-ETS1-2. 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.

COMMON CORE STATE STANDARDS FOR MATHEMATICS

NUMBER AND OPERATIONS IN BASE TEN 2.NBT

Understand place value.

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

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS

READING STANDARDS FOR INFORMATIONAL TEXT RI

- RI1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- RI3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures 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.

READING STANDARDS: FOUNDATIONAL SKILLS RF

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
 - f. Recognize and read grade-appropriate irregularly spelled words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.

SPEAKING AND LISTENING STANDARDS SL

- 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).
 - c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
- SL2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- SL3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
- 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.)

LANGUAGE STANDARDS L

- 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).

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying one's emotions
- Having a growth mindset
- Developing interests and a sense of purpose

SELF-MANAGEMENT

- Managing one's emotions
- Identifying and using stress-management strategies
- Setting personal and collective goals
- Using planning and organizational skills

SOCIAL AWARENESS

- Recognizing strengths in others

RELATIONSHIP SKILLS

- Communicating effectively
- Developing positive relationships
- Practicing teamwork and collaborative problem-solving
- Resolving conflicts constructively

- Seeking or offering support and help when needed

RESPONSIBLE DECISION-MAKING

- Demonstrating curiosity and open-mindedness
- Learning to make a reasoned judgment after analyzing information, data, facts
- Anticipating and evaluating the consequences of one's actions
- Recognizing how critical thinking skills are useful both inside & outside of school

GRADE THREE

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.

3-5-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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS

READING STANDARDS FOR INFORMATIONAL TEXT RI

- 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.

- RI7. Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

READING STANDARDS: FOUNDATIONAL SKILLS RF

- 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.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SPEAKING AND LISTENING STANDARDS SL

- 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).
 - c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
- 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.
- SL3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- 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.)

LANGUAGE STANDARDS L

- 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).

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying one's emotions
- Having a growth mindset
- Developing interests and a sense of purpose

SELF-MANAGEMENT

- Managing one's emotions
- Identifying and using stress-management strategies
- Setting personal and collective goals
- Using planning and organizational skills

SOCIAL AWARENESS

- Recognizing strengths in others

RELATIONSHIP SKILLS

- Communicating effectively
- Developing positive relationships
- Practicing teamwork and collaborative problem-solving
- Resolving conflicts constructively
- Seeking or offering support and help when needed

RESPONSIBLE DECISION-MAKING

- Demonstrating curiosity and open-mindedness
- Learning to make a reasoned judgment after analyzing information, data, facts
- Anticipating and evaluating the consequences of one's actions
- Recognizing how critical thinking skills are useful both inside & outside of school

GRADE FOUR

4-PS3 ENERGY

- 4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.

- 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.
- 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

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.

COMMON CORE STATE STANDARDS FOR MATHEMATICS

MEASUREMENT AND DATA 4.MD

Geometric measurement: understand concepts of angle and measure angles.

- 4.MD5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
 - a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $1/360$ of a circle is called a “one-degree angle,” and can be used to measure angles.
- 4.MD6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

GEOMETRY

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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS

READING STANDARDS FOR INFORMATIONAL TEXT RI

- 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*.

- RI7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

READING STANDARDS: FOUNDATIONAL SKILLS RF

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SPEAKING AND LISTENING STANDARDS SL

- 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.
 - c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
 - d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
- SL2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

LANGUAGE STANDARDS L

- 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 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).

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying one's emotions

- Having a growth mindset
- Developing interests and a sense of purpose

SELF-MANAGEMENT

- Managing one's emotions
- Identifying and using stress-management strategies
- Setting personal and collective goals
- Using planning and organizational skills

SOCIAL AWARENESS

- Recognizing strengths in others

RELATIONSHIP SKILLS

- Communicating effectively
- Developing positive relationships
- Practicing teamwork and collaborative problem-solving
- Resolving conflicts constructively
- Seeking or offering support and help when needed

RESPONSIBLE DECISION-MAKING

- Demonstrating curiosity and open-mindedness
- Learning to make a reasoned judgment after analyzing information, data, facts
- Anticipating and evaluating the consequences of one's actions
- Recognizing how critical thinking skills are useful both inside & outside of school

GRADE FIVE

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.

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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS

READING STANDARDS FOR INFORMATIONAL TEXT RI

- 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*.

READING STANDARDS: FOUNDATIONAL SKILLS RF

- RF3. Know and apply grade-level phonics and word analysis skills in decoding words.
- RF4. Read with sufficient accuracy and fluency to support comprehension.
 - c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

SPEAKING AND LISTENING STANDARDS SL

- 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.
 - c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
 - d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
- SL2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

LANGUAGE STANDARDS L

- 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 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).

CASEL SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

SELF-AWARENESS

- Identifying one's emotions
- Having a growth mindset
- Developing interests and a sense of purpose

SELF-MANAGEMENT

- Managing one's emotions
- Identifying and using stress-management strategies
- Setting personal and collective goals
- Using planning and organizational skills

SOCIAL AWARENESS

- Recognizing strengths in others

RELATIONSHIP SKILLS

- Communicating effectively
- Developing positive relationships
- Practicing teamwork and collaborative problem-solving
- Resolving conflicts constructively
- Seeking or offering support and help when needed

RESPONSIBLE DECISION-MAKING

- Demonstrating curiosity and open-mindedness
- Learning to make a reasoned judgment after analyzing information, data, facts
- Anticipating and evaluating the consequences of one's actions
- Recognizing how critical thinking skills are useful both inside & outside of school

GRADE SIX

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-PS3 ENERGY

- MS-PS3-1. Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
- MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

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.

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS

READING STANDARDS FOR INFORMATIONAL TEXT RI

- RI2. Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
- RI4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.

SPEAKING AND LISTENING STANDARDS SL

- SL1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacherled) 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.
 - c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.
- 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

- 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 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

- RST3. Follow precisely a multistep 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-AWARENESS

- Identifying one's emotions
- Having a growth mindset
- Developing interests and a sense of purpose

SELF-MANAGEMENT

- Managing one's emotions
- Identifying and using stress-management strategies
- Setting personal and collective goals
- Using planning and organizational skills

SOCIAL AWARENESS

- Recognizing strengths in others

RELATIONSHIP SKILLS

- Communicating effectively
- Developing positive relationships
- Practicing teamwork and collaborative problem-solving
- Resolving conflicts constructively
- Seeking or offering support and help when needed

RESPONSIBLE DECISION-MAKING

- Demonstrating curiosity and open-mindedness
- Learning to make a reasoned judgment after analyzing information, data, facts
- Anticipating and evaluating the consequences of one's actions
- Recognizing how critical thinking skills are useful both inside & outside of school