Sample Standards Guide for There's No Place Like Home

Activities, Reading Books & Creating Science Journals p. 1-7

K

- RI.K.2. With prompting and support, identify the main topic and retell key details of a text.
- RL.K.10. Actively engage in group reading activities with purpose and understanding.
- SL.K.2. 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.

1

- RL.1.9. Compare and contrast the adventures and experiences of characters in stories.
- SL.1.2. Ask and answer questions about key details in a text read aloud

2

- RL.2.6. Acknowledge differences in the points of view of characters.
- SL.2.2. Recount or describe key ideas or details from a text read aloud or information presented orally.
- RL.2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

3

- SL.3.2. Determine the main ideas and supporting details of a text read aloud.
- RL.3.1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RI.3.2. Determine the main idea of a text; recount the key details and explain how they support the main idea.
- RL.3.3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- RL.4.6. Compare and contrast the point of view from which different stories are narrated.
- RL.4.1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

- RI.4.2. Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- RL.4.3. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).

5

- RL.5.2. Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges
- RL.5.3. Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
- RL.5.1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

6

- RL.6.1. Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- RI.6.3. Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).
- RL.6.2. Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
- RL.6.5. Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
- RI.6.6. Determine an author's point of view or purpose in a text and explain how it is conveyed in the text.

7

- RL.7.6. Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.
- RL.7.2. Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.
- RL.7.1. Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- RL.7.3. Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).
- RI.7.3. Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).

8

- RL.8.5. Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.

- RL.8.6. Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.
- RL.8.3. Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.
- RL.8.2. Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.

9-12

- RL.9-10.2. Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
- RL.11-12.3. Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).
- RI.9-10.3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
- RL.9-10.5. Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
- RL.11-12.5. Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.
- SCRE.ETS3:10-Create a scientific journal and/or lab notebook for recording qualitative and quantitative data.

Activities: Learning about Air, Transpiration, & Plants p. 8-28

K

- K.LS1.1 Use information from observations to identify differences between plants and animals (locomotion, obtainment of food, and take in air/gasses).
- K.ESS3.1 Use a model to represent the relationship between the basic needs (shelter, food, water) of different plants and animals (including humans) and the places they live.
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- W.K.7. Participate in shared research and writing projects
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- LS1.1 Recognize the structure of plants (roots, stems, leaves, flowers, fruits) and describe the function of the parts (taking in water and air, producing food, making new plants).
- LS1.3 Analyze and interpret data from observations to describe how changes in the environment cause plants to respond in different ways.
- LS2.1 Conduct an experiment to show how plants depend on air, water, minerals from soil, and light to grow and thrive.
- LS2.3 Recognize how plants depend on their surroundings and other living things to meet their needs in the places they live.
- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- 2.ESS2.2 Observe and analyze how blowing wind and flowing water can move Earth materials (soil, rocks) from one place to another, changing the shape of a landform and affecting the habitats of living things
- W.2.7. Participate in shared research and writing projects
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.
- 2.ESS2.4 Use information obtained from reliable sources to explain that water is found in the ocean, rivers, streams, lakes, and ponds, and may be solid or liquid

3

- 2.LS1.1 Analyze the internal and external structures that aquatic and land animals and plants have to support survival, growth, behavior, and reproduction.
- 7.1.1 Identify specific parts of a plant and describe their function.
- 7.1.1 Use a magnifier to investigate and describe the function of root hairs, stem cross sections, and/or leaf veins and stomata.
- 3.LS4.2 Infer that plant adaptations help them survive in land and aquatic biomes.
- 3.ESS2.1 Explain the cycle of water on Earth.
- 3.LS4.4 Explain the cause and effect relationship between a naturally changing environment and an organism's ability to survive.
- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- 4.LS2.1 Support an argument with evidence that plants get the materials they need for growth and reproduction chiefly through a process in which they use carbon dioxide from the air, water, and energy from the sun to produce sugars, plant materials, and waste (oxygen); and that this process is called photosynthesis.
- 4.ESS2.3 Provide examples to support the claim that organisms affect the physical characteristics of their regions.

5

- 5.PS1.1 Analyze and interpret data from observations and measurements of the physical properties of matter to explain phase changes between a solid, liquid, or gas.
- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- 5.PS2.5 Explain how forces can create patterns within a system (moving in one direction, shifting back and forth, or moving in cycles), and describe conditions that affect how fast or slowly these patterns occur.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and

multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- ESS.ESS2.18 Identify the organisms that are major drivers in the global carbon cycle and trace how greenhouse gases are continually moved through the carbon reservoirs and fluxes represented by the ocean, land, life, and atmosphere.
- SCRE.ETS3.11 Carry out an original scientific investigation (experiment or study) after having received approval of a revised research proposal.
- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: A Flying River, Clouds Experiments, etc. p. 29-37

K

- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- W.2.7. Participate in shared research and writing projects
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- 3.ESS2.1 Explain the cycle of water on Earth.
- 3.ESS2.2 Associate major cloud types with weather conditions.
- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- 7.8.1 Prepare a model that illustrates some basic features of the water cycle.
- 7.8.2 Distinguish between weather and climate.
- 7.8.1 Identify basic features of the water cycle and describe their importance to life on earth.

5

- 5.PS1.1 Analyze and interpret data from observations and measurements of the physical properties of matter to explain phase changes between a solid, liquid, or gas.

- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- 7.9.3 Use data from a simple investigation to determine how temperature change affects the rate of evaporation and condensation.
- 7.9.2 Investigate how different types of materials freeze, melt, evaporate, or dissipate
- 7.9.3 Describe factors that influence the rate at which different types of material freeze, melt, or evaporate.

6

- 6.PS3.4 Conduct an investigation to demonstrate the way that heat (thermal energy) moves among objects through radiation, conduction, or convection
- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to

follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Diatoms & Engineering Project, p. 38-52

K

- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.PS1.3 Construct an evidence-based account of how an object made of a small set of pieces (blocks, snap cubes) can be disassembled and made into a new object.
- W.K.7. Participate in shared research and writing projects
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- W.2.7. Participate in shared research and writing projects
- 2.ETS1.2 Develop a simple sketch, drawing, or physical model that communicates solutions to others.
- 2.ETS1.3 Recognize that to solve a problem, one may need to break the problem into parts, address each part, and then bring the parts back together
- 2.ETS1.4 Compare and contrast solutions to a design problem by using evidence to point out strengths and weaknesses of the design.
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- 2.LS1.1 Analyze the internal and external structures that aquatic and land animals and plants have to support survival, growth, behavior, and reproduction.
- 3.LS4.1 Explain the cause and effect relationship between a naturally changing environment and an organism's ability to survive.
- 3.LS4.2 Infer that plant and animal adaptations help them survive in land and aquatic biomes.
- 3.ETS2.1 Identify and demonstrate how technology can be used for different purposes.
- W.3.7. Conduct short research projects that build knowledge about a topic.

- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- 4.ETS1.1 Categorize the effectiveness of design solutions by comparing them to specified criteria for constraints.
- 4.ETS2.1 Use appropriate tools and measurements to build a model.
- 4.ETS2.2 Determine the effectiveness of multiple solutions to a design problem given the criteria and the constraints.
- 4.ETS2.3 Explain how engineers have improved existing technologies to increase their benefits, to decrease known risks, and to meet societal demands (artificial limbs, seatbelts, cell phones).
- 4.LS2.5 Analyze and interpret data about changes (land characteristics, water distribution, temperature, food, and other organisms) in the environment and describe what mechanisms organisms can use to affect their ability to survive and reproduce.
- 4.LS2.2 Using information about the roles of organisms, evaluate how those roles are interconnected, and communicate how the organisms are continuously able to meet their needs.
- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

5

- 5.ETS2.3 Identify how scientific discoveries lead to new and improved technologies.
- 5.ETS1.1 Research, test, re-test, and communicate a design to solve a problem.
- 5.ETS1.2 Plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered to identify which elements need to be improved. Apply the results of tests to redesign the prototype.
- 5.ETS1.3 Describe how failure provides valuable information toward finding a solution.
- 5.ETS2.2 Use appropriate measuring tools, simple hand tools, and fasteners to construct a prototype of a new or improved technology.
- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- 7.ETS2.1 Examine a problem from the medical field pertaining to biomaterials and design a solution taking into consideration the criteria, constraints, and relevant scientific principles of the problem that may limit possible solutions.
- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- ESS.ESS2.18 Identify the organisms that are major drivers in the global carbon cycle and trace how greenhouse gases are continually moved through the carbon reservoirs and fluxes represented by the ocean, land, life, and atmosphere.
- BIO1.ETS2.3 Analyze scientific and ethical arguments to support the pros and cons of application of a specific biotechnology technique such as genetically modified organisms.
- BIO2.ETS2.3 Understand that humans have employed engineering and technology to maximize use of microorganisms, plants, and animals for various purposes. Choose one specific example and construct an argument supporting or opposing the use of engineering or technology in this instance.
- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.

- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Diatoms & the Art of Scientific Observation, p. 53-59

K

- K.LS1.3 Explain how humans use their five senses in making scientific findings.
- 7.T/E.1 Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- 7.T/E.1 Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.
- 7.1.2 Communicate the effect of using tools like magnifiers when examining different body parts.
- 7.1.1 Recognize that living things have parts that work together.
- 7.1.3 Make drawings to record and communicate observations.

2

- 7.T/E.1 Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.
- 7.2.2 Investigate living things found in different places.
- 7.Inq.1 Use senses and simple tools to make observations.

3

- 7.T/E.1 Explain how different inventions and technologies impact people and other living organisms.
- 7.T/E.1 Select a tool, technology, or invention that was used to solve a human problem.
- 7.T/E.1 Describe how tools, technology, and inventions help to answer questions and solve problems.
- 7.1.1 Identify specific parts of a plant and describe their function.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- 4.G.3. a) Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts.
- 4.G.3. b) Identify line-symmetric figures
- 4.G.3. c) Draw lines of symmetry.

5

- 7.T/E.1 Explain how different inventions and technologies impact people and other living organisms.

- 7.T/E.4 Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.
- 7.T/E.2 Recognize that new tools, technology, and inventions are always being developed.
- 7.T/E.1 Describe how tools, technology, and inventions help to answer questions and solve problems.
- 7.Inq.3 Organize data into appropriate drawings or diagrams.

6

- 7.Inq.5 Understand that scientists communicate scientific understanding using descriptions, explanations, and models.
- 7.T/E.1 Explore how technology responds to social, political, and economic needs.
- 7.T/E.3 Explore how the unintended consequences of new technologies can impact society.

7

- 7.Inq.5 Understand that scientists communicate scientific understanding using descriptions, explanations, and models.
- 7.T/E.1 Explore how technology responds to social, political, and economic needs.
- 7.T/E.3 Explore how the unintended consequences of new technologies can impact society.

8

- 7.Inq.5 Understand that scientists communicate scientific understanding using descriptions, explanations, and models.
- 7.T/E.1 Explore how technology responds to social, political, and economic needs.
- 7.T/E.3 Explore how the unintended consequences of new technologies can impact society.

9-12

- Inq.1 Recognize that science is a progressive endeavor that reevaluates and extends what is already accepted.
- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Consider the Living Planet, Climate Change, Going Green, p. 60-72

K

- K.ESS3.3 Communicate solutions that will reduce the impact from humans on land, water, air, and other living things in the local environment.
- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- 2.LS2.2 Predict what happens to animals when the environment changes (temperature, cutting down trees, wildfires, pollution, salinity, drought, land preservation).
- 2.ETS2.2 Predict and explain how human life and the natural world would be different without current technologies.
- W.2.7. Participate in shared research and writing projects
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- 3.PS1.2 Differentiate between changes caused by heating or cooling that can be reversed and that cannot.
- 3.LS4.1 Explain the cause and effect relationship between a naturally changing environment and an organism's ability to survive.
- 3.LS4.3 Explain how changes to an environment's biodiversity influence human resources.
- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- 4.ESS3.1 Obtain and combine information to describe that energy and fuels are derived from natural resources and that some energy and fuel sources are renewable (sunlight, wind, water) and some are not (fossil fuels, minerals).
- 4.ESS3.2 Create an argument, using evidence from research, that human activity (farming, mining, building) can affect the land and ocean in positive and/or negative ways.
- 4.ETS2.4 Explain how engineers have improved existing technologies to increase their benefits, to decrease known risks, and to meet societal demands (environmentally friendly materials, sustainability, artificial limbs, seatbelts, cell phones).
- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

5

- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

6

- 6.ESS3.1 Differentiate between renewable and nonrenewable resources by asking questions about their availability and sustainability.
- 6.ESS3.2 Investigate and compare existing and developing technologies that utilize renewable and alternative energy resources.
- 6.ETS1.1 Evaluate design constraints on solutions for maintaining ecosystems and biodiversity.
- 6.ESS3.3 Assess the impacts of human activities on the biosphere including conservation, habitat management, species endangerment, and extinction.
- 6.LS4.1 Explain how changes in biodiversity would impact ecosystem stability and natural resources.
- 6.LS4.2 Design a possible solution for maintaining biodiversity of ecosystems while still providing necessary human resources without disrupting environmental equilibrium.
- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- 7.ESS3.1 Understand that the atmosphere is composed of a mixture of gases and discuss the potential for atmospheric change.
- 7.7.7 Analyze and evaluate the impact of man's use of earth's land, water, and atmospheric resources.
- 7.ESS3.3 Engage in a scientific argument through graphing and translating data regarding human activity and climate.
- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- ECO.ESS.3 Engage in argument from evidence regarding the impacts of human activity on climate change. Design solutions to address these impacts.
- EVSC.ESS2.3 Analyze the composition of the Earth's atmosphere. Obtain information and use graphs to observe patterns regarding stability and change within the Earth's atmospheric composition (O2, N2, CO2, etc.) over time.
- GEO.ESS1.2 Evaluate evidence used to explain the ongoing changes in the Earth's system over geologic time due to interactions among the solid Earth, hydrosphere, and atmosphere.
- EVSC.ETS3.1 Plan and carry out an investigation of a local ecosystem to assess human impacts. Based on your findings, design and evaluate a solution to minimize impacts.
- ESS.ESS3.2 Obtain, evaluate, and communicate information on how natural resource availability, natural hazard occurrences, and climatic changes impact individuals and society.

- ESS.ESS3.3 Design, evaluate, or refine a technological solution that reduces impacts of human activities on natural systems.
- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Glaciers, p. 72-77

K

- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- 2.ESS2.4 Use information obtained from reliable sources to explain that water is found in the ocean, rivers, streams, lakes, and ponds, and may be solid or liquid.
- 2.ESS2.1 Compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
- 2.ESS2.2 Observe and analyze how blowing wind and flowing water (even when frozen) can move Earth materials (soil, rocks) from one place to another, changing the shape of a landform and affecting the habitats of living things
- 2.ESS1.1 Recognize that some of Earth's natural processes are cyclical, while others have a beginning and an end. Some events happen quickly, while others occur slowly over time.
- W.2.7. Participate in shared research and writing projects
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- 4.ESS1.1 Generate and support a claim with evidence that over long periods of time, erosion (weathering and transportation) and deposition have changed landscapes and created new landforms
- 4.ESS2.1 Collect and analyze data from observations to provide evidence that rocks, soils, and sediments are broken into smaller pieces through mechanical weathering (frost wedging, abrasion, tree root wedging) and are transported by water, ice, wind, gravity, and vegetation.
- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

5

- 5.PS2.1 Test the effects of balanced and unbalanced forces on the speed and direction of motion of objects.
- 5.PS2.2 Make observations and measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- 8.PS2.3 Create a demonstration of an object in motion and describe the position, force, and direction of the object.
- 8.PS2.4 Plan and conduct 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.
- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- GEO.ESS2.1 Analyze surface features of Earth in order to identify geologic processes (including weathering, erosion, deposition, and glaciation) that are likely to have been responsible for their formation.
- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Shields Up, Earth Core, Earth Crust, p. 78-85

K

- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- PS3.1 Make observations to determine how sunlight warms Earth's surfaces (sand, soil, rocks, and water).
- PS3.2 Determine the effect of placing objects made with different materials in the path of a beam of light.
- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- 2.ESS1.1 Recognize that some of Earth's natural processes are cyclical, while others have a beginning and an end. Some events happen quickly, while others occur slowly over time.
- W.2.7. Participate in shared research and writing projects
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- 4.ESS2.4 Analyze and interpret data on the four layers of the Earth, including thickness, composition, and physical states of these layers.
- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

5

- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- 7.12.2 Identify the force that causes objects to fall to the earth.
- 7.7.1 Create a model to illustrate geologic events responsible for changes in the earth's crust.
- 7.7.2 Compare how volcanoes, earthquakes, faulting, and plate movements affect the earth's surface features.
- 7.7.1 Describe internal forces such as volcanoes, earthquakes, faulting, and plate movements that are responsible for the earth's major geological features such as mountains, valleys, etc.

6

- 6.PS3.4 Conduct an investigation to demonstrate the way that heat (thermal energy) moves among objects through radiation, conduction, or convection.
- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- 7.7.6 Describe the relationship between plate movements and earthquakes, mountain building, volcanoes, and sea floor spreading.
- 7.7.4 Explain how earthquakes, mountain building, volcanoes, and sea floor spreading are associated with movements of the earth's major plates.
- 7.7.5 Recognize that lithospheric plates on the scale of continents and oceans continually move at rates of centimeters per year.
- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- 8.ESS2.4 Gather and evaluate evidence that energy from the earth's interior drives convection cycles within the asthenosphere which creates changes within the lithosphere including plate movements, plate boundaries, and sea-floor spreading.
- 8.ESS2.1 Analyze and interpret data to support the assertion that rapid or gradual geographic changes can lead to drastic population changes and extinction events.
- 8.ESS3.2 Collect data, map, and describe patterns in the locations of volcanoes and earthquakes related to tectonic plate boundaries, interactions, and hotspots.
- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- ESS2.ESS.8 Using maps evaluate the claims, evidence, and reasoning that forces due to plate tectonics cause earthquake activity, volcanic eruptions, and mountain building.
- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Going with the Flow & Volcanoes, p. 86-95

K

- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.

- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- 2.ESS1.1 Recognize that some of Earth's natural processes are cyclical, while others have a beginning and an end. Some events happen quickly, while others occur slowly over time.
- W.2.7. Participate in shared research and writing projects
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- 3.ESS3.1 Explain how natural hazards (fires, landslides, earthquakes, volcanic eruptions, floods) impact humans and the environment
- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

5

- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- 7.7.1 Describe internal forces such as volcanoes, earthquakes, faulting, and plate movements that are responsible for the earth's major geological features such as mountains, valleys, etc.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to

follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- 7.7.6 Describe the relationship between plate movements and earthquakes, mountain building, volcanoes, and sea floor spreading.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts,

and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Earth's Magnetic Field, p.96-98

K

- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- W.2.7. Participate in shared research and writing projects
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- 3.PS2.1 Explain the cause and effect relationship of magnets.
- 3.PS2.2 Solve a problem or answer question by applying the use of the interactions between two magnets.
- 3.PS3.3 Evaluate how magnets (including the Earth) cause changes in the motion and position of objects, even when the objects are not touching the magnet.
- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

5

- 5.PS2.2 Use evidence to support that the gravitational force exerted by Earth on objects is directed toward the Earth's center.

- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- 8.PS2.2 Conduct an investigation to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact
- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Another Tool In Its Arsenal, UV, p. 99-103

K

- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- W.2.7. Participate in shared research and writing projects.
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.

4

- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

5

- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts,

and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: Life Under Water, Heat, Hubble, & Telescopes, p.104-114

K

- W.K.7. Participate in shared research and writing projects
- K.LS1.3 Explain how humans use their five senses in making scientific findings
- K.ETS1.1 Ask and answer questions about the scientific world and gather information using the senses.
- K.ETS1.2 Describe objects accurately by drawing and/or labeling pictures.
- K.ETS2.1 Use appropriate tools (e.g., magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.
- W.K.2. Use a combination of drawing, dictating, and writing to compose informative/explanatory texts

1

- ESS1.2 Observe natural objects in the sky that can be seen from Earth with the naked eye and recognize that a telescope, used as a tool, can provide greater detail of objects in the sky.
- W.1.7. Participate in shared research and writing projects
- ETS1:1 Solve scientific problems by asking testable questions, making short-term and long-term observations, and gathering information
- ETS1: 2 1) Use appropriate tools (e.g., magnifying glass, basic balance scale) to make observations and answer testable scientific questions.

2

- W.2.7. Participate in shared research and writing projects.
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.
- 7.T/E.1 Explain how simple tools are used to extend the senses, make life easier, and solve everyday problems.
- 2.ETS1.3 Recognize that to solve a problem, one may need to break the problem into parts, address each part, and then bring the parts back together
- 2.ETS1.4 Compare and contrast solutions to a design problem by using evidence to point out strengths and weaknesses of the design.
- 2.ETS2.1 Use appropriate tools to make observations, record data, and refine design ideas.

3

- W.3.7. Conduct short research projects that build knowledge about a topic.
- 7.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.
- 7.T/E.4 Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.
- 7.T/E.5 Apply a creative design strategy to solve a particular problem

- 7.T/E.3 Identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem.
- 7.T/E.1 Explain how different inventions and technologies impact people and other living organisms.

4

- 4.ETS1.1 Categorize the effectiveness of design solutions by comparing them to specified criteria for constraints.
- 4.ETS2.1 Use appropriate tools and measurements to build a model.
- 4.ETS2.2 Determine the effectiveness of multiple solutions to a design problem given the criteria and the constraints.
-
- W.4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- 7.T/E.4 Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.
- 7.T/E.5 Apply a creative design strategy to solve a particular problem
- 7.T/E.3 Identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem.
- 7.T/E.1 Explain how different inventions and technologies impact people and other living organisms.

5

- 5.ETS2.2 Describe how human beings have made tools and machines (X-ray cameras, microscopes, satellites, computers) to observe and do things that they could not otherwise sense or do at all, or as quickly or efficiently.
- W.5.7. Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- 7.T/E.4 Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.
- 7.T/E.5 Apply a creative design strategy to solve a particular problem
- 7.T/E.3 Identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem.
- 7.T/E.1 Explain how different inventions and technologies impact people and other living organisms.
- 5.ETS2.3 Identify how scientific discoveries lead to new and improved technologies.
- 5.ETS1.1 Research, test, re-test, and communicate a design to solve a problem.
- 5.ETS1.2 Plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered to identify which elements need to be improved. Apply the results of tests to redesign the prototype.
- 5.ETS1.3 Describe how failure provides valuable information toward finding a solution.

- 5.ETS2.2 Use appropriate measuring tools, simple hand tools, and fasteners to construct a prototype of a new or improved technology.

6

- W.6.7. Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

7

- W.7.7. Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

8

- 8.ETS1.2 Research and communicate information to describe how data from technologies (telescopes, spectroscopes, satellites, and space probes) provide information about objects in the solar system and universe.
- W.8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- RST.9-10.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts
- WHST.6-8.2. Write informative/explanatory texts, including the narration of scientific procedures/ experiments, or technical processes. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to

achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

9-12

- ESS.ESS1.6 Recognize how advances in deep space research instrumentation have led to new understandings of Earth's place in the universe and how these advances have benefitted society.
- SCRE.ETS3:10-Use a scientific journal and/or lab notebook for recording qualitative and quantitative data.
- SCRE.ETS3:4- Make observations and ask questions about the natural world. Refine the questions such that they can be answered by way of scientific investigation.
- W.9-12.7. Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; and demonstrate understanding of the subject under investigation.
- RST.9-12.9. Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.
- WHST.9-12.2. Write informative/explanatory texts, including the narration of projects, scientific procedures/ experiments, or technical processes. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

Activities: No Place Like Home Review Game, p. 115-117

K

- SL.K.1. Participate in collaborative conversations with diverse partners about topics and texts with peers and adults in small and larger groups.
- Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).
- Continue a conversation through multiple exchanges.
- SL.K.2. 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.
- SL.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- RL.K.1. With prompting and support, ask and answer questions about key details in a text.

1

- SL.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media or experiences.
- SL.1.1. Participate in collaborative conversations with diverse partners about topics and texts with peers and adults in small and larger groups.
- 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).
- Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- Ask questions to clear up any confusion about the topics and texts under discussion.
- SL.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

2

- SL.2.1. Participate in collaborative conversations with diverse partners about topics and texts with peers and adults in small and larger groups.
- 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).
- Build on others' talk in conversations by linking their comments to the remarks of others.
- Ask for clarification and further explanation as needed about the topics and texts under discussion.
- SL.2.2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media or experiences.
- SL.2.3. 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.

3

- SL.3.1. 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.
- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- 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).
- Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
- Explain their own ideas and understanding in light of the discussion.
- SL.3.2. 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.
- SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- SL.3.4. 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.

4

- SL.4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- Follow agreed-upon rules for discussions and carry out assigned roles.
- 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.
- Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
- SL.4.2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL.4.3. Identify the reasons and evidence a speaker provides to support particular points.
- SL.4.4. Report on a topic or text, tell a story, or recount an experience in an organized manner, use appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

5

- SL.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics and texts, building on others' ideas and expressing their own clearly.
- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- Follow agreed-upon rules for discussions and carry out assigned roles.
- Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
- Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
- SL.5.2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- SL.5.3. Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
- SL.5.4. Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

6

- SL.6.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics, texts, and issues, building on others' ideas and expressing their own clearly.
- Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
- Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.
- Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
- SL.6.2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
- SL.6.3. Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
- SL.6.4. Present claims and findings, sequencing ideas logically, use pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

7

- SL.7.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics, texts, and issues, building on others' ideas and expressing their own clearly.
- Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.
- Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
- Acknowledge new information expressed by others and, when warranted, modify their own views.
- SL.7.2. Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
- SL.7.3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.
- SL.7.4.Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

8

- SL.8.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics, texts, and issues, building on others' ideas and expressing their own clearly.
- Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
- Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
- Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
- SL.8.3. Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.
- SL.8.4. Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

9-12

- SL.9-12.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
- Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
- Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
- Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
- SL.9-12.2. Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- SL.9-12.3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
- SL.9-10.4. Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- ESS.ESS2.2 Construct an argument based on evidence about how global and regional climate is impacted by interactions among the Sun's energy output, tectonic events, ocean circulation, vegetation, and human activities. The argument should include discussion of a variety of time scales from sudden (volcanic ash clouds) to intermediate (ice ages) to long-term tectonic cycles.