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| **Grade 4 Physical Science Suggested Dates:** September 18-to October 25  **Chapter 1: Energy and Heat** | | | | | | |
| **Big Question** | **# of days (90 min block)** | **Lessons** | **I will know. . .**  **I can statements…** | **Vocabulary** | **Inquiry Activities** | **Performance Expectations/NGSS Standards** |
| How does energy cause change?  TE 1a  **Reading Skill:**  Main Idea and Details  *Graphic organizer*  *(All graphic organizer blackline masters are at the end of TE)*  **Assessments**  **Teachers Choice:**  Interactive Avidities 5pts  Planet Diaries entries 5pts  Explore it 5pts  Writing Responses 5pts  Graphic organizers 5pts  Lesson Quiz 6 pts  **Required/culminating assessments**  Chapter Lab investigate it! 10 or 20 pots  Performance Activity 10 pts  Chapter Assessment 10 pts  **STEM or Math Optional** | I day 90 min block  2 days if it is a 45 min block) | **Chapter Opener**  The Energy of Archery Untamed Science™ Video |  | Introduce Vocabulary smart cards  Student book 37-40 | Try It!  What are some forms of energy?  TE pg | **4-PS3-1:** Use evidence to construct an explanation relating the speed of an object to the energy of that object.  **4-PS3-2:** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.  **4-PS3-3:** Ask questions and predict outcomes about the changes in energy that occur when objects collide.  **4-PS3-4:** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.  **4-PS4-1.** Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.  **4-PS4-2.** Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.   |  | | --- | | **4-PS4-3.** Generate and compare multiple solutions that use patterns to transfer information.\* |   Performance Expectation Activities are available online or on TE pg 111a-11g |
| 1 day | **Lesson** 1 What are forms of energy? TE 9-15  **NGSS: 4-PS3-1, 4-PS3-2, 4-PS3-3, 4-PS3-4:** | *I can define energy, investigate different forms of energy, and analyze what energy can do. .* | energy, kinetic energy, potential, energy  TE pg 15 b  Vocabulary smart cards -Student book 37-40 | Planet Diary TE pg 15a -Fun Fact: Glow Sticks My |
| 1 day | **Lesson 2** What is sound energy?  TE 17-21  **NGSS: 4-PS3-1, 4-PS3-2** | *I can investigate sound energy and will describe patterns of how sound travels.* | sound, frequency, wavelength, pitch, volume, amplitude  TE pg 21 b  Vocabulary smart cards | - Virtual Lab (interactive Science Lab) : Sound  See website |
| 1 day | **Lesson 3**: What is light energy?  TE 23-27  **NGSS: 4-PS3-1** | *I can observe how light bends as it passes through different materials.* | refraction, absorption, reflection  TE pg 22B, 27 b  Vocabulary smart card | Explore It!  What are some colors in white light? TE 22B |
| 1 day | **Lesson 4**: What is heat?  TE 29-33  **NGSS: 4-PS3-1, 4-PS3-2, 4-PS3-4** | *I can classify various types of thermal energy and will use models to observe that heat energy can be transferred from one place to another.* | conduction, convection, radiation  TE pg 28b , 33b  Vocabulary smart card | Explore It!  How does heat move? 28b, 33b |
| 3-4 days | **Chapter Wrap-Up**  Study guide  Chapter review  Chapter Test blackline Master  Performance Expectation Activities | | Chapter wrap up Includes inquiries and assessments. May also include Performance expectations activities. Performance expectations activities can also be done in a flex week | **Directed Inquiry**  Activity Cards: Investigate It!  Which material is the better heat conductor? TE pg 34-35d  Student book page 34-5  **Guided Inquiry**  Activity Card: Apply It!  Which material is the better heat insulator? TE pge 35c-m35 d |

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| **Grade 4 Physical Science Suggested Dates: October 25 – November 28th**  **Chapter 2: Motion**  **TE 46a** | | | | | | |
| **Big Question** | **# of days (90 min block)** | **Lessons** | **I will know. . .**  **I can statements…** | **Vocabulary** | **Inquiry Activities** | **Performance Expectations/NGSS Standards** |
| How Can Motion be described and measured?  **Reading Skill:**  Main Idea and Details  *Graphic organizer*  *(All graphic organizer blackline masters are at the end of TE)*  **Assessments**  **Teachers Choice:**  Interactive Avidities 5pts  Planet Diaries entries 5pts  Explore it 5pts  Writing Responses 5pts  Graphic organizers 5pts  Lesson Quiz 6 pts  **Required/culminating assessments**  Chapter Lab investigate it! 10 or 20 pots  Performance Activity 10 pts  Chapter Assessment 10 pts  **STEM or Math Optional** | 2day s 90 min block  2 days if it is a 45 min block) | Chapter Opener  Video |  | Vocabulary smart cards:  Student book 37-40 | Try It! TE 48  How can you measure motion? | **4-PS3-1:** Use evidence to construct an explanation relating the speed of an object to the energy of that object.  **4-PS3-2:** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.  **4-PS3-3:** Ask questions and predict outcomes about the changes in energy that occur when objects collide.  **4-PS3-4:** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.  Performance Expectation Activities are available online or on TE pg 111a-11g |
| 3 days, 6 for 45 minutes | Lesson 1: What is motion? TE 55-61  **4-PS3-3** | *I can describe how an objects mass affects the amount of force needed to move it and how gravity affects objects.* | Acceleration, speed, velocity  TE pg 15 b  Vocabulary smart cards | Planet Diary TE 54b  Misconception |
| 3 days, 6 for 45 minute class | Lesson 2 What is speed?  TE 62-67  **4-PS3-1** | *I can obtain information, graph, and interpret data and describe patterns relating to speed.* | Acceleration , speed velocity  Vocabulary smart cards | Explore it! What can change a marble’s speed?  TE 62B |
| 4 days assessment | Chapter Review  TE 74-75  Study guide  Chapter review  Chapter Test blackline Master  Performance Expectation Activities | | Chapter wrap up Includes inquiries and assessments. May also include Performance expectations activities. Performance expectations activities can also be done in a flex week. | Investigate it: How does friction affect motion?  Direct Inquiry: Activity car: How could you change the friction between objects and a ramp? |

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| **Grade 4 Physical Science Suggested Dates: November 28- January 16**  **CHAPTER 3: ELECTRICITY**  **TE page 78a** | | | | | | |
| **Big Question** | **# of days (90 min block)** | **Lessons** | **I will know. . .** | **Vocabulary** | **Inquiry Activities** | **Performance Expectations/NGSS Standards** |
| **Big Question:**  How is Electrical energy transferred and transformed?  **Reading Skill:**  Cause and Effect  *Graphic organizer*  *(All graphic organizer blackline masters are at the end of TE)*  **Assessments**  **Teachers Choice:**  Interactive Avidities 5pts  Planet Diaries entries 5pts  Explore it 5pts  Writing Responses 5pts  Graphic organizers 5pts  Lesson Quiz 6 pts  **Required/culminating assessments**  Chapter Lab investigate it! 10 or 20 pots  Performance Activity 10 pts  Chapter Assessment 10 pts  **STEM or Math Optional** | 2 days 90 min block  2 days if it is a 45 min block) | **Chapter 3** Opener  Envision it: Why do light bulbs all light up in a string of bulbs? TE 86-87 |  | Vocabulary cards  Student book 99-100 | My Planet Diary Science Statistics | Lesson 1& 2 4-ps3-2, ps3-3,ps3-4   * Energy is whenever there are moving objects are present * Energy can be moved from place to place to place by moving objects or through sound , light or electric currents. |
| 3 days, 6 days | **Lesson 1:**  How do electric charges flow in a circuit? TE 86-87  **4-PS3-2** | *I can determine how electric charges flow in a circuit.* | Conductor, electrical circuit, insulator  Vocabulary cards | Investigate it! How does a circuit board work? TE 97b |
| 3 days, 6 days | **Lesson 2:**  Lesson 2 How can energy change? TE 92-94  **4-PS3-2 4-PS3-4** | *I can determine how energy changes forms and how electricity is transformed to light and heat* | Filament, electric current parallel circuit, conductor  Use Vocabulary cards | Explore It!  How can a switch make a complete circuit? |
| 4 days Assessment | Chapter 3 Review pp 102-103  Chapter 3 test pp103a-103b  Assessment  Study guide  Chapter review  Chapter Test blackline Master  Performance Expectation Activities  . | | Chapter wrap up Includes inquiries and assessments. May also include Performance expectations activities. Performance expectations activities can also be done in a flex week. | Modify your investigation  TE 97c-97d |

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| **Grade 4 Life Science Suggested Dates: January 17, 2018-February 15, 2018**  **Chapter 4: Plants and Animals**  **TE 112a** | | | | | | |
| **Big Question** | **# of days (90 min block)** | **Lessons** | **I will know. . .**  **I can statements…** | **Vocabulary** | **Inquiry Activities** | **Performance Expectations/NGSS Standards** |
| What do living organisms need to survive?  **Reading Skill:**  Text Features  **Assessments**  **Teachers Choice:**  Interactive Avidities 5pts  Planet Diaries entries 5pts  Explore it 5pts  Writing Responses 5pts  Graphic organizers 5pts  Lesson Quiz 6 pts  **Required/culminating assessments**  Chapter Lab investigate it! 10 or 20 pots  Performance Activity 10 pts  Chapter Assessment 10 pts  **STEM or Math Optional (Flex Weeks)** | **3 days 90 min block**  **6 days if it is a 45 min block)** | Chapter Opener  Have students identify differences between a plant and an animal.  TE 120-121 |  | Vocabulary smart cards:  Student book163-168 | Try It! How can flowers be classified? TE pg. 114 | .  **4-LS1-1** Construct an argument that plants and animals have internal and external structures that function to support growth, behavior and reproductions.  **4-LS1-2** Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. |
| 3 days | Lesso1 How are plants and animals classified? TE 120-127  **NGSS: 4-LS1-1** | *I can classify plants and animals based on physical and behavioral characteristics. .* | classify, vertebrates, invertebrates TE 120B/127B  Vocabulary smart card | Explore It!  What are some ways you can classify animals?  TE 127A |
| 3 days | Lesson 2 How do plants reproduce?  TE 128-135  **NGSS: 4-LS1-1** | *I can use models to describe the structures that help plants survive and reproduce.* | fertilization, germinate, pollination TE 135B/136B  Vocabulary smart cards | Fun Fact: My Planet Diary  TE 135a |
| 3 days | Lesson 3 How do plants make food?  TE 136-141  **NGSS: 4-LS1-1** | *I can use models to explain the roles of roots, leaves, and stems in making food. .* | chlorophyll, chloroplast, photosynthesis  TE 41B/142B  Vocabulary smart cards | Explore It!  How can plants react to light? TE 141A |
| 3 days | Lesson 4 What are adaptations?  TE 142-147  **NGSS: 4-LS1-1** | *I can analyze how physical features and behaviors help organisms interact with their environment.* | adaptation, hibernation, environment  TE 147B/142B  Vocabulary smart cards | Virtual Lab  (interactive Science Lab) : Bear Adaptations= See website |
| 3 days | Lesson 5 What plant and animal characteristics are inherited?  TE 148-153  **NGSS: 4-LS1-1** | *I can construct an argument to explain that animals and plants inherit characteristics that may help them survive and reproduce* | characteristics, advantage, inherit TE 153B/148B  Vocabulary smart cards | Explore It!  How can some characteristics be affected by the environment?  TE 153A |
| 3 days  3 days | Lesson 6 How do animals respond to the environment?  pg. 154-161  **NGSS: 4-LS1-2**  Chapter Wrap-Up  Includes inquiries and assessments. May also include Performance expectations activities.  Performance expectations activities can also be done in a flex week. | *I can classify instincts and learned behaviors and will*  *analyze how animals respond to their environments*  *analanaly*  *I can construct an argument to explain that animals and plants inherit characteristics that may help them survive and reproduce.* | Stimulus, instinct, migration TE 154B/159B  Student book 163-168 | My Planet Diary-Misconception  TE 159A  **Directed Inquiry**  Activity Cards: Investigate It!  Which material is the better heat conductor? TE pg 34-35d  Student book page 34-5  **Guided Inquiry**  Activity Card: Apply It!  Which material is the better heat insulator? TE pge 35c-m35 d |
| 3 days | Chapter Wrap-Up  Study guide  Chapter review  Chapter Test blackline Master  Performance Expectation Activities  .  *.* | | Chapter wrap up Includes inquiries and assessments. May also include Performance expectations activities. Performance expectations activities can also be done in a flex week | Activity Cards: Investigate It!  What is inside and owl pellet? TE 160-161  **Directed/Guided Inquiry**  Activity Card: Apply It!  TE 161A-161C |

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| **Grade 4 Life Science Suggested Dates: January 17, 2018-February 15, 2018**  **Chapter 5: Ecosystems**  **TE page 175** | | | | | | |
| **Big Question** | **# of days (90 min block)** | **Lessons** | **I will know. . .** | **Vocabulary** | **Inquiry Activities** | **Performance Expectations/NGSS Standards** |
| **Big Question:**  How do living things interact with their environments?  TE 175  **Reading Skill:**  Main idea and Details  TE 177  Graphic organizer (back of book)  **Assessments**  **Teachers Choice:**  Interactive Avidities 5pts  Planet Diaries entries 5pts  Explore it 5pts  Writing Responses 5pts  Graphic organizers 5pts  Lesson Quiz 6 pts  **Required/culminating assessments**  Chapter Lab investigate it! 10 or 20 pots  Performance Activity 10 pts  Chapter Assessment 10 pts  **STEM or Math Optional** | I day 90 min block  2 days if it is a 45 min block) | **Chapter 5** Opener  What is an Ecosystem Untamed Science™ Video |  | Vocabulary smart cards  Student book 215-218 | Try it! How can you estimate how many animals live in an Ecosystem? | **4-ESS1-1.** Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.  **4-ESS2-1.** Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.  **4-ESS2-2.** Analyze and interpret data from maps to describe patterns of Earth’s features.  **4-ESS3-2.** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.\* |
| I day | **Lesson 1:** What are Ecosystems?  TE page 182 | *I can obtain information to describe the parts of ecosystems and will identify some examples of ecosystems. Students will also analyze how specific structures of organisms help them in their habitats.* | Ecosystem, habitat population  TE 182b  Blackline master 187b  Vocabulary smart cards | My Planet Diary- Lets Blog!  TE 182b ,  Blackline master 187a |
| 1 day | **Lesson 2:** How do Living things affect the environment?  TE page 188  **4-ESS3-1** | I can analyze how a sudden change in one group of organisms affects another group of organisms. | Competition, erosion, resources  TE page 188b  Blackline master 193b | Explore it! What happens when one part of the ecosystem is removed? TE page 188  Blackline master 193b |
| 2 days | **Lesson 3**: What are natural resources?  TE page 194  **4-ESS3-1** | *I can* *investigate how humans use natural resources and will communicate that some resources are renewable and some are not.* | Fossil fuels, nonrenewable resource, renewable resource TE 194b  Blackline master 199b,  Vocabulary smart cards | Explore it! How can you collect the sun’s energy? TE 194  Black line Master TE 199a 199b |
| 1 day | **Lesson 4:** What are fossils?  TE page 200  **4-ESS1-1** | *I can* *use models to describe fossils as the remains and marks of living things and will identify the ways a fossil can form*. | Fossil, extinct, sediments TE 200b  Blackline master 199b,  Vocabulary smart cards | Video: What story can Fossils tell?  Pearson Flipped video for Science |
| 2 days | **Lesson 5:** What can fossils tell us?  TE page 206  **4-ESS3-1** | *I can* *describe how scientists analyze and interpret data from fossils to learn about the past.* | Paleontologist, geological time scale, fossil fuel  Black line master 205b  Vocabulary smart cards | Investigate it! How do earthworms meet their needs in a model of an ecosystem? TE page 212  Activity card support 213  Blackline Master TE 213b-213d |
| 3-4 days | **Chapter Wrap Up**  Study guide TE 219  Chapter review TE 220-221  Chapter Test blackline Master 221a-221b  Performance Expectation Activities 229c, 229d | | Chapter wrap up Includes inquiries and assessments. May also include Performance expectations activities. Performance expectations activities can also be done in a flex week. | **Guided Inquiry:** How might light affect the earthworms in a model ecosystem? **TE 213C, 223a**  Blackline master Page 213c |

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| **Grade 4 Earth Science Suggested Dates:** March 26-May 30  **Chapter 6: Earth’s Resources**  **TE page 230** | | | | | | |
| **Big Question** | **# of days (90 min block)** | **Lessons** | **I will know. . .**  **I can statements…** | **Vocabulary** | **Inquiry Activities** | **Performance Expectations/NGSS Standards** |
| **Big Question:**  How do Earth’s Resources change?  **Reading Skill:**  Drawing Conclusions  TE 233  Graphic organizer (back of book)  **Assessments**  **Teachers Choice:**  Interactive Avidities 5pts  Planet Diaries entries 5pts  Explore it 5pts  Writing Responses 5pts  Graphic organizers 5pts  Lesson Quiz 6 pts  **Required/culminating assessments**  Chapter Lab investigate it! 10 or 20 pots  Performance Activity 10 pts  Chapter Assessment 10 pts  **STEM or Math Optional** | I day 90 min block  2 days if it is a 45 min block) | **Chapter 5** Opener  Mineral identification Virtual Lab  **4-ESS2-1** |  | Vocabulary smart cards TE 281 |  | **4-ESS2-1.** Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.  **4-ESS2-2.** Analyze and interpret data from maps to describe patterns of Earth’s features.  **4-ESS1-1.** Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. |
| 1 day | **Lesson 1:**  How are minerals classified? TE 338 | *I can classify minerals based on their properties and will describe how minerals make up rocks.* | Luster, mineral, streak  TE page  Blackline master 243b  Vocabulary smart cards TE 281 | **My Planet Diary-** Misconception- TE 238  Blackline Master243a |
| 2 day | **Lesson 2:**  How are rocks classified? TE 244  **4-ESS1-1** | *I can classify rocks based on three categories of rocks and will analyze how rocks are formed.* | Igneous, metamorphic, sedimentary  TE 244b  Blackline master 253b  Vocabulary smart cards | **Explore it!** What can you learn from rocks and layers? TE 244b  Black line master 253b |
| 2 days | **Lesson 3**:  What are weathering and erosion? TE 254  **4-ESS2-1 4-ESS2-2** | *I can make observations to provide evidence or the effects of weathering, erosion, and deposition on Earth’s surface.* | Erosion, landforms, weathering  TE page 254b  Blackline master 259b  Vocabulary smart cards | **Explore it**! How do rocks wear away? TE pge 254b  Blackline master 259a |
| 2 days | **Lesson 4:**  How can Earth’s surface change rapidly? TE 260  **4-ESS1-1 4-ESS2-2** | *I can construct and argument that explains how rapid processes changes Earth’s surface.* | Fault, drought, flood  TE page 260b  Blackline master 265b  Vocabulary smart cards | **My Planet diary:** Science Stats TE 260b |
| 1 day | **Lesson 5:** Where is Earth’s water? TE 266  **4-ESS2-2** | *I can develop models to communicate where water collects on earth.* | River, glacier, groundwater  TE page 266b  Blackline master 271b  Vocabulary smart cards | **Virtual Lab:** is there enough water?  Explore it! Where is earth’s water? TE page 266b  Blackline master 271a |
| 3-4 days | **Lesson 6:** What is the water Cycle?  **TE 272** | *I can use models to demonstrate an understanding of the water cycle.* | Condensation, precipitation, water cycle TE page 272b  Blackline master 272b  Vocabulary smart cards | **Investigate it!** How does the steepness of a stream affect how fast it flows? TE page 278-279  Activity card support 279a  Blackline master 279b-d |
| 3-4 days | **Chapter Wrap Up**  Study guide TE 284  Chapter review TE 287a  Chapter Test blackline Master 287a  Performance Expectation Activities 294-295a | | Chapter wrap up Includes inquiries and assessments. May also include Performance expectations activities. Performance expectations activities can also be done in a flex week | **Guided Inquiry:** how does the width of a stream affect how fast it flows?  Blackline master 279b-d |

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| NGSS at a Glance | | | |
| **Physical Science** | | **Earth and Space Sciences** | |
| |  | | --- | | **Energy**  **4-PS3-1.** Use evidence to construct an explanation relating the speed of an object to the energy of that object. *[Assessment Boundary: Assessment does not include quantitative measures of changes in the speed of an object or on any precise or quantitative definition of energy.]*  **4-PS3-2.** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.  *[Assessment Boundary: Assessment does not include quantitative measurements of energy.]*  **4-PS3-3.** Ask questions and predict outcomes about the changes in energy that occur when objects collide. *[Clarification Statement: Emphasis is on the change in the energy due to the change in speed, not on the forces, as objects interact.] [Assessment Boundary: Assessment does not include quantitative measurements of energy.]*  **4-PS3-4.** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.\* *[Clarification Statement: Examples of devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device.] [Assessment Boundary: Devices should be limited to those that convert motion energy to electric energy or use stored energy to cause motion or produce light or sound.]* | | |  | | --- | | **Waves and Their Applications in Technologies**  **for Information Transfer**  **4-PS4-1.** Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.  *[Clarification Statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.] [Assessment Boundary: Assessment does not include interference effects, electromagnetic waves, non-periodic waves, or quantitative models of amplitude and wavelength.]*  **4-PS4-2.** Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.  *[Assessment Boundary: Assessment does not include knowledge of specific colors reflected and seen, the cellular mechanisms of vision, or how the retina works.]*  **4-PS4-3.** Generate and compare multiple solutions that use patterns to transfer information.\*  *[Clarification Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1’s and 0’s representing black and white to send information about a picture, and using Morse code to send text.]* | | **Earth's Place in the Universe**  **4-ESS1-1.** Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. *[Clarification Statement: Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock.] [Assessment Boundary: Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers. Assessment is limited to relative time.]*  **Earth's Systems**  **4-ESS2-1.** Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. *[Clarification Statement: Examples of variables to test could include angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling, and volume of water flow.] [Assessment Boundary: Assessment is limited to a single form of weathering or erosion.]*  **4-ESS2-2.** Analyze and interpret data from maps to describe patterns of Earth’s features.  *[Clarification Statement: Maps can include topographic maps of Earth’s land and ocean floor,*  *as well as maps of the locations of mountains, continental boundaries, volcanoes, and earthquakes.]* | **Earth and Human Activity**  4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.  *[Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from burning of fossil fuels.]*  4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.\* *[Clarification Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.] [Assessment Boundary: Assessment is limited to earthquakes, floods, tsunamis, and volcanic eruptions.]* |
| **Life Science** | | **Engineering Design 3-5** | |
| **From Molecules to Organisms: Structures and Processes**  **4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.  [Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.]  **4-LS1-2.** Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.  [Clarification Statement: Emphasis is on systems of information transfer.] [Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function.] | | **3-5-ETS1-1.** Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.  **3-5-ETS1-2.** Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.  **3-5-ETS1-3.** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. | |