



State Standard	FOSS Alignment (to module/investigation/part as needed)
<p>L.6.1.1 Use argument supported by evidence in order to distinguish between living and non-living things, including viruses and bacteria.</p>	<p><b>Diversity of Life</b> Investigation Guide:                      Investigation 1, Part 1                      Investigation 1, Part 2                      Investigation 4, Part 1                      Investigation 4, Part 2                      Investigation 4, Part 3                      Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“Characteristics of Life on Earth”</i>  <i>“Bacteria around Us”</i>  <i>“Harmful and Helpful Bacteria”</i></p>
<p>L.6.1.2 Obtain and communicate evidence to support the cell theory</p>	<p><b>Diversity of Life</b> Investigation Guide:                      Investigation 3, Part 1                      Investigation 3, Part 2                      Investigation 3, Part 3                      Investigation 3, Part 4                      Investigation 4, Part 1                      Investigation 4, Part 2                      Investigation 4, Part 3                      Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“The Amazing Paramecium”</i>  <i>“Cells”</i>  <i>“Bacteria around Us”</i>  <i>“Harmful and Helpful Bacteria”</i></p> <p><b>Online Activities:</b>  <i>“Levels of Complexity”: “Plant Cell,” “Protist Cell,” and “Animal Cell”</i>  <i>“Database”: “Elodea Cells, “Elodea Cytoplasmic Streaming,” “Paramecium Collection,” “Microorganism Collection,” and “Human Cheek Cells”</i></p>



Grade 6

<p>L.6.1.3 Develop and use models to explain how specific cellular components (cell wall, cell membrane, nucleus, chloroplast, vacuole, and mitochondria) function together to support the life of prokaryotic and eukaryotic organisms to include plants, animals, fungi, protists, and bacteria (not to include biochemical function of cells or cell part) .Obtain and communicate evidence to support the cell theory</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 3, Part 1                  Investigation 3, Part 2                  Investigation 3, Part 3                  Investigation 3, Part 4                  Investigation 4, Part 1                  Investigation 4, Part 2                  Investigation 4, Part 3                  Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“The Amazing Paramecium”</i>  <i>“Cells”</i>  <i>“Bacteria around Us”</i>  <i>“Harmful and Helpful Bacteria”</i></p> <p><b>Online Activities:</b>  <i>“Levels of Complexity”:</i> “Plant Cell,”                  “Protist Cell,” and “Animal Cell”  <i>“Database”:</i> “Elodea Cells, “Elodea                  Cytoplasmic Streaming,”                  “Paramecium Collection,”                  “Microorganism Collection,” and                  “Human Cheek Cells”</p>
<p>L.6.1.4 Compare and contrast different cells in order to classify them as a protist, fungus, plant, or animal.</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 3, Part 1                  Investigation 3, Part 2                  Investigation 3, Part 3                  Investigation 3, Part 4                  Investigation 4, Part 1                  Investigation 4, Part 2                  Investigation 4, Part 3                  Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“The Amazing Paramecium”</i>  <i>“Cells”</i>  <i>“Bacteria around Us”</i>  <i>“Harmful and Helpful Bacteria”</i></p>



Grade 6

<p>L.6.1.5 Provide evidence that organisms are unicellular or multicellular</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 3, Part 1                  Investigation 3, Part 2                  Investigation 3, Part 3                  Investigation 3, Part 4                  Investigation 4, Part 1                  Investigation 4, Part 2                  Investigation 4, Part 3                  Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“The Amazing Paramecium”</i>  <i>“Cells”</i>  <i>“Bacteria around Us”</i>  <i>“Harmful and Helpful Bacteria”</i></p>
<p>L.6.1.6 Develop and use models to show relationships among the increasing complexity of multicellular organisms (cells, tissues, organs, organ systems, organisms) and how they serve the needs of the organism.</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 4, Part 1                  Investigation 4, Part 2                  Investigation 4, Part 3                  Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“Bacteria around Us”</i>  <i>“Harmful and Helpful Bacteria”</i></p>
<p>L.6.3.1 Use scientific reasoning to explain differences between biotic and abiotic factors that demonstrate what living organisms need to survive.</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 1, Part 1                  Investigation 1, Part 2                  Investigation 4, Part 1                  Investigation 4, Part 2                  Investigation 4, Part 3                  Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“Characteristics of Life on Earth”</i>  <i>“Bacteria around Us”</i>  <i>“Harmful and Helpful Bacteria”</i></p>
<p>L.6.3.2 Develop and use models to describe the levels of organization within ecosystems (species, populations, communities, ecosystems, and biomes).</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 4, Part 1                  Investigation 4, Part 2                  Investigation 4, Part 3                  Investigation 4, Part 4</p> <p><b>Diversity of Life</b> FOSS Science Resources:  <i>“Bacteria around Us”</i></p>



Grade 6

<p>L.6.3.3 Analyze cause and effect relationships to explore how changes in the physical environment (limiting factors, natural disasters) can lead to population changes within an ecosystem.</p>	<p><i>“Harmful and Helpful Bacteria”</i></p> <p><b>Diversity of Life</b> Investigation Guide:                  Investigation 6, Part 1                  Investigation 9, Part 1                  Investigation 9, Part 2                  Investigation 9, Part 3</p> <p><b>Diversity of Life FOSS Science Resources:</b>  <i>“Breeding Salt-Tolerant Wheat”</i>  <i>“Biodiversity at Home and Abroad”</i>  <i>“Viruses: Living or Nonliving?”</i></p>
<p>L.6.3.4 Investigate organism interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships)</p>	
<p>L.6.3.5 Develop and use food chains, webs, and pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers</p>	
<p>L.6.4.1 Compare and contrast modern classification techniques (e.g., analyzing genetic material) to the historical practices used by scientists such as Aristotle and Carolus Linnaeus.</p>	
<p>L.6.4.2 Use classification methods to explore the diversity of organisms in kingdoms (animals, plants, fungi, protists, bacteria). Support claims that organisms have shared structural and behavioral characteristics.</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 4, Part 3</p>
<p>L.6.4.3 Analyze and interpret data from observations to describe how fungi obtain energy and respond to stimuli (e.g., bread mold, rotting plant material).</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 4, Part 3</p> <p><b>Diversity of Life FOSS Science Resources:</b>  <i>“Harmful and Helpful Bacteria”</i></p>
<p>L.6.4.4 Conduct investigations using a microscope or multimedia source to compare the characteristics of protists (euglena, paramecium, amoeba) and the methods they use to obtain energy and move through their environment (e.g., pond water).</p>	<p><b>Diversity of Life</b> Investigation Guide:                  Investigation 2, Part 1                  Investigation 2, Part 2                  Investigation 2, Part 3</p> <p><b>Diversity of Life FOSS Science Resources:</b>  <i>“The History of the Microscope”</i></p> <p><b>Online Activities:</b>  <i>“Virtual Microscope”</i>  <i>“Microscope Measurements”</i>  <i>“Database: Brine Shrimp Eating”</i>  <i>“Database: Brine Shrimp”</i></p>



Grade 6

<p>L.6.4.5 Engage in scientific arguments to support claims that bacteria (Archaeobacteria and Eubacteria) and viruses can be both helpful and harmful to other organisms and the environment.</p>	<p><b>Diversity of Life</b> <i>FOSS Science Resources:</i>  <i>"Harmful and Helpful Bacteria"</i>  <i>"Viruses: Living or Nonliving?"</i></p>
<p>P.6.6.1 Use an engineering design process to create or improve safety devices (e.g., seat belts, car seats, helmets) by applying Newton's Laws of motion. Use an engineering design process to define the problem, design, construct, evaluate, and improve the safety device.*</p>	<p><b>Electromagnetic Force</b> <i>FOSS Science Resources:</i>  <i>"Science Practices"</i>  <i>"Engineering Practices"</i></p>
<p>P.6.6.2 Use mathematical computation and diagrams to calculate the sum of forces acting on various objects</p>	<p><b>Electromagnetic Force</b> Investigation Guide:                  Investigation 1, Part 1                  Investigation 1, Part 2                  Investigation 1, Part 3                  Investigation 2, Part 1                  Investigation 2, Part 2                  Investigation 2, Part 3                  Investigation 3, Part 1                  Investigation 3, Part 3</p> <p><b>Electromagnetic Force</b> <i>FOSS Science Resources:</i>  <i>"The Force Is with You"</i>  <i>"The Discovery of Friction"</i>  <i>"Net Force"</i>  <i>"Magnetic Force"</i>  <i>"Parts of an Incandescent Bulb"</i>  <i>"Circuitry and Lightbulbs"</i>  <i>"What Is Electricity?"</i>  <i>"Electromagnetism"</i>  <i>"Engineering Design Process"</i>  <i>"Electromagnetic Engineering"</i></p>
<p>P.6.6.3 Investigate and communicate ways to manipulate applied/frictional forces to improve movement of objects on various surfaces (e.g., athletic shoes, wheels on cars)</p>	<p><b>Electromagnetic Force</b> Investigation Guide:                  Investigation 1, Part 2</p> <p><b>Electromagnetic Force</b> <i>FOSS Science Resource</i>  <i>"The Discovery of Friction"</i></p>
<p>P.6.6.4 Compare and contrast magnetic, electric, frictional, and gravitational forces.</p>	<p><b>Electromagnetic Force</b> Investigation Guide:                  Investigation 1, Part 3                  Investigation 2, Part 1                  Investigation 2, Part 2</p> <p><b>Electromagnetic Force</b> <i>FOSS Science Resource</i>  <i>"Net Force"</i></p>



Grade 6

<p>P.6.6.5 Conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration.</p>	<p><b>Electromagnetic Force</b> Investigation Guide: Investigation 1, Part 1</p> <p><b>Electromagnetic Force</b> FOSS Science Resources: <i>"The Force Is with You"</i></p>
<p>P.6.6.6 Investigate forces (gravity, friction, drag, lift, thrust) acting on objects (e.g., airplane, bicycle helmets). Use data to explain the differences between the forces in various environments.</p>	<p><b>Electromagnetic Force</b> Investigation Guide: Investigation 1, Part 2 Investigation 1, Part 3</p> <p><b>Electromagnetic Force</b> FOSS Science Resources: <i>"The Discovery of Friction"</i> <i>"Net Force"</i></p>
<p>P.6.6.7 Determine the relationships between the concepts of potential, kinetic, and thermal energy</p>	<p><b>Electromagnetic Force</b> Investigation Guide: Investigation 1, Part 1 Investigation 4, Part 1</p> <p><b>Electromagnetic Force</b> FOSS Science Resources: <i>"The Force Is with You"</i> <i>"Where We Get the Energy"</i></p>
<p>E.6.8.1 Obtain, evaluate, and summarize past and present theories and evidence to explain the formation and composition of the universe</p>	
<p>E.6.8.2 Use graphical displays or models to explain the hierarchical structure (stars, galaxies, galactic clusters) of the universe.</p>	<p><b>Planetary Science</b> Investigation Guide: Investigation 7, Part 1 Investigation 7, Part 2</p> <p><b>Planetary Science</b> FOSS Science Resources: <i>"The Cosmos in a Nutshell"</i> <i>"How Earth Got and Held onto Its Moon"</i></p>
<p>E.6.8.3 Evaluate modern techniques used to explore our solar system's position in the universe</p>	<p><b>Planetary Science</b> Investigation Guide: Investigation 9, Part 1 Investigation 9, Part 2</p> <p><b>Planetary Science</b> FOSS Science Resources: <i>"Hunt for Water Using Spectra"</i> <i>"Space Missions"</i></p>
<p>E.6.8.4 Obtain and evaluate information to model and compare the characteristics and movements of objects in the solar system (including planets, moons, asteroids, comets, and meteors).</p>	<p><b>Planetary Science</b> Investigation Guide: Investigation 7, Part 1 Investigation 7, Part 2</p> <p><b>Planetary Science</b> FOSS Science Resources: <i>"The Cosmos in a Nutshell"</i></p>
<p>E.6.8.5 Construct explanations for how gravity affects the motion of objects in the solar system and tides on Earth.</p>	<p><b>Planetary Science</b> FOSS Science Resources: <i>"The Cosmos in a Nutshell"</i></p>



Grade 6

<p>E.6.8.6 Design models representing motions within the Sun-Earth-Moon system to explain phenomena observed from the Earth’s surface (positions of celestial bodies, day and year, moon phases, solar and lunar eclipses, and tides).</p>	<p><b>Planetary Science</b> Investigation Guide: Investigation 2, Part 1 Investigation 2, Part 2</p> <p><b>Planetary Science</b> FOSS Science Resources: <i>“Eratosthenes: First to Measure Earth”</i> <i>“The Cosmos in a Nutshell”</i></p>
<p>E.6.8.7 Analyze and interpret data from the surface features of the Sun (e.g., photosphere, corona, sunspots, prominences, and solar flares) to predict how these features may affect Earth</p>	<p><b>Planetary Science</b> FOSS Science Resources: <i>“Seasons on Earth”</i></p>



Grade 7

State Standard	FOSS Alignment (to module/investigation/part as needed)
L.7.3.1 Analyze diagrams to provide evidence of the importance of the cycling of water, oxygen, carbon, and nitrogen through ecosystems to organisms.	<b>Populations &amp; Ecosystems</b> FOSS Science Resources: <i>“Energy and Life”</i>
L.7.3.2 Analyze and interpret data to explain how the processes of photosynthesis, and cellular respiration (aerobic and anaerobic) work together to meet the needs of plants and animals	<b>Populations &amp; Ecosystems</b> Investigation Guide: Investigation 5, Part 1 Investigation 5, Part 2  <b>Populations &amp; Ecosystems</b> FOSS Science Resources: <i>“Energy and Life”</i>
L.7.3.3 Use models to describe how food molecules (carbohydrates, lipids, proteins) are processed through chemical reactions using oxygen (aerobic) to form new molecules	<b>Populations &amp; Ecosystems</b> Investigation Guide: Investigation 5, Parts 2 & 4 Investigation 6, Part 1 & 3  <b>Populations &amp; Ecosystems</b> FOSS Science Resources: <i>“Energy and Life”</i> <i>“Where Does Food Come From?”</i> <i>“Trophic Levels”</i>
L.7.3.4 Explain how disruptions in cycles (e.g., water, oxygen, carbon, and nitrogen) affect biodiversity and ecosystem services (e.g., water, food, and medications) which are needed to sustain human life on Earth.	<b>Populations &amp; Ecosystems</b> Investigation Guide: Investigation 1, Parts 1-3 Investigation 4, Parts 1-3 Investigation 6, Part 1 & 3  <b>Populations &amp; Ecosystems</b> FOSS Science Resources: <i>“An Introduction to Mono Lake”</i> <i>“Minihabitat Organisms”</i> <i>“Biosphere 2: An Experiment in Isolation”</i> <i>“Trophic Levels”</i>
L.7.3.5 Design solutions for sustaining the health of ecosystems to maintain biodiversity and the resources needed by humans for survival (e.g., water purification, nutrient recycling, prevention of soil erosion, and prevention or management of invasive species).	<b>Populations &amp; Ecosystems</b> Investigation Guide: Investigation 8, Parts 1-3 Investigation 9, Parts 1-2  <b>Populations &amp; Ecosystems</b> FOSS Science Resources: <i>“Biodiversity”</i> <i>“Invasive Species”</i> <i>“Mono Lake in the Spotlight”</i> <i>“Ecoscenario Introductions”</i>
P.7.5A.1 Collect and evaluate qualitative data to describe substances using physical properties (state, boiling/melting point, density, heat/electrical conductivity, color, and magnetic properties)	<b>Chemical Interaction</b> Investigation Guide: Investigation 1, Parts 1-2 Investigation 7, Parts 1-2 Investigation 8, Parts 1-4  <b>Chemical Interactions</b> FOSS Science Resources: <i>“White Substances Information”</i> <i>“How Things Dissolve”</i>





Grade 7

	<i>"Rock Solid"</i>
P.7.5A.2 Analyze and interpret qualitative data to describe substances using chemical properties (the ability to burn or rust).	<p><b>Chemical Interaction</b> Investigation Guide: Investigation 1, Part 1 Investigation 1, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources: <i>"White Substances Information"</i></p>
P.7.5A.3 Compare and contrast chemical and physical properties (e.g., combustion, oxidation, pH, solubility, reaction with water).	<p><b>Chemical Interactions</b> FOSS Science Resources: <i>"Elements"</i></p>
P.7.5B.1 Make predictions about the effect of temperature and pressure on the relative motion of atoms and molecules (speed, expansion, and condensation) relative to recent breakthroughs in polymer and materials science (e.g. self-healing protective films, silicone computer processors, pervious/porous concrete).	<p><b>Chemical Interaction</b> Investigation Guide: Investigation 4, Part 1 Investigation 4, Part 2 Investigation 4, Part 3</p> <p><b>Chemical Interactions</b> FOSS Science Resources: <i>"Particles in Motion"</i> <i>"Expansion and Contraction"</i></p>
P.7.5B.2 Use evidence from multiple scientific investigations to communicate the relationships between pressure, volume, density, and temperature of a gas.	<p><b>Chemical Interaction</b> Investigation Guide: Investigation 4, Part 1 Investigation 4, Part 2 Investigation 4, Part 3 Investigation 8, Part 1 Investigation 8, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources: <i>"Particles in Motion"</i> <i>"Expansion and Contraction"</i> <i>"Rock Solid"</i></p>
P.7.5B.3 Ask questions to explain how density of matter (observable in various objects) is affected by a change in heat and/or pressure.	<p><b>Chemical Interactions</b> FOSS Science Resources: <i>"Particles in Motion"</i></p>
P.7.5C.1 Develop and use models that explain the structure of an atom	<p><b>Chemical Interaction</b> Investigation Guide: Investigation 9, Part 1</p> <p><b>Chemical Interactions</b> FOSS Science Resources: <i>"The Periodic Table of the Elements"</i> <i>"Atoms and Compounds"</i> <i>"How Do Atoms Rearrange?"</i> <i>"Antoine-Laurent Lavoisier"</i> <i>"Organic Compounds"</i></p>
P.7.5C.2 Use informational text to sequence the major discoveries leading to the current atomic model	<p><b>Chemical Interactions</b> FOSS Science Resources: <i>"Antoine-Laurent Lavoisier"</i> <i>"Element Hunters"</i></p>



Grade 7

<p>P.7.5C.3 Collect, organize, and interpret data from investigations to identify and analyze the relationships between the physical and chemical properties of elements, atoms, molecules, compounds, solutions, and mixtures</p>	<p><b>Chemical Interaction</b> Investigation Guide:                  Investigation 1, Part 1                  Investigation 1, Part 2                  Investigation 7, Part 1                  Investigation 7, Part 2                  Investigation 9, Part 1                  Investigation 9, Part 2                  Investigation 10, Part 1                  Investigation 10, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:                  “White Substances Information”                  “How Things Dissolve”                  “Concentration”                  “Atoms and Compounds”                  “Compound Structure”</p>
<p>P.7.5C.4 Predict the properties and interactions of elements using the periodic table (metals, non-metals, reactivity, and conductors).</p>	<p><b>Chemical Interaction</b> Investigation Guide:                  Investigation 2, Part 1                  Investigation 2, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:                  “Elements”                  “The Periodic Table of Elements”</p>
<p>P.7.5C.5 Describe concepts used to construct chemical formulas (e.g. CH<sub>4</sub>, H<sub>2</sub>O) to determine the number of atoms in a chemical formula.</p>	<p><b>Chemical Interaction</b> Investigation Guide:                  Investigation 9, Part 1                  Investigation 9, Part 2                  Investigation 9, Part 3                  Investigation 10, Part 1                  Investigation 10, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:                  “Elements”                  “The Periodic Table of Elements”</p>
<p>P.7.5C.6 Using the periodic table, make predictions to explain how bonds (ionic and covalent) form between groups of elements (e.g., oxygen gas, ozone, water, table salt, and methane)</p>	<p><b>Chemical Interaction</b> Investigation Guide:                  Investigation 2, Part 1</p> <p><b>Chemical Interactions</b> FOSS Science Resources:                  “Elements”                  “The Periodic Table of Elements”</p>
<p>P.7.5D.1 Analyze evidence from scientific investigations to predict likely outcomes of chemical reactions</p>	<p><b>Chemical Interaction</b> Investigation Guide:                  Investigation 10, Part 1                  Investigation 10, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:                  “The Periodic Table of Elements”</p>



Grade 7

<p>P.7.5D.2 Design and conduct scientific investigations to support evidence that chemical reactions (e.g., cooking, combustion, rusting, decomposition, photosynthesis, and cellular respiration) have occurred.</p>	<p><i>“Atoms and Compounds”</i></p> <p><b>Chemical Interaction</b> Investigation Guide:                      Investigation 9, Part 1                      Investigation 9, Part 2                      Investigation 9, Part 3                      Investigation 10, Part 1                      Investigation 10, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:  <i>“How Do Atoms Rearrange?”</i>  <i>“Fireworks”</i></p> <p><b>Populations &amp; Ecosystems</b> Investigation Guide:                      Investigation 5, Part 1                      Investigation 5, Part 2</p> <p><b>Populations &amp; Ecosystems</b> FOSS Science Resources:  <i>“Energy and Life”</i></p>
<p>P.7.5D.3 Collect, organize, and interpret data using various tools (e.g., litmus paper, pH paper, cabbage juice) regarding neutralization of acids and bases using common substances.</p>	<p><b>Chemical Interaction</b> Investigation Guide:                      Investigation 9, Part 3                      Investigation 10, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:  <i>“Atoms and Compounds”</i></p>
<p>P.7.5D.4 Build a model to explain that chemical reactions can store (formation of bonds) or release energy (breaking of bonds).</p>	<p><b>Chemical Interaction</b> Investigation Guide:                      Investigation 10, Part 3</p> <p><b>Chemical Interactions</b> FOSS Science Resources:  <i>“Atoms and Compounds”</i></p>
<p>P.7.5E.1 Conduct simple scientific investigations to show that total mass is not altered during a chemical reaction in a closed system. Compare results of investigations to Antoine-Laurent Lavoisier’s discovery of the law of conservation of mass.</p>	<p><b>Chemical Interaction</b> Investigation Guide:                      Investigation 9, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:  <i>“Antoine-Laurent Lavoisier: The Father of Modern Chemistry”</i></p>
<p>P.7.5E.2 Analyze data from investigations to explain why the total mass of the product in an open system appears to be less than the mass of reactants.</p>	<p><b>Chemical Interaction</b> Investigation Guide:                      Investigation 9, Part 1                      Investigation 9, Part 2                      Investigation 9, Part 3                      Investigation 10, Part 1                      Investigation 10, Part 2</p> <p><b>Chemical Interactions</b> FOSS Science Resources:  <i>“How Do Atoms Rearrange?”</i>  <i>“Fireworks”</i></p>



Grade 7

<p>P.7.5E.3 Compare and contrast balanced and unbalanced chemical equations to demonstrate the number of atoms does not change in the reaction.</p>	<p><b>Chemical Interaction</b> Investigation Guide:                  Investigation 9, Part 1                  Investigation 9, Part 2                  Investigation 9, Part 3</p> <p><b>Chemical Interactions</b> <i>FOSS Science Resources:</i>                  “How Do Atoms Rearrange?”</p>
<p>E.7.9A.1 Analyze and interpret weather patterns from various regions to differentiate between weather and climate.</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 1, Part 1                  Investigation 4, Part 1</p> <p><b>Weather and Water</b> <i>FOSS Science Resources:</i>                  “Severe Climate”                  “World Map”                  “Minneapolis-Area Climate”                  “Miami-Area Climate”                  “Great Plains Cities: Climate Data over 30 Years”                  “West Coast Cities: Climate Data over 30 Years”</p>
<p>E.7.9A.2 Analyze evidence to explain the weather conditions that result from the relationship between the movement of water and air masses.</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 1, Part 2 (foundational)                  Investigation 2, Parts 1-2 (foundational)                  Investigation 3, Part 1 (foundational)                  Investigation 3, Part 2                  Investigation 6, Parts 2-3                  Investigation 8, Parts 1-2</p> <p><b>Weather and Water</b> <i>FOSS Science Resources:</i>                  “What is Air Pressure?”                  “Density”                  “Density with Dey”                  “Wind on Earth”                  “Radar Images of Cloud Cover”                  “Earth: The Water Planet”                  “Ocean Currents and Gyres”</p>
<p>E.7.9A.3 Interpret atmospheric data from satellites, radar, and weather maps to predict weather patterns and conditions.</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 10, Part 1</p> <p><b>Weather and Water</b> <i>FOSS Science Resources:</i>                  “Severe Weather”                  “Fronts”                  “Weather and Fronts”</p>



Grade 7

<p>E.7.9A.4 Construct an explanation for how climate is determined in an area using global and surface features (e.g. latitude, elevation, shape of the land, distance from water, global winds and ocean currents).</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 4, Parts 1-3 (foundational)                  Investigation 5, Part 1 (foundational)                  Investigation 5, Part 2                  Investigation 6, Parts 2-3                  Investigation 8, Part 2                  Investigation 9, Parts 2-3</p> <p><b>Weather and Water</b> FOSS Science Resources:                  "World Map"                  "Minneapolis-Area Climate"                  "Miami-Area Climate"                  "Great Plains Cities: Climate Data over 30 Years"                  "West Coast Cities: Climate Data over 30 Years"                  "Wind on Earth"                  "Radar Images of Cloud Cover"                  "Ocean Currents and Gyres"                  "Climates: Past, Present and Future"</p>
<p>E.7.9A.5 Analyze models to explain the cause and effect relationship between solar energy and convection and the resulting weather patterns and climate conditions.</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 3, Parts 2-3                  Investigation, 6, Parts 1-3</p> <p><b>Weather and Water</b> FOSS Science Resources:                  "Density"                  "Density with Dey"</p>
<p>E.7.9A.6 Research and use models to explain what type of weather (thunderstorms, hurricanes, and tornadoes) results from the movement and interactions of air masses, high and low-pressure systems, and frontal boundaries.</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 1, Part 1 (foundational)                  Investigation 8, Part</p> <p><b>Weather and Water</b> FOSS Science Resources:                  "Severe Weather"                  "Ocean Currents"</p>
<p>E.7.9A.7 Interpret topographic maps to predict how local and regional geography affect weather patterns and make them difficult to predict.</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 1, Parts 1-2</p> <p><b>Weather and Water</b> FOSS Science Resources:                  "Severe Weather"</p>
<p>E.7.9B.1 Read and evaluate scientific or technical information assessing the evidence and bias of each source to explain the causes and effects of climate change</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 9, Part 1</p> <p><b>Weather and Water</b> FOSS Science Resources                  "Climate – Graph A"                  "Climate – Graph B"</p>
<p>E.7.9B.2 Interpret data about the relationship between the release of carbon dioxide from burning fossil fuels</p>	<p><b>Weather and Water</b> Investigations Guide:                  Investigation 9, Parts 1-3</p> <p><b>Weather and Water</b> FOSS Science Resource Book</p>



Grade 7

<p>into the atmosphere and the presence of greenhouse gases.</p>	<p><i>"What's in the Air?"</i> <i>"Climates: Past, Present, Future"</i></p>
<p>E.7.9B.3 Engage in scientific argument based on current evidence to determine whether climate change happens naturally or is being accelerated through the influence of man</p>	<p><b>Weather and Water</b> Investigations Guide: Investigation 9, Part 1</p> <p><b>Weather and Water</b> FOSS Science Resources <i>"Climate – Graph A"</i> <i>"Climate – Graph B"</i></p>
<p>E.7.9C.1 Construct models and diagrams to illustrate how the tilt of Earth's axis results in differences in intensity of sunlight on the Earth's hemispheres throughout the course of one full revolution around the Sun.</p>	<p><b>Weather and Water</b> Investigations Guide: Investigation 4, Parts 1-3 <i>"World Map"</i> <i>"Minneapolis-Area Climate"</i> <i>"Miami-Area Climate"</i> <i>"Great Plains Cities: Climate Data over 30 Years"</i> <i>"West Coast Cities: Climate Data over 30 Years"</i> <i>"Seasons"</i> <i>"Thermometer: A Device to Measure Temperature"</i></p>
<p>E.7.9C.2 Investigate how variations of sunlight intensity experienced by each hemisphere (to include the equator and poles) create the four seasons</p>	<p><b>Weather and Water</b> Investigations Guide: Investigation 4, Parts 1-3</p> <p><b>Weather and Water</b> FOSS Science Resources: <i>"World Map"</i> <i>"Minneapolis-Area Climate"</i> <i>"Miami-Area Climate"</i> <i>"Great Plains Cities: Climate Data over 30 Years"</i> <i>"West Coast Cities: Climate Data over 30 Years"</i> <i>"Seasons"</i></p>



Grade 8

State Standard	FOSS Alignment (to module/investigation/part as needed)
<p>L.8.2A.1 Obtain and communicate information about the relationship of genes, chromosomes, and DNA, and construct explanations comparing their relationship to inherited characteristics.</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                      Investigation 2, Part 1,                      Investigation 2, Part 2                      Investigation 2, Part 3                      Investigation 2, Part 4</p> <p><b>Heredity &amp; Adaptation</b> FOSS Science Resources:                      "Understanding Heredity"                      "A Larkey Yammer"                      "Mendel and Punnett Squares"                      "Mapping the Human Genome"</p>
<p>L.8.2A.2 Create a diagram of mitosis and explain its role in asexual reproduction, which results in offspring with identical genetic information</p>	
<p>L.8.2A.3 Construct explanations of how genetic information is transferred during meiosis</p>	<p><b>Heredity &amp; Adoption</b> FOSS Science Resources:                      "Understanding Heredity"</p>
<p>L.8.2A.4 Engage in discussion using models and evidence to explain that sexual reproduction produces offspring that have a new combination of genetic information different from either parent</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                      Investigation 2, Part 1,                      Investigation 2, Part 2                      Investigation 2, Part 3                      Investigation 2, Part 4</p> <p><b>Heredity &amp; Adaptation</b> FOSS Science Resources:                      "Understanding Heredity"                      "A Larkey Yammer"                      "Mendel and Punnett Squares"                      "Mapping the Human Genome"</p>
<p>L.8.2A.5 Compare and contrast advantages and disadvantages of asexual and sexual reproduction</p>	<p><b>Heredity &amp; Adaptation</b> FOSS Science Resources:                      "Understanding Heredity"</p>
<p>L.8.2B.1 Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms.</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                      Investigation 3, Part 1,                      Investigation 3, Part 2                      Investigation 3, Part 3</p> <p><b>Heredity &amp; Adaptation</b> FOSS Science Resources:                      "Adaptation"                      "Natural Selection"                      "What Makes a Scientific Theory?"                      "Influencing Evolution"</p>



Grade 8

<p>L.8.2B.2 Use various scientific resources to research and support the historical findings of Gregor Mendel to explain the basic principles of heredity.</p>	<p><b>Heredity &amp; Adaptation</b> <i>FOSS Science Resources:</i>  <i>"Understanding Heredity"</i>  <i>"Mendel and Punnett Squares"</i></p> <p><b>Heredity &amp; Adaptation SRB</b> pgs. 22-35                  DSR – DNA: Genes to Proteins Pg. 12-20</p>
<p>L.8.2B.3 Use mathematical and computational thinking to analyze data and make predictions about the outcome of specific genetic crosses (monohybrid Punnett Squares) involving simple dominant/recessive traits.</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                  Investigation 2, Part 2,                  Investigation 2, Part 3                  Investigation 2, Part 4</p> <p><b>Heredity &amp; Adaptation</b> <i>FOSS Science Resources:</i>  <i>"Mendel and Punnett Squares"</i>  <i>"Mapping the Human Genome"</i></p> <p><b>Online Activities:</b>  <i>"Larkey Impossible Traits"</i>  <i>"Larkey Punnett Square"</i></p>
<p>L.8.2B.4 Debate the ethics of artificial selection (selective breeding, genetic engineering) and the societal impacts of humans changing the inheritance of desired traits in organisms.</p>	<p><b>Heredity &amp; Adaptation</b> <i>FOSS Science Resources:</i>                  Investigation 3, Part 3</p> <p><b>Heredity &amp; Adaptation</b> <i>FOSS Science Resources:</i>  <i>"Influencing Evolution"</i></p>
<p>L.8.2C.1 Communicate through diagrams that chromosomes contain many distinct genes and that each gene holds the instructions for the production of specific proteins, which in turn affects the traits of the individual (not to include transcription or translation)</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                  Investigation 2, Part 1                  Investigation 2, Part 2                  Investigation 2, Part 3                  Investigation 2, Part 4</p> <p><b>Heredity &amp; Adaptation</b> <i>FOSS Science Resources:</i>  <i>"Understanding Heredity"</i></p>
<p>L.8.2C.2 Construct scientific arguments from evidence to support claims about the potentially harmful, beneficial, or neutral effects of genetic mutations on organisms.</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                  Investigation 3, Part 1                  Investigation 3, Part 2</p>
<p>L.8.4A.1 Use various scientific resources to analyze the historical findings of Charles Darwin to explain basic principles of natural selection.</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                  Investigation 3, Part 2</p> <p><b>Heredity &amp; Adaptation</b> <i>FOSS Science Resources:</i>  <i>"Natural Selection"</i></p>
<p>L.8.4A.2 Investigate to construct explanations about natural selection that connect growth, survival, and reproduction to genetic factors, environmental factors, food intake, and interactions with other organisms.</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide:                  Investigation 3, Part 2</p> <p><b>Heredity &amp; Adaptation</b> <i>FOSS Science Resources:</i>  <i>"Natural Selection"</i>  <i>"What Makes a Scientific Theory"</i></p>





Grade 8

<p>L.8.4B.1 Analyze and interpret data (e.g. pictures, graphs) to explain how natural selection may lead to increases and decreases of specific traits in populations over time</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide: Investigation 3, Part 2</p> <p><b>Heredity &amp; Adaptation</b> FOSS Science Resources: <i>Natural Selection</i> <i>What Makes a Scientific Theory</i></p>
<p>L.8.4B.2 Construct written and verbal explanations to describe how genetic variations of traits in a population increase some organisms' probability of surviving and reproducing in a specific environment.</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide: Investigation 2, Part 1 Investigation 2, Part 2</p> <p><b>Heredity &amp; Adaptation</b> FOSS Science Resources: <i>Tree Thinking</i> <i>Understanding Heredity</i> <i>A Larkey Yammer</i></p>
<p>L.8.4B.3 Obtain and evaluate scientific information to explain that separated populations, that remain separated, can evolve through mutations to become a new species (speciation).</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide: Investigation 3, Part 1</p> <p><b>Heredity &amp; Adaptation</b> FOSS Science Resources: <i>Influencing Evolution</i></p>
<p>L.8.4B.4 Analyze displays of pictorial data to compare and contrast embryological and homologous/analogous structures across multiple species to identify evolutionary relationships</p>	<p><b>Heredity &amp; Adaptation</b> Investigation Guide: Investigation 2, Part 2 Investigation 2, Part 3 Investigation 2, Part 4 Investigation 3, Part 1 Investigation 3, Part 2</p> <p><b>Heredity &amp; Adaptation</b> FOSS Science Resources: <i>A Larkey Yammer</i> <i>Mendel and Punnett Squares</i> <i>Mapping the Human Genome</i> <i>Adaptation</i> <i>Natural Selection</i> <i>What Makes a Scientific Theory?</i></p>
<p>P.8.6.1 Collect, organize, and interpret data about the characteristics of sound and light waves to construct explanations about the relationship between matter and energy.</p>	<p><b>Waves</b> Investigation Guide: Investigation 2, Part 1</p> <p><b>Waves</b> FOSS Science Resources: <i>Ocean Waves</i> <i>Sound Waves</i> <i>Acoustic Engineering</i></p>
<p>P.8.6.2 Investigate research-based mechanisms for capturing and converting wave energy (frequency, amplitude, wavelength, and speed) into electrical energy.</p>	<p><b>Waves</b> FOSS Science Resources: <i>Ocean Waves</i></p>



Grade 8

<p>P.8.6.3 Conduct simple investigations about the performance of waves to describe their behavior (e.g., refraction, reflection, transmission, and absorption) as they interact with various materials (e.g., lenses, mirrors, and prisms).</p>	<p><b>Waves</b> Investigation Guide:                      Investigation 2, Part 1                      Investigation 3, Part 1                      Investigation 3, Part 4</p> <p><b>Waves</b> FOSS Science Resources:  <i>“Sound Waves”</i>  <i>“Acoustic Engineering”</i>  <i>“Reflecting on Light”</i></p>
<p>P.8.6.4 Use scientific processes to plan and conduct controlled investigations to conclude sound is a wave phenomenon that is characterized by amplitude and frequency</p>	<p><b>Waves</b> Investigation Guide:                      Investigation 2, Part 1                      Investigation 2, Part 2                      Investigation 2, Part 3</p> <p><b>Waves</b> FOSS Science Resources:  <i>“Engineering Design Process”</i>  <i>“Sound Waves”</i>  <i>“Acoustic Engineering”</i></p>
<p>P.8.6.5 Conduct scientific investigations that describe the behavior of sound when resonance changes (e.g., waves in a stretched string and design of musical instruments).</p>	<p><b>Waves</b> Investigation Guide:                      Investigation 2, Part 1                      Investigation 2, Part 2</p> <p><b>Waves</b> FOSS Science Resources:  <i>“Transverse and Compression Waves”</i></p>
<p>P.8.6.6 Obtain and evaluate scientific information to explain the relationship between seeing color and the transmission, absorption, or reflection of light waves by various materials.</p>	<p><b>Waves</b> Investigation Guide:                      Investigation 3, Part 1                      Investigation 3, Part 2                      Investigation 3, Part 3</p> <p><b>Waves</b> FOSS Science Resources:  <i>“Reflecting on Light”</i>  <i>“Electromagnetic Spectra”</i>  <i>“Electromagnetic Radiation and Human Health”</i>  <i>“Throw a Little Light on Sight!”</i></p>
<p>P.8.6.7 Research the historical significance of wave technology to explain how digitized tools have evolved to encode and transmit information (e.g., telegraph, cell phones, and wireless computer networks)</p>	<p><b>Waves</b> Investigation Guide:                      Investigation 4, Part 1                      Investigation 4, Part 2                      Investigation 4, Part 3</p> <p><b>Waves</b> FOSS Science Resources:  <i>“Lasers”</i> “  <i>“Digital Communication”</i>  <i>“Telecommunication: From Telegraph to Smartphone”</i></p>



Grade 8

<p>P.8.6.8 Compare and contrast the behavior of sound and light waves to determine which types of waves need a medium for transmission.</p>	<p><b>Waves</b> Investigation Guide: Investigation 4, Part 1 Investigation 4, Part 2</p> <p><b>Waves</b> FOSS Science Resources: <i>“Lasers”</i> <i>“Digital Communication”</i></p>
<p>E.8.7.1 Use scientific evidence to create a timeline of Earth’s history that depicts relative dates from index fossil records and layers of rock (strata).</p>	<p><b>Earth History</b> Investigation Guide: Investigation 4, Part 1 Investigation 4, Part 2 Investigation 4, Part 3 Investigation 4, Part 4</p> <p><b>Earth History</b> FOSS Science Resources: <i>“A Fossil Primer”</i> <i>“Coconino Stories”</i> <i>“Rocks, Fossils, and Time”</i> <i>“Floating on a Prehistoric Sea”</i></p>
<p>E.8.7.2 Create a model of the processes involved in the rock cycle and relate it to the fossil record</p>	<p><b>Earth History</b> Investigation Guide: Investigation 7, Part 1 Investigation 7, Part 2 Investigation 7, Part 3 Investigation 7, Part 4</p> <p><b>Earth History</b> FOSS Science Resources: <i>“Geoscenario Introduction—Glaciers”</i> <i>“Geoscenario Introduction—Coal”</i> <i>“Geoscenario Introduction—Yellowstone Hotspot”</i> <i>“Geoscenario Introduction—Oil”</i></p>
<p>E.8.7.3 Construct and analyze scientific arguments to support claims that most fossil evidence is an indication of the diversity of life that was present on Earth and that relationships exist between past and current life forms.</p>	<p><b>Earth History</b> Investigation Guide: Investigation 4, Part 1 Investigation 4, Part 2 Investigation 4, Part 3 Investigation 4, Part 4</p> <p><b>Earth History</b> FOSS Science Resources: <i>“A Fossil Primer”</i> <i>“Coconino Stories”</i> <i>“Rocks, Fossils, and Time”</i> <i>“Floating on a Prehistoric Sea”</i></p>



Grade 8

<p>E.8.7.4 Use research and evidence to document how evolution has been shaped both gradually and through mass extinction by Earth’s varying geological conditions (e.g., climate change, meteor impacts, and volcanic eruptions).</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 8, Part 1                  Investigation 8, Part 2                  Investigation 8, Part 3                  Investigation 9, Part 1                  Investigation 9, Part 2</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Geoscenario Introduction— Glaciers”</i>  <i>“Geoscenario Introduction— Coal”</i>  <i>“Geoscenario Introduction— Yellowstone Hotspot”</i>  <i>“Geoscenario Introduction— Oil”</i>  <i>“Grand Canyon Revisited”</i></p>
<p>E.8.9A.1 Investigate and explain how the flow of Earth’s internal energy drives the cycling of matter through convection currents between Earth’s surface and the deep interior causing plate movements.</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 8, Part 1                  Investigation 8, Part 2                  Investigation 8, Part 3</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Geoscenario Introduction— Glaciers”</i>  <i>“Geoscenario Introduction— Coal”</i>  <i>“Geoscenario Introduction— Yellowstone Hotspot”</i>  <i>“Geoscenario Introduction— Oil”</i></p>
<p>E.8.9A.2 Explore and debate theories of plate tectonics to form conclusions about past and current movements of rocks at Earth’s surface throughout history.</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 6, Parts 1-3                  Investigation 7, Parts 1-4                  Investigation 8, Parts 1-3</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Earth’s Dynamic Systems”</i>  <i>“Rock Transformations”</i>  <i>“Volcanoes!” (optional)</i>  <i>“The Human Story of the Theory of Plate Tectonics”</i>  <i>“Historical Debates about a Dynamic Earth”</i></p>
<p>E.8.9A.3 Map land and water patterns from various time periods and use rocks and fossils to report evidence of how Earth’s plates have moved great distances, collided, and spread apart</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 3, Parts 1-3                  Investigation 4, Parts 1-4</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Where in the World Is Calcium Carbonate?”</i>  <i>“A Fossil Primer”</i>  <i>“Coconino Stories”</i>  <i>“Rocks, Fossils, and Time”</i>  <i>“Floating on a Prehistoric Sea”</i></p>



Grade 8

<p>E.8.9A.4 Research and assess the credibility of scientific ideas to debate and discuss how Earth’s constructive and destructive processes have changed Earth’s surface at varying time and spatial scales.</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 8, Part 1                  Investigation 8, Part 2                  Investigation 8, Part 3</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Historical Debates about a Dynamic Earth”</i></p>
<p>E.8.9A.5 Use models that demonstrate convergent and divergent plate movements that are responsible for most landforms and the distribution of most rocks and minerals within Earth’s crust</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 7, Part 1                  Investigation 7, Part 2                  Investigation 7, Part 3                  Investigation 7, Part 4</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Earth’s Dynamic Systems”</i>  <i>“Rock Transformations”</i></p>
<p>E.8.9A.6 Design and conduct investigations to evaluate the chemical and physical processes involved in the formation of soils</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 1, Part 1                  Investigation 1, Part 2                  Investigation 1, Part 3                  Investigation 2, Part 1                  Investigation 2, Part 2                  Investigation 2, Part 3                  Investigation 2, Part 4</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Seeing Earth”</i>  <i>“Getting to Know the Grand Canyon”</i>  <i>“Powell’s Grand Canyon Expedition, 1869”</i></p>
<p>E.8.9A.7 Explain the interconnected relationship between surface water and groundwater</p>	
<p>E.8.9B.1 Research and map various types of natural hazards to determine their impact on society.</p>	<p><b>Earth History</b> Investigation Guide:                  Investigation 6, Part 1                  Investigation 6, Part 2                  Investigation 6, Part 3</p> <p><b>Earth History FOSS Science Resources:</b>  <i>“Minerals, Crystals, and Rocks”</i></p>
<p>E.8.9B.2 Compare and contrast technologies that predict natural hazards to identify which types of technologies are most effective</p>	<p><b>Earth History FOSS Science Resources:</b>  <i>“Historical Debates about a Dynamic Earth”</i>  <i>“Geoscenario Introduction— Yellowstone Hotspot”</i></p>
<p>E.8.9B.3 Using an engineering design process, create mechanisms to improve community resilience, which safeguard against natural hazards (e.g., building restrictions in flood or tidal zones, regional watershed management, Firewise construction).*</p>	



Grade 8

E.8.10.1 Read and evaluate scientific information about advancements in renewable and nonrenewable resources. Propose and defend ways to decrease national and global dependency on nonrenewable resources.	
E.8.10.2 Create and defend a proposal for reducing the environmental effects humans have on Earth (e.g., population increases, consumer demands, chemical pollution, deforestation, and change in average annual temperature).	
E.8.10.3 Using scientific data, debate the societal advantages and disadvantages of technological advancements in renewable energy sources.	
E.8.10.4 Using an engineering design process, develop a system to capture and distribute thermal energy that makes renewable energy more readily available and reduces human impact on the environment (e.g., building solar water heaters, conserving home energy).*	