

Grade Kindergarten
 Standard 1: Physical Science

State Standard	FOSS Program
SC.K.1.2: Sunlight affects the Earth's surface.	
a. Make observations to determine the effect of sunlight on Earth's surface. (K-PS3-1) <i>(Clarification Statement: Examples of Earth's surface could include sand, soil, rocks and water) (Boundary: Temperature is limited to relative measures such as warmer/cooler.)</i>	FOSS Next Generation Materials and Motion TE: Investigation 3, Part 6 FOSS Next Generation Trees and Weather TE: Investigation 3, Parts 1-3 SE: <i>Up in the Sky, Weather</i> DR: Come a Tide
b. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. (K-PS3-2) <i>(Clarification Statement: Examples of structures could include umbrellas, canopies and tents that minimize the warming effect of the sun.)</i>	FOSS Next Generation Materials and Motion TE: Investigation 3, Part 6
State Standard	FOSS Program
SC.K.1.2: Pushes and pulls can have different strengths and directions, and can change the speed or direction of an object's motion or start or stop it.	
a. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. (K-PS2-1) <i>(Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball and two objects colliding and pushing on each other.)</i> <i>(Boundary: Limited to different relative strengths or different directions, but not both at the same time. Does not include non-contact pushes or pulls such as those produced by magnets.)</i>	FOSS Next Generation Materials and Motion TE: Investigation 4, Parts 1-4DR: FOSS Next Generation Trees and Weather TE: Investigation 3, Parts 1-3 SE: <i>Pushes and Pulls, Collisions</i> DR: Roller Coaster Builder
b. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. (K-PS2-2) <i>(Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.)</i> <i>(Boundary: Does not include friction as a mechanism for change in speed.)</i>	FOSS Next Generation Materials and Motion TE: Investigation 4, Parts 1-4 SE: <i>Pushes and Pulls, Collisions</i> DR: Roller Coaster Builder

Grade Kindergarten
 Standard 1: Life Science

State Standard	FOSS Program
<p>SC.K.2.1: To live and grow animals obtain food they need from plants or other animals</p> <p>a. Use observations to describe patterns of what plants and animals (including humans) need to survive. (K-LS1-1)</p> <p><i>(Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and that all living things need water.)</i></p>	<p>FOSS Next Generation Animals Two by Two TE: Investigation 1, Parts 1-5 Investigation 2, Parts 1-3 Investigation 3, Parts 1-3 Investigation 4, Parts 1-4 SE: <i>Fish Same and Different, Fish Live in Many Places, Birds Outdoors, Water and Land Snails, Worms in Soil, Isopods, Animals All around Us, Living and Nonliving</i> DR: Seashore Surprises, Find the Parent</p> <p>FOSS Next Generation Trees and Weather TE: Investigation 1, Parts 1-6 Investigation 2, Parts 1-5 Investigation 4, Parts 1-9 SE: <i>Where Do Trees Grow?, What Do Plants Need?, My Apple Tree, Orange Trees, Maple Trees</i> DR: Once There Was a Tree, Who Lives There?</p>

Standard 3: Earth and Space Science

State Standard	FOSS Program
<p>SC.K.3.: Patterns are observed when measuring the local weather, including how humans and other organisms impact their environment.</p> <p>Use and share observations of local weather conditions to describe patterns over time. (K-ESS2-1)</p> <p><i>(Clarification Statement: Examples of qualitative observations could include descriptions of the weather [such as sunny, cloudy, rainy, and warm]; examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.)</i></p> <p><i>(Boundary: Quantitative observations limited to whole numbers and relative measures such as warmer/cooler.)</i></p>	<p>FOSS Next Generation Trees and Weather TE: Investigation 3, Parts 1-3 Investigation 4, Parts 1-9 SE: <i>Up in the Sky, Weather, My Apple Tree, Orange Trees, Maple Trees</i> DR: Come a Tide</p>
<p>b. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. (K-ESS2-2)</p> <p><i>(Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.)</i></p>	<p>FOSS Next Generation Animals Two by Two TE: Investigation 1, Parts 1-5 Investigation 2, Parts 1-3 Investigation 3, Parts 1-3 Investigation 4, Parts 1-4 SE: <i>Fish Same and Different, Fish Live in Many Places, Birds Outdoors, Water and Land Snails, Worms in Soil, Isopods, Animals All around Us, Living and Nonliving</i> DR: Seashore Surprises, Find the Parent</p> <p>FOSS Next Generation Trees and Weather TE: Investigation 1, Parts 1-6 Investigation 4, Parts 1-9 SE: <i>Where Do Trees Grow?, What Do Plants Need?, My</i></p>

TE: Teacher Editions-Investigations Guide, Teacher Resources • SE: Student Edition-Science Resources Book • DR: Digital Resources

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	<p><i>Apple Tree, Orange Trees, Maple Trees</i> DR: Once There Was a Tree, Who Lives There?</p> <p>FOSS Next Materials and Motion TE: Investigation 1, Parts 1-7 Investigation 2, Parts 1-5 Investigation 3, Parts 1-6 SE: <i>The Story of a Chair, Are You an Engineer?, The Story of a Box, What Is Fabric Made From?, How Are Fabrics Used?, Land, Air, and Water, I Am Wood</i> DR: Where is Wood?, What is Agriculture, Weave a Pattern</p>
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Grade 1
 Standard 1: Physical Science

State Standard	FOSS Program
<p>SC.1.1.1: Sound can make matter vibrate and vibrating matter can make sound.</p>	
<p>a. Plan and conduct investigations to provide evidence that vibrating materials can make a sound and that sound can make materials vibrate. (1-PS4-1)</p> <p><i>(Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.)</i></p>	<p>FOSS Next Generation Sound and Light TE: Investigation 1, Parts 1 and 2 Investigation 2, Parts 1 - 4 SE: <i>Vibrations and Sound, Listen to This, Animal Ears and Hearing, Strings in Motion, More Musical Instruments, String-Cup Telephone</i> DR: All about Sound</p>
<p>b. Make observations to construct an evidence-based account that objects can be seen only when illuminated. (1-PS4-2)</p> <p><i>(Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.)</i></p>	<p>FOSS Next Generation Sound and Light TE: Investigation 4, Parts 1 & 3 SE: <i>Seeing the Light</i> DR: Light and Shadows</p>
<p>c. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. (1-PS4-3)</p> <p><i>(Clarification Statement: Examples of materials could include those that are transparent [such as clear plastic], translucent [such as wax paper], opaque [such as cardboard] and reflective [such as a mirror].)</i></p>	<p>FOSS Next Generation Sound and Light TE: Investigation 1, Parts 1–3 SE: <i>Playing in the Light</i> DR: Light and Shadows, All about Light, My Shadow</p>
<p>d. Use tools and materials to design and build a device that used light or sound to solve the problem of communicating over a distance. (1-PS4-4)</p> <p><i>(Clarification Statement: This performance expectation integrates transitional science content with engineering through a practice or disciplinary core idea.)</i></p>	<p>FOSS Next Generation Sound and Light TE: Investigation 2, Part 4; Investigation 4, Part 4 SE: <i>Communicating with Light, Animal Ears and Hearing, Strings in Motion, More Musical Instruments, Playing in the Light, Reflections, Seeing the Light</i></p>

Grade 1

Standard 2: Life Science

State Standard	FOSS Program
SC.1.2.1: All organisms have external parts that they use to perform daily functions.	
<p>a. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow and meet their needs. (1-LS1-1)</p> <p><i>(Clarification Statement: Examples of human problems that can be solved could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and detecting intruders by mimicking eyes and ears.)</i></p>	<p>FOSS Next Generation Plants and Animals TE: Investigation 3, Parts 3-4 SE: <i>What Do Animals Need, Plants and Animals around the World, Learning from Nature</i> DR: <i>Sorting Animals by Structure, Animal Growth</i></p> <p>FOSS Next Generation Sound and Light TE: Investigation 2, Part 1 Investigation 4, Part 3 SE: <i>Animal Ears and Hearing, Seeing the Light</i></p>
<p>b. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. (1-LS1-2)</p> <p><i>(Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make [such as crying, cheeping and other vocalizations] and the responses of the parents [such as feeding, comforting and protecting the offspring].)</i></p>	<p>FOSS Next Generation Plants and Animals TE: Investigation 1, Parts 1-4 Investigation 2, Parts 1-4 Investigation 4, Parts 1-3 SE: <i>What Do Plants Need?, The Story of Wheat, Variation, What Do Animals Need?, Plants and Animals around the World, Learning from Nature, Animals and Their Young</i> DR: <i>Animal Offspring and Caring for Animals, Find the Parent, Watch it Grow</i></p>

Standard 3: Earth and Space Science

State Standard	FOSS Program
SC.1.2.1: All organisms have external parts that they use to perform daily functions.	
<p>a. Use observations of the sun, moon, and stars to describe patterns that can be predicted. (1-ESS1-1)</p> <p><i>(Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky and set; and stars other than our sun are visible at night but not during the day.)</i></p>	<p>FOSS Next Generation Air and Weather TE: Investigation 2, Parts 1-4 Investigation 4, Parts 1-3 SE: <i>What Is the Weather Today?, Clouds, Water in the Air, Changes in the Sky, What's the Weather?, Changes in the Sky, Seasons, Getting through the Winter</i> DR: <i>Cloud Catcher, What is the Weather?</i></p>
<p>b. Make observations at different times of year to relate the amount of daylight to the time of year. (1-ESS1-2)</p> <p><i>(Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.)</i></p> <p><i>(Boundary Statement: Limited to relative amounts of daylight, not quantifying the hours or time of daylight.)</i></p>	<p>FOSS Next Generation Air and Weather TE: Investigation 2, Parts 1-4 Investigation 4, Parts 1-3 SE: <i>What Is the Weather Today?, Clouds, Water in the Air, Changes in the Sky, What's the Weather?, Changes in the Sky, Seasons, Getting through the Winter</i> DR: <i>Cloud Catcher, What is the Weather?</i></p>

Grade 2
 Standard 1: Physical Science

State Standard	FOSS Program
SC.2.1.1: Matter exists as different substances that have observable different properties.	
a. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. (2-PS1-1) <i>(Clarification Statement: Observations could include color, texture, hardness and flexibility. Patterns could include the similar properties that different materials share.)</i>	FOSS Next Generation Solids and Liquids TE: Investigation 1, Parts 1-3 Investigation 2, Parts 1-2 Investigation 4, Part 5 SE: Solid Objects and Materials, Liquids, Heating and Cooling, Is Change Reversible? DR: Clothing and Building Materials, All about Properties of Matter, Solids and Liquids, Change It!
b. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. (2-PS1-2) <i>(Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture and absorbency.) (Boundary Statement: Quantitative measurement is limited to length.)</i>	FOSS Next Generation Air and Weather TE: Investigation 1, Part 4 Investigation 4, parts 1-5 SE: Towers, Bridges, Mix It Up!, Heating and Cooling, Is Change Reversible? DR: Properties of Materials, Solids and Liquids, Change It!
c. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. (2-PS1-3) <i>(Clarification Statement: Examples of pieces could include blocks, building bricks or other assorted small objects.)</i>	FOSS Next Generation Solids and Liquids TE: Investigation 1, Part 4 Investigation 4, parts 1-5 SE: Towers, Bridges, Mix It Up!, Heating and Cooling, Is Change Reversible? DR: Properties of Materials, Solids and Liquids, Change It
d. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. (2-PS1-4) <i>(Clarification Statement: Examples of reversible changes could include materials such as water and butter at different temperatures. Examples of irreversible changes could include cooking an egg, freezing a plant leaf and heating paper.)</i>	FOSS Next Generation Solids and Liquids TE: Investigation 4, Part 4 SE: Mix it up!, Heating and Cooling, Is Change Reversible? DR: Solids and Liquids, Change It!

Standard 2: Life Science

State Standard	FOSS Program
SC.2.2.1: Plants depend on water and light to grow and on animals for pollination or to move their seeds around.	
a. Plan and conduct an investigation to determine if plants need sunlight and water to grow. (2-LS2-1) <i>(Boundary Statement: Limited to using one variable at a time.)</i>	FOSS Next Generation Insects and Plants TE: Investigation 2, Parts 1-4 SE: How Seeds Travel DR: How Plants Grow, What is Pollination?, Watch it Grow!, How Seeds Get Here and There
b. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. (2-LS2-2)	FOSS Next Generation Insects and Plants TE: Investigation 2, Parts 1-4 SE: How Seeds Travel DR: How Plants Grow, What is Pollination? Watch it Grow!, How Seeds Get Here and There

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Grade 2
 Standard 2: Life Science

State Standard	FOSS Program
<p>SC.2.2.2: A range of different organisms lives in different places.</p> <p>a. Make observations of plants and animals to compare the diversity of life in different habitats. (2-LS4-1)</p> <p><i>(Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.)</i></p>	<p>FOSS Next Generation Insects and Plants TE: Investigation 1, Parts 1-3 Investigation 2, Parts 1-4 Investigation 3, Parts 1-4 Investigation 4, Parts 1-4 Investigation 5, Parts 1-4 SE: <i>Animals and Plants in Their Habitats, Flowers and Seeds, How Seeds Travel, So Many Kinds, So Many Places, Insect Shapes and Colors, Insect Life Cycles, Life Goes Around</i> DR: All about Water Ecosystems, Habitat Gallery, Where does it Live? What Doesn't Belong? Organism Match</p>
<p>SC.2.1.1: Matter exists as different substances that have observable different properties.</p> <p>b. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. (2-PS1-1)</p> <p><i>(Clarification Statement: Observations could include color, texture, hardness and flexibility. Patterns could include the similar properties that different materials share.)</i></p>	<p>FOSS Next Generation Insects and Plants TE: Investigation 1, Parts 1 – 3 Investigation 2, Parts 1 – 2 Investigation 4, Part 5 SE: <i>Solid Objects and Materials, Liquids, Heating and Cooling, Is Change Reversible?</i> DR: Clothing and Building Materials, All about Properties of Matter, Solids and Liquids, Change It!</p>

Standard 3: Earth and Space Science

State Standard	FOSS Program
<p>SC.2.3.1: Some events on Earth occur quickly, others can occur very slowly.</p> <p>a. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. (2-ESS1-1)</p> <p><i>(Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly, and erosion of rocks, which occurs slowly.)</i></p>	<p>FOSS Next Generation Pebbles, Sand, and Silt TE: Investigation 1, Parts 1-3 Investigation 2, Parts 1-4 Investigation 3, Parts 1-4 Investigation 4, Parts 1-4 Investigation 5, Parts 1-4 SE: <i>Animals and Plants in Their Habitats, Flowers and Seeds, How Seeds Travel, So Many Kinds, So Many Places, Insect Shapes and Colors, Insect Life Cycles, Life Goes Around</i> DR: All about Water Ecosystems, Habitat Gallery, Where does it Live?, What Doesn't Belong?, Organism Match</p>

Grade 2

SC.2.3.2: Wind and water can change the shape of the land; models can show the shape and these changes to the land.	FOSS Program
a. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. (2-ESS2-1) <i>(Clarification Statement: Examples of solutions could include different designs of dikes and windbreaks to hold back wind and water, and different designs for using shrubs, grass, and trees to hold back the land.)</i>	FOSS Next Generation Pebbles, Sand, and Silt TE Investigation 4, Parts 1-4 SE: <i>What is Soil?, Testing Soil, Where is Water Found?, States of Water, Erosion, Ways to Represent Land and Water</i> DR: <i>All About Soil, All about Landforms</i>
b. Develop a model to represent the shapes and kinds of land and bodies of water in an area. (2-ESS2-2) <i>(Boundary Statement: Does not include quantitative scaling in models.)</i>	FOSS Next Generation Pebbles, Sand, and Silt TE Investigation 4, Part 4 SE: <i>Preventing Erosion, Land and Water on Earth</i> DR: <i>All About Landforms</i>
c. Obtain information to identify where water is found on Earth and that it can be solid or liquid. (ESS2-3)	FOSS Next Generation Pebbles, Sand, and Silt TE: Investigation 2, Parts 3-4 Investigation 4, Parts 3-4 SE: <i>Rocks Move, Landforms, Preventing Erosion, Land and Water on Earth</i> DR: <i>All About Land Formations</i>

Grade 3
 Standard 1: Physical Science

State Standard	FOSS Program
<p>SC.3.1.1: Patterns of motion can be used to predict future motion.</p>	
<p>a. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. (3-PS2-1)</p> <p><i>(Clarification Statement: Examples could include an unbalanced force on one side of a ball can make it start moving and balanced forces pushing on a box from both sides will not produce any motion at all.)</i></p> <p><i>(Boundary Statements: Limited to one variable at a time: number, size or direction of forces and to gravity being addressed as a force that pulls objects down. Does not include quantitative force size, only qualitative and relative.)</i></p>	<p>FOSS Next Generation Motion and Matter TE: Investigation 1, Parts 1-4 SE: <i>Magnetism and Electricity, What Scientists Do, Change of Motion</i> DR: Magnetic Poles, All about Motion and Balance, All about Magnets</p>
<p>b. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. (3-PS2-2)</p> <p><i>(Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl and two children on a see-saw.)</i></p> <p><i>(Boundary Statement: Does not include technical terms such as period and frequency.)</i></p>	<p>FOSS Next Generation Motion and Matter TE: Investigation 2, Parts 1-4 SE: <i>Patterns of Motion, What Goes Around</i> DR: Roller Coaster Builder</p>
<p>SC.3.1.2: Objects in contact exert forces on each other; electric and magnetic forces between a pair of objects do not require contact.</p>	
<p>a. Ask questions to determine cause - and - effect relationships of electric or magnetic interactions between two objects not in contact with each other. (3-PS2-3)</p> <p><i>(Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause - and - effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.)</i></p> <p><i>(Boundary Statement: Limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.)</i></p>	<p>FOSS Next Generation Motion and Matter TE: Investigation 1, Parts 1 – 2 SE: <i>Magnetism and Gravity</i> DR: Magnetic Poles, Force at a Distance All about Magnets</p>
<p>b. Define a simple design problem that can be solved by applying scientific ideas about magnets. (3-PS2-4)</p> <p><i>(Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.)</i></p>	<p>FOSS Next Generation Motion and Matter TE: Investigation 3, Part 4 SE: <i>Magnets at Work</i></p>

Grade 3
 Standard 2: Life Science

State Standard	FOSS Program
<p>SC.3.2.1: Organisms have unique and diverse life cycles.</p> <p>a. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction and death. (3-LS1-1)</p> <p><i>(Clarification Statement: Changes organisms go through during their life form a pattern.)</i></p> <p><i>(Boundary Statement: Limited to those of flowering plants and does not include details of human reproduction.)</i></p>	<p>FOSS Next Generation Structures of Life TE: Investigation 1, Parts 1 - 2 SE: <i>Germination, Life Cycles</i> DR: All about Animal Life Cycles</p>
<p>SC.3.2.2: Being part of a group helps animals obtain food, defend themselves and cope with changes.</p> <p>a. Construct an argument that some animals form groups that help members survive. (3-LS2-1)</p>	<p>FOSS Next Generation Structures of Life TE: Investigation 3, Part 3 SE: <i>Life on Earth</i> DR: All about Animal Behavior and Communication</p>
<p>SC.3.2.3 Different organisms vary in how they look and function because they have different inherited information; the environment also affects the traits that an organism develops.</p> <p>a. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. (3-LS3-1)</p> <p><i>(Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.)</i></p> <p><i>(Boundary Statement: Does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.)</i></p>	<p>FOSS Next Generation Structures of Life TE: Investigation 3, Part 2 SE: <i>Adaptations</i> DR: All about Animal Adaptations, Walking Stick Survival</p>
<p>b. Use evidence to support the explanation that traits can be influenced by the environment. (3-LS3-2)</p> <p><i>(Clarification Statement: Examples of the environment affecting a trait could that include normally tall plants grown with insufficient water are stunted; and a pet dog that is given too much food and little exercise may become overweight.)</i></p>	<p>FOSS Next Generation Structures of Life TE: Investigation 3, Part 4 SE: <i>A Change in the Environment</i> DR: Where Does it Live? What Doesn't Belong? Habitat Match</p>
<p>SC.3.2.4: Some living organisms resemble organisms that once lived on Earth .</p> <p>a. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. (3-LS4-1)</p> <p><i>(Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas and fossils of extinct organisms.)</i></p> <p><i>(Boundary Statement: Does not include identification of specific fossils or present plants and animals and is limited to major fossil types and relative ages.)</i></p>	<p>FOSS Next Generation Structures of Life TE: Investigation 3, Part 2 SE: <i>Fossils</i> DR: All about Fossils</p>

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<p>b. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates and reproducing. (3-LS4-2)</p> <p><i>(Clarification Statement: Examples of cause - and - effect relationships could be that plants that have larger thorns than other plants may be less likely to be eaten by predators; and animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.)</i></p>	<p>FOSS Next Generation Structures of Life TE: Investigation 3, Part 2 SE: <i>Adaptations</i> DR: <i>All about Adaptations</i></p>
<p>SC.3.2.5: Sometimes differences in characteristics between individuals of the same species provide advantages in survival and reproduction</p>	
<p>a. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well and some cannot survive at all. (3-LS4-3)</p> <p><i>(Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.)</i></p>	<p>FOSS Next Generation Structures of Life TE: Investigation 3, Parts 2 & 4 SE: <i>Adaptations, A Change in the Environment</i> DR: <i>All about Animal Adaptations, What Doesn't Belong? Organism Match</i></p>
<p>b. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. (3-LS4-4)</p> <p><i>(Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food and other organisms.)</i></p> <p><i>(Boundary Statement: Limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.)</i></p>	<p>FOSS Next Generation Structures of Life TE: Investigation 3, Part 3 SE: <i>Adaptations, A Change in the Environment</i> DR: <i>All about Animal Adaptations, What Doesn't Belong? Organism Match</i></p>

Grade 3
 Standard 3: Earth and Space Science

State Standard	FOSS Program
SC.3.3.1: Climate describes patterns of typical weather conditions over different scales and variations; historical weather patterns can be analyzed.	
a. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. (3-ESS2-1) <i>(Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction. Obtain and combine information to describe climates in different regions of the world.)</i> <i>(Boundary Statement: Graphical displays are limited to pictographs and bar graphs. Does not include climate change.)</i>	FOSS Next Generation Water and Climate TE: Investigation 4, Part 1 EA: Notebook Entry BM: Investigation 4 I-Check
b. Obtain and combine information to describe climates in different regions of the world. (3-ESS2-2)	FOSS Next Generation Water and Climate TE: Investigation 4, Part 2 SE: <i>Climate Regions</i> DR: <i>All about Climate and Seasons, Climate Regions Map</i>
SC.3.3.2: A variety of weather hazards result from natural process; humans cannot eliminate weather-related hazards but can reduce their impacts.	
a. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. (3-ESS3-1) <i>(Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs and lightning rods.)</i>	FOSS Next Generation Water and Climate TE: Investigation 4, Part 3 SE: <i>Wetlands for Flood Control, Conserving Water during Droughts</i> DR: <i>Come a Tide, Floods</i>

Grade 4

Standard 1: Physical Science

State Standard	FOSS Program
<p>SC.4.1.1: The faster an object moves the more energy it has.</p> <p>a. Use evidence to construct an explanation relating the speed of an object to the energy of that object. (4-PS3-1)</p> <p><i>(Clarification Statement: Examples of evidence relating speed and energy could include change of shape on impact or other results of collisions.)</i></p> <p><i>(Boundary Statement: Does not include quantitative measures of changes in speed of an object or on any precise or quantitative definition of energy.)</i></p>	<p>FOSS Next Generation Energy TE: Investigation 4, Parts 2-3 SE: <i>Energy, What Causes Change of Motion, Bowling, Force and Energy, Potential and Kinetic Energy at Work</i> DR: Soccer, Ball on a Table, Wagon, All about the Transfer of Energy</p>
<p>SC.4.1.2: Energy can be moved from place to place.</p> <p>a. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat and electric currents. (4-PS3-2)</p> <p><i>(Boundary Statement: Does not include quantitative measurement of energy.)</i></p>	<p>FOSS Next Generation Energy TE: Investigation 1, Parts 1-4 Investigation 3, Part 3 Investigation 5, Parts 2-3 SE: <i>Energy Sources, Morse Gets Clicking, Light Interactions, Alternative Sources of Electricity</i> DR: Wave</p>
<p>SC.4.1.3: When objects collide contact forces transfer so as to change objects' motion.</p> <p>a. Ask questions and predict outcomes about the changes in energy that occur when objects collide. (4-PS3-3)</p> <p><i>(Clarification Statement: Emphasis is on the change in the energy due to the change in speed, not on the forces, as objects interact.)</i></p> <p><i>(Boundary Statement: Does not include quantitative measures of energy.)</i></p>	<p>FOSS Next Generation Energy TE: Investigation 4, Parts 2-3 SE: <i>What Causes Changes of Motion, Bowling, Force and Energy, Potential and Kinetic Energy at Work</i> DR: All about Transfer of Energy</p>
<p>SC.4.1.4: Energy can be produced, used or released by converting stored energy.</p> <p>a. Apply scientific ideas to design, test and refine a device that converts energy from one form to another. (4-PS3-4)</p> <p><i>(Clarification Statement: Examples of evidence relating speed and energy could include change of shape on impact or other results of collisions.)</i></p> <p><i>(Boundary Statement: Does not include quantitative measures of changes in speed of an object or on any precise or quantitative definition of energy.)</i></p>	<p>FOSS Next Generation Energy TE: Investigation 3, Parts 1-3 Investigation 5, Part 3 SE: <i>Electricity Creates Magnetism, Using Magnetic Fields, Electromagnets Everywhere, Morse Gets Clicking, Alternative Sources of Electricity</i></p>
<p>SC.4.1.5: Waves are regular patterns of motion.</p> <p>a. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. (4-PS4-1)</p> <p><i>(Clarification Statement: Examples of models could include diagrams, analogies and physical models using wire to illustrate wavelength and amplitude of waves.)</i></p> <p><i>(Boundary Statement: Does not include interference effects, electromagnetic waves, non-periodic waves or quantitative models of amplitude and wavelength.)</i></p>	<p>FOSS Next Generation Energy TE: Investigation 5, Parts 1-2 SE: <i>Waves, More about Sound, Light Interactions</i> DR: Sound Energy, Waves, All about Waves, All about Light</p>

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<p>SC.4.1.6: An object can be seen when light reflected from its surface enters the eyes.</p>	
<p>a. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. (4-PS4-2)</p> <p><i>(Boundary Statement: Does not include knowledge of specific colors reflected and seen, the cellular mechanisms of vision or how the retina works.)</i></p>	<p>FOSS Next Generation Energy TE: Investigation 5, Part 2 SE: <i>Light Interactions, Throw a Little Light on Sight, More Light on the Subject</i> DR: All about Light</p>
<p>SC.4.1.7: Patterns can encode, send, receive and decode information.</p>	
<p>a. Generate and compare multiple solutions that use patterns to transfer information. (4-PS4-3)</p> <p><i>(Clarification Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1s and 0s representing black and white to send information about a picture and using Morse code to send text.)</i></p>	<p>FOSS Next Generation Energy TE: Investigation 3, Part 3 SE: <i>Morse Gets Clicking</i></p>

Standard 2: Life Science

State Standard	FOSS Program
<p>SC.4.2.1: Organisms have both internal and external structures that serve various functions.</p>	
<p>a. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior and reproduction. (4-LS1-1)</p> <p><i>(Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lungs, brain and skin.) (Boundary Statement: Stress at this level is on understanding the macroscale systems and their functions, not the microscopic scale.)</i></p>	<p>FOSS Next Generation Environments TE: Investigation 1, Parts 1-2 Investigation 2, Part 4 Investigation 4, Part 3 SE: <i>Two Terrestrial Environments, Darling Beetles, Isopods, Animal Sensory Systems,</i> DR: Animal Language and Communication, All about Plant Adaptations</p>
<p>b. 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. (4-LS1-2)</p> <p><i>(Clarification Statement: Emphasis is on systems information transfer.)</i></p> <p><i>(Boundary Statement: Does not include the mechanisms by which the brain stores and recalls information or the mechanism of how sensory receptors function.)</i></p>	<p>FOSS Next Generation Environments TE: Investigation 2, Part 1 Investigation 3, Part 3 SE: <i>Freshwater Environments, The Shrimp Club</i> DR: Trout Range of Tolerance</p>

Grade 4
 Standard 3: Earth and Space Science

State Standard	FOSS Program
<p>SC.4.3.1: Earth has changed over time.</p> <p>a. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. (4-ESS1-1)</p> <p><i>(Clarification Statement: Examples of evidence from patterns could include rock layers with shell fossils above rock layers with plant fossils and no shells, indicating a change from water to land 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.)</i></p> <p><i>(Boundary Statement: Does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers, and should only include relative time.)</i></p>	<p>FOSS Next Generation Soils, Rocks, and Landforms TE: Investigation 2, Parts 1-4 SE: <i>Erosion and Deposition, Landforms Photo Album, Fossils Tell a Story, Pieces of a Dinosaur Puzzle</i> DR: <i>Fossils</i></p>
<p>SC.4.3.2: Four major earth systems interact.</p> <p>a. 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-ESS2-1)</p> <p><i>(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.)</i></p> <p><i>(Boundary Statement: Limited to a single form of weathering or erosion.)</i></p>	<p>FOSS Next Generation Soils, Rocks, and Landforms TE: Investigation 1, Parts 1-4 SE: <i>What is Soil?, Weathering,</i> DR: <i>Weathering and Erosion, Soils</i></p>
<p>SC.4.3.3: Earth's physical features occur in patterns.</p> <p>a. Analyze and interpret data from maps to describe patterns of Earth's features. (4-ESS2-2)</p> <p><i>(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.)</i></p>	<p>FOSS Next Generation Soils, Rocks, and Landforms TE: Investigation 3, Parts 1-3 SE: <i>Topographic Maps, The Story of Mt. Shasta</i> DR: <i>Topographer</i></p>
<p>SC.4.3.4: Energy and fuels that humans use are derived from natural sources and their use affects the environment in multiple ways.</p> <p>a. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. (4-ESS3-1)</p> <p><i>(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.)</i></p>	<p>FOSS Next Generation Soils, Rocks, and Landforms TE: Investigation 4, Parts 1 & 3 SE: <i>Monumental Rocks, Geoscientists at Work</i> DR: <i>Natural Resources</i></p>
<p>SC.4.3.5: A variety of hazards result from natural process; humans cannot eliminate natural hazards but can reduce</p>	

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<p>their impacts' effect.</p>	
<p>a. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. (4-ESS3-2)</p> <p><i>(Clarification Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.)(Boundary: Limited to earthquakes, floods, tsunamis, and volcanic eruptions.)</i></p>	<p>FOSS Next Generation Soils, Rocks, and Landforms TE: Investigation 3, Parts 3-4 SE: <i>It Happened So Fast!</i> DR: Mount St. Helen's Impact</p>

Grade 5
 Standard 1: Physical Science

State Standard	FOSS Program
SC.5.1.1: Matter exists as particles that are too small to be seen; measurements of a variety of observable properties can be used to identify particular materials.	
a. Develop a model to describe that matter is made of particles too small to be seen. (5-PS1-1) <i>(Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water and evaporating salt water. Does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.)</i>	FOSS Next Generation Mixtures and Solutions TE: Investigation 1, Parts 1 and 2 Investigation 3, parts 1-4 Investigation 4, Parts 1-4 SE: <i>Mixtures, Separations, Solutions Up Close, Concentrated Solutions, Carbon Dioxide Concentration in the Air, The Frog Story, The Bends, A Sweet Solution, Sour Power, Drinking Ocean Water</i> DR: Fizz Quiz, Chemical Reactions, Changes in Properties of Matter, Tutorials: Concentration, Density, Saturation, Virtual Investigation: Saltwater Concentration, Solubility Why are Oceans Salty?, The Water Cycle FOSS Next Generation Earth and Sun TE: Investigation 3, Part 1 SE: <i>What is Air?</i> DR: Ball on a Scale, Fizz Keeper Experiment, Soda Can Experiment
b. Make observations and measurements to identify materials based on their properties. (5-PS1-3) <i>(Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces and solubility; density is not intended as an identifiable property. Does not include density or distinguishing mass and weight.)</i> <i>(Boundary Statement: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.)</i>	FOSS Next Generation Mixtures and Solutions TE: Investigation 4, Parts 1-3 Investigation 5, Parts 1-3 SE: <i>The Bends, A Sweet Solution, Sour Power, Ask a Chemist, When Substances Change, Air Bags</i> DR: Virtual Investigation: Solubility, Tutorial: Saturation, Fizz Quiz and Reaction or Not, Changes in Properties of Matter
SC.5.1.2: Chemical Reactions that occur when substances are mixed can be identified by the emergence of substances with different properties; the total mass remains the same.	
a. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling or mixing substances, the total weight of matter is conserved. (5-PS1-2) <i>(Clarification Statement: Examples of reactions or changes could include phase changes, dissolving and mixing that form new substances. Does not include distinguishing mass and weight.)</i> <i>(Boundary Statement: Mass and weight are not distinguished at this grade level.)</i>	FOSS Next Generation Mixtures and Solutions TE: Investigation 1, Part 2 Investigation 5 parts 1-3 SE: <i>Mixtures, Ask a Chemist, When Substances Change, Air Bags</i> DR: Tutorial: Solutions and Reaction or Not?, Fizz Quiz, Chemical Reactions
b. Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (5-PS1-4)	FOSS Next Generation Mixtures and Solutions TE: Investigation 5, Parts 1-3 SE: <i>Ask a Chemist, When Substances Change, Air Bags</i> DR: Fizz Quiz, Chemical Reactions, Changes in Properties of Matter

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<p>SC.5.1.3: The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.</p>	
<p>a. Support an argument that the gravitational force exerted by Earth on objects is directed down. (5-PS2-1)</p> <p><i>(Clarification Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.)</i></p> <p><i>(Boundary Statement: Does not include mathematical representation of gravitational force).</i></p>	<p>FOSS Next Generation Earth and Sun TE: Investigation 2, Part 4 SE: <i>Why Doesn't Earth Fly Off into Space?</i> DR: The Planets and the Solar System</p>
<p>SC.5.1.4: The energy released from food was once energy from the sun.</p>	
<p>a. Use models to describe that energy in animals' food (used for body repair, growth and motion and to maintain body warmth) was once energy from the sun. (5-PS3-1)</p> <p><i>(Clarification Statement: Examples of models could include diagrams and flowcharts.)</i></p>	<p>FOSS Next Generation Living Systems TE: Investigation 1, Parts 3 – 4 Investigation 2, Parts 1 - 3 SE: <i>Comparing Aquatic and Terrestrial Ecosystems, Nature's Recycling System, Producers, Getting Nutrients</i> DR: Web of Life: Life in the Sea, Food Chains</p>

Grade 5
 Standard 2: Life Science

State Standard	FOSS Program
<p>SC.5.2.1: Plants acquire their material from growth chiefly from air and water.</p> <p>a. Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS1-1)</p> <p><i>(Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.)</i></p>	<p>FOSS Next Generation Living Systems</p> <p>TE: Investigation 2, Parts 1-3 Investigation 3, Part 1</p> <p>SE: <i>There's Yeast in My Bread!, Producers, Getting Nutrients, The Human Digestive System, Leaf Classification, Plant Vascular System, The Story of Maple Syrup</i></p>
<p>SC.5.2.2: Matter cycles between air and soil and among plants, animals and microbes as these organisms live and die.</p> <p>a. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. (5-LS2-1)</p> <p><i>(Clarification Statement: Emphasis is on the idea that matter that is not food [air, water, decomposed materials in soil] is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.)</i></p> <p><i>(Boundary Statement: Does not include molecular explanations.)</i></p>	<p>FOSS Next Generation Living Systems</p> <p>TE: Investigation 1, Parts 3 – 4; Investigation 2, Parts 1 - 3</p> <p>SE: <i>Comparing Aquatic and Terrestrial Ecosystems, Nature's Recycling Systems, Producers, Getting Nutrients</i></p> <p>DR: <i>Web of Life: Life in the Sea, Simulation: Food Webs, Food Chains</i></p>

Grade 5
 Standard 3: Earth and Space Science

State Standard	FOSS Program
SC.5.3.1: Stars range greatly in size and distance from Earth, and this can explain their relative brightness.	
a. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. (5-ESS1-1) <i>(Clarification Statement: Limited to relative distances, not sizes, of stars. Does not include other factors that affect apparent brightness [such as stellar masses, age and stage].)</i>	FOSS Next Generation Earth and Sun TE: Investigation 2, Part 5 SE: <i>Stargazing, Star Scientists, Our Galaxy</i> DR: <i>All about Stars, Stellar Motions</i>
SC.5.3.2: Earth's orbit and rotation and the orbit of the moon around earth cause observable patterns.	
a. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. (5-ESS1-2) <i>(Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.)</i> <i>(Boundary Statement: Does not include causes of seasons.)</i>	FOSS Next Generation Earth and Sun TE: Investigation 1, Parts 1 - 3 SE: <i>Changing Shadows, Sunrise and Sunset</i> DR: <i>Shadow Tracker, Seasons</i>
SC.5.3.3: Earth's major systems interact in multiple ways to affect Earth's surface materials and processes.	
a. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere and/or atmosphere interact. (5-ESS2-1) <i>(Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.)</i> <i>(Boundary Statement: Limited to the interactions of two systems at a time.)</i>	FOSS Next Generation Earth and Sun TE: Investigation 3, Parts 2 – 3, Investigation 4, Parts 1 – 3; Investigation 5, Parts 1 - 3 SE: <i>Earth's Atmosphere, Uneven Heating, Heating the Air, Wind and Convection, Condensation, The Water Cycle, Severe Weather</i> DR: <i>Earth's Atmosphere, Radiation, Energy Transfer, Convection, Water Cycle Game</i>
SC.5.3.4: Most of Earth's water is in the ocean and much of Earth's freshwater in glaciers or underground	
a. Describe and graph the amounts and percentages of saltwater and freshwater in various reservoirs to provide evidence about the distribution of water on Earth. (5-ESS2-2) <i>(Boundary Statement: Limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.)</i>	FOSS Next Generation Earth and Sun TE: Investigation 5, Part 3 SE: <i>Where's the Earth's Water, The Water Cycle</i> DR: <i>Water Cycle Game</i>
SC.5.3.5: Societal activities have had major effects on land, ocean, atmosphere and even outer space.	
a. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. (5-ESS3-1)	FOSS Next Generation Earth and Sun TE: Investigation 5, Part 4 SE: <i>Earth's Climates, Global Climate Change</i> DR: <i>Climate and Seasons</i>

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