

Grade Kindergarten
 Life Science (LS)

Physical and Behavioral Traits of Living Things

This topic focuses on observing, exploring, describing and comparing living things in Ohio.

| State Standard | FOSS /Delta Program |
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| <p>Life Science: Physical and Behavioral Traits of Living Things</p> <p>K.LS.1. Living things have specific characteristics and traits. Living things grow and reproduce. Living things are found worldwide.</p> | <p>FOSS Next Generation <i>Animals 2 by 2</i> IG: Inv. 1 Parts 1,4,5 Inv. 2 Parts 1-2 Inv. 3 Parts 1,3 Inv. 4 Parts 1-2 SRB: <i>Fish Same and Different, Fish Live in Many Places, Birds Outdoors, Worms in Soil, Isopods</i> DOR: <i>Seashore Surprises</i></p> <p>FOSS Next Generation <i>Trees and Weather</i> IG: Inv. 1 Parts 1-2 Inv. 2 Parts 1-5 Inv. 4 Parts 1-5 SRB: <i>How Do We Learn?, Our Very Own Tree, My Apple Tree, Orange Tree</i> DOR: <i>Leaf Sorting, Once There Was a Tree, Who Lives Here?</i></p> |
| <p>K.LS.2: Living things have physical traits and behaviors, which influence their survival. Living things are made up of a variety of structures. Some traits can be observable structures. Some of these structures and behaviors influence their survival.</p> | <p>FOSS Next Generation <i>Animals 2 by 2</i> IG: Inv.1 Parts 2,3,5 Inv.2 Part 3 Inv.3 Part 2-3 Inv.4 Parts 3-4 SRB: <i>Water and Land Snails, Worms in Soil, Animals all Around Us</i> DOR: <i>Find the Parent</i></p> <p>FOSS Next Generation <i>Trees and Weather</i> IG: Inv. 1 Parts 1-2 Inv. 2 Parts 1-5 Inv. 4 Parts 1-5 SRB: <i>How Do We Learn?, Our Very Own Tree, My Apple Tree, Orange Trees</i> DOR: <i>Leaf Sorting, Once There Was a Tree, Who Lives Here?</i></p> |

Grade Kindergarten
Earth and Space Science (ESS)

This topic focuses on observing, exploring, describing and comparing weather changes, patterns in the sky and changing seasons.

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| <p>K.ESS.1: Weather changes are long-term and short-term. Weather changes occur throughout the day and from day to day.</p> <p>Air is a nonliving substance that surrounds Earth and wind is air that is moving.</p> <p>Wind, temperature and precipitation can be used to document short-term weather changes that are observable.</p> <p>Yearly weather changes (seasons) are observable patterns in the daily weather changes.</p> | <p>FOSS Next Generation <i>Trees and Weather</i> IG: Inv. 3 Parts 1-3 Inv. 4 Parts 1-5 SRB: <i>Up in the Sky, Weather, My Apple Tree</i></p> |
| <p>K.ESS.2: The moon, sun and stars can be observed at different times of the day or night. The moon, sun and stars appear in different positions at different times of the day or night. Sometimes the moon is visible during the night, sometimes the moon is visible during the day and at other times the moon is not visible at all. The observable shape of the moon changes in size very slowly throughout the month. The sun is visible only during the day.</p> <p>The sun's position in the sky appears to change in a single day and from season to season. Stars are visible at night, some are visible in the evening or morning and some are brighter than others.</p> | <p>FOSS Next Generation <i>Trees and Weather</i> IG: Inv. 3 Part 1 SRB: <i>Up in the Sky</i></p> <p>Supplemental Reading Delta Science Reader: <i>Finding the Moon</i> Delta Science Reader: <i>Weather and Sky</i></p> |

Physical Science (PS)

Properties of Everyday Objects and Materials

This topic focuses on the production of sound and on observing, exploring, describing and comparing the properties of objects and materials with which the student is familiar.

| State Standard | FOSS/Delta Program |
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| <p>Properties of Everyday Objects and Materials</p> <p>K.PS.1: Objects and materials can be sorted and described by their properties.</p> <p>Objects can be sorted and described by the properties of the materials from which they are made. Some of the properties can include color, size and texture.</p> | <p>FOSS Next Generation <i>Materials and Motion</i> IG: Inv. 1 Parts 1-4 Inv. 2 Parts 1-5 Inv. 3 Parts 1-4 Inv. 4 Parts 1-2 SRB: <i>The Story of a Chair, The Story of a Box, What is Fabric Made From? How are Fabrics Used?</i> DOR: <i>What is Agriculture? Weave a Pattern,</i></p> |
| <p>K.PS.2: Some objects and materials can be made to vibrate to produce sound. Sound is produced by touching, blowing or tapping objects. The sounds that are produced vary depending on the properties of objects. Sound is produced when objects vibrate.</p> | <p>FOSS Next Generation <i>Sound and Light</i> IG: Inv. 1 Parts 1-3 Inv. 2 Parts 1-4 SRB: <i>Vibrations and Sound, Listen to This, Animals Ears and Hearing, Strings in Motion, More Musical Instruments,</i> DOR: <i>Sorting Sounds, All About Sound</i></p> |

Grade 1
Life Science (LS)

Basic Needs of Living Things

This topic focuses on the physical needs of living things in Ohio. Energy from the sun or food, nutrients, water, shelter and air are some of the physical needs of living things.

| State Standard | FOSS/Delta Program |
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| Basic Needs of Living Things | |
| <p>1.LS.1: Living things have basic needs, which are met by obtaining materials from the physical environment. Living things require energy, water, and a particular range of temperatures in their environments. Plants get energy from sunlight. Animals get energy from plants and other animals. Living things acquire resources from the living and nonliving components of the environment.</p> | <p>FOSS Next Generation <i>Plants and Animals</i> IG: Inv. 1 Parts 1-3 Inv. 2 Parts 1-2 Inv. 3 Parts 1-4 Inv. 4 Parts 1-2 SRB: <i>What Do Plants Need? The Story of Wheat, What do Animals Need? Plants and Animals Around the World, Learning from Nature</i> DOR: <i>How Plants Grow, Sorting Animals by Structures, Animal Growth, Watch it Grow</i></p> |
| <p>1.LS.2: Living things survive only in environments that meet their needs. Resources are necessary to meet the needs of an individual and populations of individuals. Living things interact with their physical environments as they meet those needs. Effects of seasonal changes within the local environment directly impact the availability of resources.</p> | <p>FOSS Next Generation <i>Plants and Animals</i> IG: Inv. 1 Part 4 Inv. 2 Parts 1-3 Inv. 3 Parts 1-4 Inv. 4 part 3 SRB: <i>Variation, Plants and Animals Around the World, Learning from Nature, Animals and Their Young,</i> DOR: <i>How Plants Live in Different Places, Animal Growth, Animal Offspring, Caring for Animals, Find the Parent</i></p> |

Earth and Space Science (ESS)

This topic focuses on the sun as a source of energy and energy changes that occur to land, air and water.

| State Standard | FOSS/Delta Program |
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| Sun, Energy and Weather | |
| <p>1.ESS.1: The sun is the principal source of energy. Sunlight warms Earth's land, air and water. The amount of exposure to sunlight affects the amount of warming or cooling of air, water and land.</p> | <p>Delta Science Module, 3rd Edition <i>Weather and Sky</i> Inv. 2; Inv. 3 Delta Science Reader: <i>Weather and Sky</i></p> |
| <p>1.ESS.2: Water on Earth is present in many forms. The physical properties of water can change. These changes occur due to changing energy. Water can change from a liquid to a solid and from a solid to a liquid.</p> | <p>Delta Science Module, 3rd Edition <i>Weather and Sky</i> Inv. 1; Inv. 5; Inv. 6 Delta Science Reader: <i>Weather and Sky</i></p> |

Physical Science (PS)

IG: Investigations Guide • TR: Teacher Resources • SRB: Student Science Resources Book • DOR: Digital-Only Resources
EA: Embedded Assessment • BM: Benchmark Assessment • IA: Interim Assessment

Grade 1

This topic focuses on the changes in properties that occur in objects and materials. Changes of position of an object are a result of pushing or pulling.

| State Standard | FOSS/Delta Program |
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| <p>Motion and Materials</p> <p>1.PS.1: Properties of objects and materials can change. Objects and materials change when exposed to various conditions, such as heating or cooling. Changes in temperature are a result of changes in energy. Not all materials change in the same way.</p> | <p>FOSS Next Generation Solids and Liquids IG: Inv. 1 Parts 1-5 Inv. 2 Parts 1-4 Inv. 3 Parts 1-5 Inv. 4 Parts 1-5 SRB: <i>Everything Matters, Solid Object Materials, Towers, Bridges, Liquids, Pouring, Comparing Solids and Liquids, Mix it Up, Heating and Cooling, Is Change Reversible?,</i> DOR: <i>Clothing and Building Materials, Properties of Materials, Falling Bottle Puzzle, Solids and Liquids, Change It!</i></p> |
| <p>1.PS.2: Objects can be moved in a variety of ways, such as straight, zigzag, circular and back and forth.</p> <p>The position of an object can be described by locating it relative to another object or to the object's surroundings. An object is in motion when its position is changing.</p> <p>The motion of an object can be affected by pushing or pulling. A push or pull is a force that can make an object move faster, slower or go in a different direction. Changes in motion are a result of changes in energy.</p> | <p>Delta Science First Reader: <i>Where Is It? Is It Moving?</i></p> <p>Note; This standard is addressed in K FOSS Next Generation Materials and Motion IG: Inv. 4 Parts 1-4 SRB: <i>Pushes and Pulls, Collisions</i> DOR: <i>Build a Roller Coaster</i></p> <p>Also, fully addressed in Grade 2 with FOSS Balance and Motion Third Edition: Inv. 1; Parts 1-4 Inv. 2; Parts 1-3 Inv. 3; Parts 1-4 Inv. 5; Part 1, Part 2</p> |

Grade 2
 Life Science (LS)

Interactions within Habitats

This topic focuses on how ecosystems work by observations of simple interactions between the biotic/living and abiotic/nonliving parts of an ecosystem. Just as living things impact the environment in which they live, the environment impacts living things.

| State Standard | FOSS/Delta Program |
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| <p>Interaction within Habitats</p> <p>2.LS.1: Living things cause changes on Earth. Living things function and interact with their physical environments. Living things cause changes in the environments where they live; the changes can be very noticeable or slightly noticeable, fast or slow.</p> | <p>FOSS Next Generation <i>Insects and Plants</i> IG: Inv. 2 Part 4 Inv. 3 Parts 2-4 Inv. 4 Part 4 Inv. 5 Part 4 SRB: <i>Animals and Plants in Their Habitats, How Seeds Travel, So Many Kinds So Many Places,</i> DOR: <i>How Seeds Get Here...and There, Watch it Grow! Insect Hunt</i></p> |
| <p>2.LS.2: All organisms alive today result from their ancestors, some of which may be extinct. Not all kinds of organisms that lived in the past are represented by living organisms today. Some kinds of organisms become extinct when their basic needs are no longer met or the environment changes.</p> | <p>FOSS Next Generation <i>Plants and Animals</i> IG: Inv. 1 Parts 1-3 Inv. 2 Parts 1-4 Inv. 3 Parts 1-3 Inv. 4 Parts 1-3 Inv. 5 Parts 1-3 SRB: <i>Animals and Plants in Their Habitats, Flowers and Seeds, So Many Kinds So Many Places, Insect Shapes and Sizes, Insect Life Cycles, Life Goes Around</i> DOR: <i>How Plants Grow, What is Pollination? Watch it Grow!</i></p> <p>Note: Extinct organisms reviewed more fully in Grade 3</p> <p>FOSS Next Generation <i>Structures of Life</i> IG: Inv. 4 Part 2 SRB: <i>Fossils</i> DOR: <i>All About Fossils</i></p> |

Grade 2
Earth and Space Science (ESS)

The Atmosphere

This topic focuses on air and water as they relate to weather and weather changes that can be observed and measured.

| State Standard | FOSS Program |
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| The Atmosphere | |
| <p>2.ESS.1: The atmosphere is primarily made up of air.</p> <p>Air has properties that can be observed and measured. The transfer of energy in the atmosphere causes air movement, which is felt as wind. Wind speed and direction can be measured.</p> | <p>FOSS Next Generation <i>Air and Weather</i></p> <p>IG: Inv. 1 Parts 1-5 Inv. 2 Parts 1-3 Inv. 3 Parts 1-5</p> <p>SRB: <i>What is All Around Us?, What is the Weather Today?, Clouds in the Air, Weather and an Anemometer, Understanding the Weather, Resources</i></p> <p>DOR: <i>Friction and Air Resistance, Wind Speed</i></p> |
| <p>2.ESS.2: Water is present in the atmosphere as water vapor.</p> <p>When water vapor in the atmosphere cools, it forms clouds, fog, rain, ice, snow, sleet or hail.</p> | <p>FOSS Next Generation <i>Air and Weather</i></p> <p>IG: Inv. 1 Parts 1-2 Inv. 2 Parts 1,3</p> <p>SRB: <i>What is All Around Us? What is the Weather Today? Clouds, Water in the Air, Seasons</i></p> <p>DOR: <i>Cloud Catcher</i></p> |
| <p>2.ESS.3: Long- and short-term weather changes occur due to changes in energy.</p> <p>Changes in energy affect all aspects of weather, including temperature, precipitation, and wind.</p> | <p>FOSS Next Generation <i>Air and Weather</i></p> <p>IG: Inv. 2 Parts 1-3 Inv. 3 Parts 1-5 Inv. 4 Parts 1-3</p> <p>SRB: <i>Water in the Air, Understanding the Weather, Seasons,</i></p> <p>DOR: <i>Wind Speed, What's the Weather?</i></p> |

Physical Science (PS)

Changes in Motion

This topic focuses on observing the relationship between forces and motion.

| State Standard | FOSS/Delta Program |
|---|---|
| The Atmosphere | |
| <p>2.PS.1: Forces change the motion of an object.</p> <p>Motion can increase, change direction or stop depending on the force applied.</p> <p>The change in motion of an object is related to the size of the force.</p> <p>Some forces act without touching, such as using a magnet to move an object or objects falling to the ground.</p> | <p>FOSS Third Edition <i>Balance and Motion</i></p> <p>IG: Inv. 1; Parts 1-4 Inv. 2; Parts 1-3 Inv. 3; Parts 1-4 Inv. 5; Part 1, Part 2 (Enrichment)</p> <p>SRB: <i>Make it Balance, Push or Pull?, Things That Spin, Rolling, Rolling, Rolling; Strings in Motion, Move It But Don't Touch It, Tools and Motion</i></p> |

Grade 3
Life Science (LS)

Behavior, Growth and Changes

This topic explores life cycles of organisms and the relationship between the natural environment and an organism's (physical and behavioral) traits, which affect its ability to survive and reproduce.

| State Standard | FOSS Program |
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| <p>Behavior, Growth and Changes</p> <p>3.LS.1: Offspring resemble their parents and each other. Individual organisms inherit many traits from their parents indicating a reliable way to transfer information from one generation to the next.</p> <p>Some behavioral traits are learned through interactions with the environment and are not inherited.</p> | <p>FOSS Next Generation Structures of Life IG: Inv. 1 Parts 1,2,4 Inv. 2 Parts 1-3 Inv. 3 Parts 1-3 SRB: <i>The Reason for Fruit, The Most Important Seed, Nature Journal-How Seeds Travel, Germination, Crayfish, Life on Earth</i> DOR: <i>How Seeds Get Here...and There,</i></p> |
| <p>3.LS.2: Individuals of the same kind of organism differ in their inherited traits. These differences give some individuals an advantage in surviving and/or reproducing.</p> <p>Plants and animals have physical features that are associated with the environments where they live.</p> <p>Plants and animals have certain physical or behavioral characteristics that influence their chances of surviving in particular environments.</p> | <p>FOSS Next Generation Structures of Life IG: Inv. 1 Parts 2-4 Inv. 2 Parts 1-3 Inv. 3 Parts 1-3 Inv. 4 Parts 2,4 SRB: <i>The Most Important Seed, Barbara McClintock, Nature Journal-How Seeds Travel, Germination, Adaptation, Life on Earth, Fossils, Crayfish, Snails and Humans, Fingerprints, Supertwins</i> DOR: <i>How Seeds Get Here...and There, How Plants Get Food, All About Animal Adaptations, Walking Stick Survival, All about Fossils</i></p> |
| <p>3.LS.3: Plants and animals have life cycles that are part of their adaptations for survival in their natural environments. Worldwide, organisms are growing, reproducing, dying and decaying. The details of the life cycle are different for different organisms, which affects their ability to survive and reproduce in their natural environments.</p> | <p>FOSS Next Generation Structures of Life IG: Inv. 1 Parts 2-4 Inv. 2 Part 2 Inv. 3 Part 1 SRB: <i>The Most Important Seed, Barbara McClintock, Nature Journal-How Seeds Travel Life Cycles, Crayfish</i> DOR: <i>How Seeds Get Here...and There, All About Animal Life Cycles</i></p> |

Grade 3
Earth and Space Science (ESS)

Earth's Resources

This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.

| State Standard | FOSS/Delta Program |
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| <p>Earth's Resources</p> <p>3.ESS.1: Earth's nonliving resources have specific properties. Soil is composed of pieces of rock, organic material, water and air and has characteristics that can be measured and observed. Use the term "soil", not "dirt". Dirt and soil are not synonymous.</p> <p>Rocks have specific characteristics that allow them to be sorted and compared. Rocks form in different ways. Air and water are also nonliving resources.</p> | <p>FOSS Next Generation <i>Pebbles, Sand, and Silt</i> IG: Inv. 1; Parts 1-5 Inv. 2; Parts 1-4 Inv. 4; Parts 1-2, SRB: <i>Exploring Rocks, The Story of Sand, Rocks Move, Landforms, What is Soil?, Testing Soil</i> DOR: <i>All about Volcanoes, Rock Sorting, Property Chain, All About Land Formations, All about Soil,</i></p> <p>Note: This standard is reviewed in Grade 4 FOSS Next Generation Soils, Rocks and Landforms IG: Inv. 1 Parts 1-4 SRB: <i>What is Soil?</i> DOR: Soils</p> |
| <p>3.ESS.2: Earth's resources can be used for energy.</p> <p>Renewable energy resources, such as wind, water or solar energy, can be replenished within a short amount of time by natural processes.</p> <p>Nonrenewable energy is a finite resource, such as natural gas, coal or oil, which cannot be replenished in a short amount of time.</p> | <p>Delta Science Content Reader (2 reading levels): <i>Energy</i></p> <p>Note: This standard is addressed in Grade 4 FOSS Next Generation Soils, Rocks and Landforms IG: Inv. 4 Part 1 SRB: <i>Geoscientists at Work,</i> DOR: <i>Natural Resources, Resource ID</i></p> <p>Also addressed in Grade 4 FOSS Next Generation Energy SRB: <i>Energy Sources</i></p> |
| <p>3.ESS.3: Some of Earth's resources are limited. Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources.</p> | <p>FOSS Next Generation <i>Pebbles, Sand and Silt</i> IG: Inv. 3; Parts 1-5 Inv. 4; Parts 3, 4 SRB: <i>Making Things with Rocks, What are Natural Resources? Where is Water Found?, Erosion,</i> DOR: <i>Find Earth Materials,</i></p> <p>Note: Standard reviewed in Grade 4 FOSS Next Generation Soils, Rocks and Landforms IG: Inv. 4 Parts 1,3 SRB: <i>Geoscientists at Work,</i> DOR: <i>Natural Resources, Resource ID</i></p> <p>Also reviewed in Grade 4 FOSS Next Generation Energy SRB: <i>Energy Sources</i></p> |

Grade 3
Physical Science (PS)

Matter and Forms of Energy

This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.

| State Standard | FOSS /Delta Program |
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| <p>Matter and Forms of Energy</p> <p>3.PS.1: All objects and substances in the natural world are composed of matter. Matter takes up space and has mass.</p> <p>Differentiating between mass and weight is not necessary at this grade level.</p> | <p>FOSS Third Edition <i>Measuring Matter</i> IG: Inv. 2 Parts 2-5 Inv. 4 Parts 1-3 SRB: <i>Water Everywhere, The Metric System, Opinion and Evidence, Which has More Mass? Mixtures and Solutions, Solids and Liquids, Reactions</i></p> <p>OR</p> <p>ScienceFLEX (with 4 Reading levels of SRBs): <i>Energy and the States of Matter:</i> <i>Lesson 1 Properties of Matter</i></p> |
| <p>3.PS.2: Matter exists in different states, each of which has different properties. The most recognizable states of matter are solids, liquids and gases.</p> <p>Shape and compressibility are properties that can distinguish between the states of matter.</p> <p>One way to change matter from one state to another is by heating or cooling</p> | <p>FOSS Third Edition <i>Measuring Matter</i> IG: Inv. 2 part 1 Inv. 3 Parts 1-4 SRB: <i>States of Matter, Vacation Aggravation, Celsius and Fahrenheit, Melt and Freeze, Liquid and Gas Changes</i></p> <p>OR</p> <p>ScienceFLEX (with 4 Reading Levels of SRBs): <i>Energy and the States of Matter</i> <i>Lesson 2 Changing Matter</i> <i>Lesson 3 Properties of Solids, Liquids and Gases</i> <i>Lesson 5 Melting</i> <i>Lesson 6 Freezing</i> <i>Lesson 7 Evaporation</i> <i>Lesson 8 Weather and Solids, Liquids and Gases</i></p> |

Grade 3

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| <p>3.PS.3: Heat, electrical energy, light, sound and magnetic energy are forms of energy.</p> <p>There are many different forms of energy. Energy is the ability to cause motion or create change. The different forms of energy that are outlined at this grade level should be limited to familiar forms that a student is able to observe.</p> | <p>FOSS Third Edition Measuring Matter IG: Inv. 3 Parts 1-4 SRB: <i>Vacation Aggravation, Celsius and Fahrenheit, Melt and Freeze, Liquid and Gas Changes</i></p> <p>Note: This standard fully addressed in Grade 4 Next Generation FOSS Energy IG: Inv. 1 Parts 1-2 Inv. 2 Parts 1-3 Inv. 4 Part 1 Inv. 5 Part 2 SRB: <i>Edison Sees the Light, Energy Sources, Magnetic Observations, When Magnet Meets Magnet, Magnificent Magnetic Models, Energy, Light Interactions, Throw a Little Light on Sight, More Light on the Subject</i> DOR: <i>Lighting a Bulb, Flow of Electricity, Simple Circuits, Virtual Investigation: What Sticks and What Conducts?, All About Magnets, Magnetic Poles, All About Light, Reflecting Light</i></p> |
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Grade 4
Life Science (LS)

Earth's Living History

This topic focuses on using fossil evidence and living organisms to observe that suitable habitats depend upon a combination of biotic and abiotic factors.

| State Standard | FOSS/Delta Program |
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| <p>Earth's Living History</p> <p>4.LS.1: Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.</p> <p>Ecosystems can change gradually or dramatically. When the environment changes, some plants and animals survive and reproduce and others die or move to new locations.</p> <p>Ecosystems are based on interrelationships among and between biotic and abiotic factors. These include the diversity of other organisms present, the availability of food and other resources, and the physical attributes of the environment.</p> | <p>FOSS Next Generation Environments</p> <p>IG: Inv. 1 Parts 1-3 Inv. 2 Parts 1-4 Inv. 3 Parts 1-4 Inv. 4 Parts 1-3</p> <p>SRB: <i>Two Terrestrial Environments, Setting Up a Terrarium, Amazon Rain Forest Journal, Freshwater Environments, What is an Ecosystem, Food Chains and Webs, Human Activities and Aquatic Ecosystems, Comparing Aquatic and Terrestrial Ecosystems, Animal Sensory Systems, Saving Murrelets through Mimicry, Brine Shrimp, The Mono Lake Story, What Happens When Ecosystems Change?, The Shrimp Club, Variation and Selection, Environmental Scientists, Range of Tolerance, How Organisms Depend on One Another,</i></p> <p>DOR: <i>Virtual Terrarium, Virtual Aquarium, Animal Language, Communication, Food Webs, Trout Range of Tolerance, Analyzing Environmental Experiments, All About Plant Adaptations</i></p> |
| <p>4.LS.2: Fossils can be compared to one another and to present-day organisms according to their similarities and differences.</p> <p>The concept of biodiversity is expanded to include different classification schemes based upon shared internal and external characteristics of organisms.</p> <p>Most species that have lived on Earth are extinct.</p> <p>Fossils provide a point of comparison between the types of organisms that lived long ago and those existing today.</p> | <p>FOSS Next Generation Environments</p> <p>IG: Inv. 4 Part 2 SRB: <i>Animals from the Past</i></p> <p>FOSS Next Generation Soils, Rocks, Landforms</p> <p>IG: Inv.2 Part 4 SRB: <i>Fossils Tell a Story, Pieces of a Dinosaur Puzzle</i> DOR: <i>Fossils</i></p> |

Grade 4

Earth and Space Science (ESS)

Earth's Surface

This topic focuses on the variety of processes that shape and reshape Earth's surface.

| State Standard | FOSS/Delta Program |
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| <p>Earth's Surface</p> <p>4.ESS.1: Earth's surface has specific characteristics and landforms that can be identified.</p> <p>About 70 percent of the Earth's surface is covered with water and most of that is the ocean. Only a small portion of the Earth's water is freshwater, which is found in rivers, lakes, groundwater and glaciers.</p> <p>Earth's surface can change due to erosion and deposition of soil, rock or sediment.</p> <p>Catastrophic events such as flooding, volcanoes and earthquakes can create landforms.</p> | <p>FOSS Next Generation Soils, Rocks and Landforms</p> <p>IG: Inv. 1 Parts 1-4 Inv. 2 Parts 1-3 Inv. 3 Parts 3-4</p> <p>SRB: <i>What is Soil?, Weathering, Erosion and Deposition, Landforms Photo Album, The Story of Mt. Shasta, It Happened So Fast</i></p> <p>DOR: <i>Weathering and Erosion, Soils, Geology Lab-Stream Tables, Tutorial-Stream Tables: Slope and Flood, Virtual Investigation-Stream Tables, Volcanoes</i></p> |
| <p>4.ESS.2: The surface of Earth changes due to weathering.</p> <p>Rocks change shape, size and/or form due to water or glacial movement, freeze and thaw, wind, plant growth, acid rain, pollution and catastrophic events such as earthquakes, flooding, and volcanic activity.</p> | <p>FOSS Next Generation Soils, Rocks and Landforms</p> <p>IG: Inv. 1 Parts 2-3 Inv. 3 Parts 3-4</p> <p>SRB: <i>Weathering, It Happened So Fast</i></p> <p>DOR: <i>Weathering and Erosion, Mt. St. Helen's Impact, Volcanoes</i></p> |

Grade 4
Physical Science (PS)

Electricity, Heat and Matter

This topic focuses on the conservation of matter and the processes of energy transfer and transformation, especially as they apply to heat and electrical energy.

| State Standard | FOSS/Delta Program |
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| <p>Electricity, Heat and Matter</p> | |
| <p>.4.PS.1: When objects break into smaller pieces, dissolve, or change state, the total amount of matter is conserved. When an object is broken into smaller pieces, when a solid is dissolved in a liquid or when matter changes state (solid, liquid, gas), the total amount of matter remains constant.</p> | <p>Delta Science Content Reader: <i>Changes in Matter</i> Note: This standard was addressed in Grade 3 FOSS Third Edition <i>Measuring Matter</i> or ScienceFLEX <i>Energy and the States of Matter</i></p> |
| <p>4.PS.2: Energy can be transferred from one location to another or can be transformed from one form to another. Energy transfers from hot objects to cold objects as heat, resulting in a temperature change. Electric circuits require a complete loop of conducting materials through which electrical energy can be transferred. Electrical energy in circuits can be transformed to other forms of energy, including light, heat, sound and motion. Electricity and magnetism are closely related.</p> | <p>FOSS Next Generation <i>Energy</i> IG: Inv. 1 Parts 1-2 Inv. 2 Parts 1-3 Inv. 3 Parts 1-3 Inv. 4 Part 1 Inv. 5 Part 3 SRB: <i>Edison Sees the Light, Energy Sources, Magnetic Observations, When Magnet Meets Magnet, Magnificent Magnetic Models, Electricity Creates Magnetism, Using Magnetic Fields, Electromagnets Everywhere, Morse Gets Clicking, Energy, Light Interactions, Throw a Little Light on Sight, More Light on the Subject, Alternative Sources of Electricity</i> DOR: <i>Lighting a Bulb, Flow of Electricity, Simple Circuits, Virtual Investigation: What Sticks and What Conducts?, All About Magnets, Magnetic Poles, Kitchen Magnets, Tutorial-Electromagnets, Virtual Electromagnet All About Light, Reflecting Light</i></p> |

Grade 5
Life Science (LS)

Interconnections within Ecosystems

This topic focuses on foundational knowledge of the structures and functions of ecosystems.

| State Standard | FOSS/Delta Program |
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| Interconnections within Ecosystems | |
| <p>5.LS.1: Organisms perform a variety of roles in an ecosystem. Populations of organisms can be categorized by how they acquire energy.</p> <p>Food webs can be used to identify the relationships among producers, consumers and decomposers in an ecosystem.</p> | <p>FOSS Next Generation <i>Living Systems</i> IG: Inv. 1; Parts 1-4 Inv. 2; Parts 1-3 Inv. 4; Parts 2, 4</p> <p>SRB: <i>Introduction to Systems, The Biosphere, Monterey Bay National Marine Sanctuary, Comparing Aquatic and Terrestrial Ecosystems, Nature's Recycling System, There's Yeast in My Bread, Producers, Getting Nutrients, The Human Digestive System, Sensory Systems, Animal Communication, North Atlantic Ecosystem</i></p> <p>DOR: <i>Physical Systems, Web of Life, Life in the Sea, Simulation: Food Webs, Food Chains, Marine Ecosystems</i></p> |
| <p>5.LS.2: All of the processes that take place within organisms require energy. For ecosystems, the major source of energy is sunlight. Energy entering ecosystems as sunlight is transferred and transformed by producers into energy that organisms use through the process of photosynthesis. That energy is used or stored by the producer and can be passed from organism to organism as can be illustrated in food webs</p> | <p>FOSS Next Generation <i>Living Systems</i> IG: Inv. 1; Parts 1-4 Inv. 2; Part 1-3 Inv. 3 Part 1 Inv. 4; Part 4</p> <p>SRB: <i>Introduction to Systems, Is Earth a System? The Biosphere, Monterey Bay National Marine Sanctuary, Comparing Aquatic and Terrestrial Ecosystems, Nature's Recycling System, There's Yeast in My Bread, Producers, Getting Nutrients, The Human Digestive System, Leaf Classification, Plant Vascular Systems, The Story of Maple Syrup, North Atlantic Ecosystem</i></p> <p>DOR: <i>Physical Systems, Web of Life, Life in the Sea, Simulation: Food Webs, Plant Vascular System, Plant Structure and Growth, Food Chains, Marine Ecosystem</i></p> |

Earth and Space Science (ESS)

Cycles and Patterns in the Solar System

This topic focuses on the characteristics, cycles and patterns in the solar system and within the universe. .

| State Standard | FOSS/Delta Program |
|---|---|
| Cycles and Patterns in the Solar System | |
| <p>5.ESS.1: The solar system includes the sun and all celestial bodies that orbit the sun. Each planet in the solar system has unique characteristics. The distance from the sun, size, composition and movement of each planet are unique. Planets revolve around the sun in elliptical orbits. Some of the planets have moons and/or debris that orbit them. Comets, asteroids and meteoroids orbit the sun.</p> | <p>FOSS Third Edition <i>Sun, Moon and Planets</i> IG: Inv. 2 Parts 1-2 Inv. 3 Parts 1-2</p> <p>SRB: <i>The Night Sky, Comparing the Size of Earth and the Moon, Exploring the Solar System, Planets of the Solar System, Why Doesn't Earth Fly Off Into Space?, How Did Earth's Moon Form?</i></p> <p>DOR: <i>Planets and the Solar System</i></p> |

Grade 5

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| <p>5.ESS.2: The sun is one of many stars that exist in the universe. The sun appears to be the largest star in the sky because it is the closest star to Earth. Some stars are larger than the sun and some stars are smaller than the sun.</p> | <p>FOSS Third Edition <i>Sun, Moon and Planets</i> IG: Inv. 4 Parts 1-2 SRB: <i>Stargazing, Looking Through Telescopes, Star Scientists, Our Galaxy</i> DOR: <i>All About Stars</i></p> |
| <p>5.ESS.3: Most of the cycles and patterns of motion between the Earth and sun are predictable. Earth's revolution around the sun takes approximately 365 days. Earth completes one rotation on its axis in a 24-hour period, producing day and night. This rotation makes the sun, stars and moon appear to change position in the sky.</p> <p>Note: <i>Moon phases should not be the focus</i></p> | <p>FOSS Third Edition <i>Sun, Moon and Planets</i> IG: Inv. 1 Parts 1-3 Inv. 2 Parts 1-2 Inv. 4 Parts 1 SRB: <i>Changing Shadow, Sunrise and Sunset, The Night Sky, Comparing the Size of Earth and the Moon, Stargazing</i> DOR: <i>All About the Moon, All About the Stars</i></p> |

PHYSICAL SCIENCE (PS)

Light, Sound and Motion

This topic focuses on the forces that affect motion. This includes the relationship between the change in speed of an object, the amount of force applied and the mass of the object. Light and sound are explored as forms of energy that move in predictable ways, depending on the matter through which they move.

| State Standard | FOSS/Delta Program |
|--|---|
| <p>Light, Sound and Motion</p> <p>5.PS.1: The amount of change in movement of an object is based on the mass of the object and the amount of force exerted. Movement can be measured by speed. The speed of an object is calculated by determining the distance (d) traveled in a period of time (t). Any change in speed or direction of an object requires a force and is affected by the mass of the object and the amount of force applied.</p> <p>Note: <i>Differentiating between mass and weight is not necessary at this grade level.</i></p> | <p>FOSS Third Edition <i>Motion, Force, and Models</i> IG: Inv. 1; Parts 1-3 Inv. 2; Parts 1-4 Inv. 3; Parts 1-3 Inv. 4; Part 3 SRB: <i>What Causes Change of Motion?, Galileo and Pendulums, Bowling, Forces and Energy, Potential and Kinetic Energy at Work Coming to a Stop, Concussion, Discussion Springs in Action, The Path to Invention, Creative Solutions</i> DOR: <i>All About Motion and Balance, Springs</i></p> |
| <p>5.PS.2: Light and sound are forms of energy that behave in predictable ways. Light travels and maintains its direction until it interacts with an object or moves from one medium to another and then it can be reflected, refracted or absorbed. Sound is produced by vibrating objects and requires a medium through which to travel. The rate of vibration is related to the pitch of the sound.</p> <p>Note: At this grade level, the discussion of light and sound should be based on observable behavior. Waves are introduced at the middle.</p> | <p>Delta Science Module <i>Color and Light</i> Lessons 1-10 Delta Science Reader: <i>Color and Light: What is Light? Reflection of Light, Absorption of Light, Refraction of Light, What Happens When Light Hits Different Materials? How Do We See Objects, How Do We See Colors?</i></p> <p>Delta Science Module <i>Sound</i> Lessons 1-12 Delta Science Reader <i>Sound: What Causes Sound?, How Does Sound Travel/ How Are Sounds Different? How is Sound Absorbed and Reflected? How Do Musical Instruments Make Sounds?</i></p> |