

Grade 6
 Physical Science

Essential Standard with Clarifying Objectives	FOSS-Delta Program
Forces and Motion	
6.P.1 Understand the properties of waves and the wavelike property of energy in earthquakes, light and sound waves.	FOSS Next Generation Waves
6.P.1.1 Compare the properties of waves to the wavelike property of energy in earthquakes, light and sound.	FOSS Next Generation Waves TE: Investigation 1; Parts 1-2, Investigation 2: Parts 1, 3, Investigation 3; Parts 1,4 SE: <i>Transverse and Compression Waves, Ocean in Waves, Tsunamis, Sound Waves, Reflecting on Light, Seismic Waves</i> DR: Standing Waves, Big Waves, Oscilloscope, Soundproof Engineering, Refraction
6.P.1.2 Explain the relationship among visible light, the electromagnetic spectrum and sight.	FOSS Next Generation Waves TE: Investigation 3; Parts 1-4, Investigation 4; Parts 1,3 SE: <i>Reflecting on Light, Electromagnetic Spectra, Electromagnetic Radiation and Human Health, Throw a Little Light on Sight, Lasers, Digital Communication</i> DR: Refraction, Fiber Optics, Digitized Images
6.P.1.3 Explain the relationship among the rate of vibration, the medium through which vibrations travel, sound and hearing.	FOSS Next Generation Waves TE: Investigation 2: Part 3, Investigation 4: Part 2 SE: <i>Sound Waves, Acoustic Engineering</i> DR: Oscilloscope, Soundproof Engineering
Essential Standard with Clarifying Objectives	FOSS-Delta Program
Matter: Properties and Change	
6.P.2 Understand the structure, classifications and physical properties of matter.	ScienceFLEX Energy and States of Matter
6.P.2.1 Recognize that all matter is made up of atoms, and atoms of the same element are alike, but are different from the atoms of other elements.	Delta Science Content Reader Properties of Matter SE: What is matter made of? Addressed in Gr. 8 FOSS Next Generation Chemical Interactions TE: Investigation 2; Parts 1-2 SE: <i>Elements, Substances on Earth, Elements in the Universe</i> DR: Periodic Table of the Elements
6.P.2.2 Explain the effect of heat on the motion of atoms through a description of what happens to particles during a change in phase.	ScienceFLEX Energy and States of Matter TE: Lessons 2,4,5,6 SE: <i>Changing Old into New, Matter Matters, Melting, Freezing</i> Addressed further in Gr. 8 FOSS Next Generation Chemical Interactions TE: Investigation 8; Parts 1-4 SE: <i>Rock Solid, Heat of Fusion</i> DR: Particles in Solids, Liquids and Gases, Hoar Frost
6.P.2.3 Compare the physical properties of pure substances that are independent of the amount of matter present including density, melting point, boiling point, and solubility to properties that are dependent on the amount of matter present to include volume, mass, and weight.	ScienceFLEX Energy and States of Matter TE: Lessons 1,3,4,5 SE: <i>The Science of Art, Matter Matters, Melting</i> OR Delta Science Content Reader Properties of Matter SE: What is matter?

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	Addressed in Gr. 8 FOSS Next Generation Chemical Interactions TE: Investigation 2; Parts 1-2, Investigation 7; Parts 1-2 Investigation 8; Parts 1-4 SE: <i>Elements, Substances on Earth, Elements in the Universe, How Things Dissolve, Concentration, Rock Solid, Heat of Fusion</i> DR: Periodic Table of the Elements, Particles in Solids, Liquids and Gases, Hoar Frost
Essential Standard with Clarifying Objectives	FOSS-Delta Program
Energy: Conservation and Transfer	
6.P.3 Understand characteristics of energy transfer and interactions of matter and energy.	FOSS Next Generation Waves ScienceFLEX Energy and States of Matter
6.P.3.1 Illustrate the transfer of heat energy from warmer objects to cooler ones using examples of conduction, radiation and convection and the effects that may result.	ScienceFLEX Energy and States of Matter TE: Lesson 5 SE: <i>Melting</i> ScienceFLEX Our Active Earth TE: Lesson 4 SE: <i>How the Seafloor Grows</i> DR: LEARN Augmented Reality: Convection current in the mantle
6.P.3.2 Explain the effects of electromagnetic waves on various materials to include absorption, scattering, and change in temperature.	FOSS Next Generation Waves TE: Investigation 3; Parts 1-4, Investigation 4; Part 1 SE: <i>Reflecting on Light, Electromagnetic Spectra, Electromagnetic Radiation and Human Health, Throw a Little Light on Sight, Lasers</i> DR: Refraction, Fiber Optics
6.P.3.3 Explain the suitability of materials to use in technological design based on a response to heat (to include conduction, expansion, and contraction) and electrical energy (conductors and insulators)	ScienceFLEX Energy and States of Matter TE: Lessons 5-6 SE: <i>Melting, Freezing</i> Delta Science Reader <i>Electrical Connections</i> FOSS Next Generation Waves TE: Investigation 8; Parts 1-2 SE: <i>Engineering a Better Design, Science Practices, Engineering Practices</i> DR: Energy Flow, Particles in Solids, Liquids and Gases Addressed further in Gr. 8 FOSS Next Generation Chemical Interactions TE: Investigation 8; Parts 1-2 SE: <i>Engineering a Better Design, Science Practices, Engineering Practices</i> DR: Energy Flow, Particles in Solids, Liquids and Gases

Grade 6
 Earth Science

Essential Standard with Clarifying Objectives	FOSS-Delta Program
Earth in the Universe	
6.E.1 Understand the earth/moon/sun system, and the properties, structures and predictable motions of celestial bodies in the Universe.	FOSS Next Generation Planetary Science
6.E.1.1 Explain how the relative motion and relative position of the sun, Earth and moon affect the seasons, tides, phases of the moon and eclipses.	FOSS Next Generation Planetary Science TE: Investigation 1; Parts 1-3, Investigation 2; Parts 1-3, Inv. 3; Part 2, Investigation 4; Parts 1-3 SE: <i>Earth's Systems, Seasons on Earth, Eratosthenes: First to Measure Earth, Earth's Moon,</i> DR: US Naval Moon Phase Calendar, Day/Night, Seasons, Moon Orientation, Moon Puzzle, Phases of the Moon
6.E.1.2 Explain why Earth sustains life while other planets do not based on their properties (including types of surface, atmosphere and gravitational force) and location to the Sun.	FOSS Next Generation Planetary Science TE: Investigation 7; Parts 1-3 SE: A Tour of the Solar System DR: Model of Jupiter's Atmosphere, Exoplanet Archive, Solar System
6.E.1.3 Summarize space exploration and the understandings gained from them.	FOSS Next Generation Planetary Science TE: Investigation 8; Part 2, Investigation 9; Part 2 SE: The Hunt for Water, Space Missions, Finding Exoplanets, DR: Space Missions, Search for Water, Hubble's Amazing Universe, Exoplanet Archive, Exoplanet Transit Hunt, Orrery Videos 1,2
Essential Standard with Clarifying Objectives	FOSS-Delta Program
Earth Systems, Structures and Processes	
6.E.2 Understand the structure of the earth and how interactions of constructive and destructive forces have resulted in changes in the surface of the Earth over time and the effects of the lithosphere on humans.	ScienceFLEX Our Active Earth ScienceFLEX The Dirt on Dirt
6.E.2.1 Summarize the structure of the earth, including the layers, the mantle and core based on the relative position, composition and density.	ScienceFLEX Our Active Earth TE: Lessons 1-2 SE: <i>Planet Earth: From Crust to Core, To Dig a Hole, Earth's Thin Skin, Exploring a Hidden World</i> DR: Augmented Reality: Inner Core, Outer Core, Mantle, Continental Crust, Oceanic Crust
6.E.2.2 Explain how crustal plates and ocean basins are formed, move and interact using earthquakes, heat flow and volcanoes to reflect forces within the earth.	ScienceFLEX Our Active Earth TE: Lessons 3-8 SE: <i>Earth's Surface in Slow Motion, How the Seafloor Grows, Crashing Plates, Magma on the Move!, Quake! In Kathmandu, Living on the Ring of Fire</i>
6.E.2.3 Explain how the formation of soil is related to the parent rock type and the environment in which it develops.	ScienceFLEX The Dirt on Dirt TE: Lessons 1,2,4 SE: <i>An Ant's View, Digging in the Dirt, Incredible Clay, Dirt Down Under</i> DR: Augmented Reality: Soil
6.E.2.4 Conclude that good health of humans requires: monitoring the lithosphere, maintaining soil quality and stewardship.	ScienceFLEX The Dirt on Dirt TE: Lessons 3,5,6 SE: Saving Nature's Filters, Dust Bowl Diary, Soil Conservation, Back to the Land DR: Tractors During the Dust Bowl (video) FOSS Next Generation Populations and Ecosystems TE: Investigation 9; Part 1 SE: <i>Ecoscenario Introductions</i> DR: Ecoscenario Research Center

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Grade 6
 Life Science

Essential Standard with Clarifying Objectives	FOSS-Delta Program
Structures and Functions of Living Organisms	
6.L.1 Understand the structures, process and behaviors of plants that enable them to survive and reproduce	FOSS Next Generation Populations and Ecosystems
6.L.1.1 Summarize the basic structures and functions of flowering plants required for survival, reproduction and defense.	<p>Delta Science Content Reader <i>Plant Life Cycles</i> SE: <i>About Plant Life Cycles, About Seeds, Flowering Plants</i></p> <p>Addressed in Gr. 7: FOSS Next Generation Diversity of Life TE: Investigation 6; Parts 3-4 SE: The Making of a New Plant, Seeds on the Move, DR: Lab Technique: Preparing the Flower Dissection, Lab Technique: Preparing the Flower Dissection Mount, Pollinators Game</p>
6.L.1.2 Explain the significance of the processes of photosynthesis, respiration, and transpiration to the survival of green plants and other organisms.	<p>FOSS Next Generation Populations and Ecosystems TE: Investigation 5; Parts 1-4 SE: <i>Energy and Life, Where does Food Come From?, What Does Water Do? Wangari Maathai: Being a Hummingbird</i> DR: Ecoscenarios</p> <p>Delta Science Content Reader <i>Plant Needs</i> SE: <i>Vascular Plants, Making Food, Using Food</i></p> <p>Addressed in greater depth in Gr. 7: FOSS Next Generation Diversity of Life TE: Investigation 5, Parts 1-3 SE: <i>The Water Conservation Problem, Water, Light And Energy,</i> DR: Database: Stem Collection, Stomata Collection, Levels of Complexity: Plant Vascular System</p>
Essential Standard with Clarifying Objectives	FOSS-Delta Program
Ecosystems	
6.L.2 Understand the flow of energy through ecosystems and the responses of populations to the biotic and abiotic factors in their environment	FOSS Next Generation Populations and Ecosystems
6.L.2.1 Summarize how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within food chains and food web (terrestrial and aquatic) from producers to consumers to decomposers.	<p>FOSS Next Generation Populations and Ecosystems TE: Inv. 5; Parts 1-4, Inv. 6; Parts 2-4 SE: <i>Energy and Life, Where does Food Come From?, What Does Water Do? Wangari Maathai: Being a Hummingbird, Rachel Carson and the Silent Spring, Trophic Levels, Decomposers</i> DR: Ecoscenarios</p>
6.L.2.2 Explain how plants respond to external stimuli (including dormancy and forms of tropism) to enhance survival in an environment.	<p>FOSS Next Generation Populations and Ecosystems TE: Inv. 5; Part 1</p> <p>Delta Science Content Reader <i>Plant Needs</i> SE: <i>Plant Adaptations, Plant Responses</i></p>
6.L.2.3 Summarize how the abiotic factors (such as temperature, water, sunlight, and soil quality) of biomes (freshwater, marine, forest, grasslands, desert, Tundra) affect the ability of organisms to grow, survive and/or create their own food through photosynthesis.	<p>FOSS Next Generation Populations and Ecosystems TE: Inv. 4; Parts 1-3, Inv. 5; Parts 1-4, Inv. 6; Parts 2-4, Inv. 7; Parts 1-3, Inv. 8; Parts 1-3 SE: <i>Biosphere 2: An Experiment in Isolation, Energy and Life, Where does Food Come From?, What Does Water Do? Wangari Maathai: Being a Hummingbird, Rachel Carson and the Silent Spring, Trophic Levels,</i></p>

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	<p><i>Decomposers, Milkweed Bugs, Limiting Factors, Mono Lake throughout the Year, Biodiversity, Invasive Species, Mono Lake in the Spotlight</i> DR: Plant and Animal Care, Ecoscenarios, Biomes, Milkweed Bugs Unlimited, Milkweed Bugs Limited, Hawaii: Strangers in Paradise, The Mono Lake Story</p>
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Grade 7
 Physical Science

Essential Standard with Clarifying Objectives	FOSS -Delta Program
Forces and Motion	
7.P.1 Understand motion, the effects of forces on motion and the graphical representations of motion	FOSS Next Generation Gravity and Kinetic Energy FOSS Next Generation Electromagnetic Force
7.P.1.1 Explain how the motion of an object can be described by its position, direction of motion, and speed with respect to some other object.	FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 1; Parts 1-2, SE: How Fast Do Things Go? Faster and Faster
7.P.1.2 Explain the effects of balanced and unbalanced forces acting on an object (including friction, gravity and magnets).	FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 1; Part 3, Investigation 3; Part 1 SE: <i>Gravity: It's the Law, Potential and Kinetic Energy</i> DR: Movie Tracker, Movie Tracker Data, Falling Ball, Hammer and Feather in Space, Heavy and Light Balls FOSS Next Generation Electromagnetic Force TE: Investigation 1; Parts 1-3, Investigation 2; Parts 1-3, Investigation 3; Parts 2-3 SE: <i>The Force is With You, The Discovery of Friction, Net Force, Magnetic Force, Electromagnetism, Electromagnetic Engineering</i> DR: Forces, Magnetism, Adding Magnetic Fields, Kitchen Magnets, Virtual Electromagnet
7.P.1.3 Illustrate the motion of an object using a graph to show change in position over a period of time.	FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 1; Part 1 SE: How Fast Do Things Go?
7.P.1.4 Interpret distance versus time graphs for constant speed and variable motion.	FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 1; Parts 2,3 Investigation 3; Parts 2-3 SE: <i>Faster and Faster, Gravity: It's the Law, Avoiding Collisions, Newton's Laws</i>
Essential Standard with Clarifying Objectives	
Energy: Conservation and Transfer	
7.P.2 Understand forms of energy, energy transfer and transformation and conservation in mechanical systems.	FOSS Next Generation Gravity and Kinetic Energy FOSS Next Generation Electromagnetic Force
7.P.2.1 Explain how kinetic and potential energy contribute to the mechanical energy of an object.	FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 3; Part 1 SE: <i>Potential and Kinetic Energy</i> FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 4; Part 1 SE: <i>Motor Dissection A, Motor Dissection B</i>
7.P.2.2 Explain how energy can be transformed from one form to another (specifically potential energy and kinetic energy) using a model or diagram of a moving object (roller coaster, pendulum, or cars on ramps as examples).	FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 3; Parts 1, 3 SE: <i>Potential and Kinetic Energy, Newton's Laws</i>
7.P.2.3 Recognize that energy can be transferred from one system to another when two objects push or pull on each other over a distance (work) and electrical circuits require a complete loop through which an electrical current can pass.	FOSS Next Generation Gravity and Kinetic Energy TE: Investigation 3; Parts 1, 3 SE: <i>Potential and Kinetic Energy, Newton's Laws</i> FOSS Next Generation Electromagnetic Force TE: Investigation 1; Parts 1, Investigation 2; Parts 2- 3, Investigation 3; Parts 1-3 SE: <i>The Force is With You, Magnetic Force, Circuitry and Lightbulbs, What is Electricity?, Electromagnetism, Electromagnetic Engineering</i>

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	<p>DR: Forces, Adding Magnetic Fields, Lighting a Bulb, Kitchen Magnets, Virtual Electromagnet</p>
<p>7.P.2.4 Explain how simple machines such as inclined planes, pulleys, levers and wheel and axles are used to create mechanical advantage and increase efficiency.</p>	<p>Delta Science Reader <i>Simple Machines</i> or ScienceFLEX <i>Machines at Work and Play</i> (Blue level)</p>

Grade 7
 Earth Science

Essential Standard with Clarifying Objectives	
Earth Systems, Structures and Processes	
7.E.1 Understand how the cycling of matter (water and gases) in and out of the atmosphere relates to Earth's atmosphere, weather and climate and the effects of the atmosphere on humans.	FOSS Next Generation Weather and Water
7.E.1.1 Compare the composition, properties and structure of Earth's atmosphere to include: mixtures of gases and differences in temperature and pressure within layers.	FOSS Next Generation Weather and Water TE: Investigation 1; Parts 2-3 SE: <i>What's in the Atmosphere?, A Thin Blue Veil</i> DR: Gas in a Syringe
7.E.1.2 Explain how the cycling of water in and out of the atmosphere and atmospheric conditions relate to the weather patterns on Earth.	FOSS Next Generation Weather and Water TE: Investigation 7; Parts 1-3, Investigation 8; Parts 1-3 SE: <i>Weather Balloons and the Radiosonde, Animal Rains, Earth the Water Planet, Ocean Currents and Gyres, El Nino</i> DR: Cloud in a Bottle, Water Cycle
7.E.1.3 Explain the relationship between the movement of air masses, high and low pressure systems, and frontal boundaries to storms (including thunderstorms, hurricanes, and tornadoes) and other weather conditions that may result.	FOSS Next Generation Weather and Water TE: Investigation 2; Parts1-2, Investigation 3; Parts2- 3, Investigation Part 6; Parts 1-3, Investigation 10; Part 1 SE: <i>What is Air Pressure?, Density, Convection, Heating the Atmosphere, Wind on Earth, Severe Weather</i> DR: Weather Balloon Simulation, Gas in a Syringe, Elevator to Space, Fluid Convection, Convection Chamber in Action, Energy Transfer: Conduction, Radiation, Convection, Local Wind, NOAA Ridge Red Spot, Weather Maps
7.E.1.4 Predict weather conditions and patterns based on information obtained from: <ul style="list-style-type: none"> Weather data collected from direct observations and measurement (wind speed and direction, air temperature, humidity and air pressure) Weather maps, satellites and radar Cloud shapes and types and associated elevation 	FOSS Next Generation Weather and Water TE: Investigation 1; Part 1, Investigation 7; Parts 1-3, Investigation 10; Part 1 SE: <i>Severe Weather, Weather Balloons and the Radiosonde, Animal Rains</i> DR: Class Weather Data Graphs, Climate Blog, Hurricanes and Tornadoes, Cloud in a Bottle, Weather Maps
7.E.1.5 Explain the influence of convection, global winds and the jet stream on weather and climatic conditions.	FOSS Next Generation Weather and Water TE: Investigation 3; Parts2- 3, Investigation Part 6; Parts 1-3, Investigation 8; Parts 2-3, Investigation 9; Part 1 Investigation 10; Part 1 SE: <i>What is Air Pressure?, Density, Convection, Heating the Atmosphere, Wind on Earth, Severe Weather</i> DR: Weather Balloon Simulation, Gas in a Syringe, Elevator to Space, Fluid Convection, Convection Chamber in Action, Energy Transfer: Conduction, Radiation, Convection, Local Wind, NOAA Ridge Red Spot, Earth's Climate over Time, El Nino, Weather Maps
7.E.1.6 Conclude that the good health of humans requires: monitoring the atmosphere, maintaining air quality and stewardship.	FOSS Next Generation Weather and Water TE: Investigation9; Parts 1-3 SE: <i>Climates: Past, Present and Future</i> DR: Climate Blog, Co2 in Ice Core Record, Earth's Climate over Time, Greenhouse Gas Simulation, Human Caused Sources of Carbon Dioxide, Carbon Cycle, Climate Change Basics

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 Life Science

Essential Standard with Clarifying Objectives	
Structures and Functions of Living Organisms	
7.L.1 Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out basic functions of life.	FOSS Next Generation Diversity of Life FOSS Next Generation Human Systems Interactions
7.L.1.1 Compare the structures and life functions of single-celled organisms that carry out all of the basic functions of life including: <ul style="list-style-type: none"> Euglena Amoeba Paramecium Volvox. 	FOSS Next Generation Diversity of Life TE: Investigation 3; Parts 2-3 SE: <i>The Amazing Paramecium, Microorganism Guide</i> DR: Virtual Microscope, Preparing a Wet Mount, Preparing a Paramecia Wet-Mount, Using Cotton to Slow Paramecia, Database: Paramecium Collection, Levels of Complexity: Protist Cell, Microorganism Collection
7.L.1.2 Compare the structures and functions of plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, chloroplasts, mitochondria, and vacuoles).	FOSS Next Generation Diversity of Life TE: Investigation 3; Parts 1-4, Investigation 5; Parts 2-3 SE: <i>The Amazing Paramecium, Microorganism Guide, Cells, How Big Are Cells?, The Water Conservation Problem, Water, Light and Energy</i> DR: Microorganisms Collection; Lab Techniques: Virtual Microscope, Preparing a Wet Mount, Preparing a Paramecia Wet-Mount, Using Cotton to Slow Paramecia, Making a Human-Cheek-Tissue Slide; Database: Elodea Cells, Elodea Cytoplasmic Streaming Paramecium Collection, Human Cheek Cells, Stomata Collection, Levels of Complexity: Plant Cell, Protist Cell, Animal Cell, Human Cheek Cells, Plant Vascular System
7.L.1.3 Summarize the hierarchical organization of multi-cellular organisms from cells to tissues to organs to systems to organisms.	FOSS Next Generation Diversity of Life TE: Investigation 4; Parts 1-4, Investigation 5; Parts 2-3, Investigation 6; Parts 3-4, Investigation 8; Part 2 SE: <i>Levels of Complexity Research Pages, Bacteria Around Us, Harmful and Helpful Bacteria, Archaea Family Album, The Three Domains of Life, The Water Conservation Problem, Water, Light and Energy, The Making of a New Plant, Seeds on the Move</i> DR: Levels of Complexity Card Sort, The Scale of the Universe, A Million Dollars, Exponential Growth, Funky Fungi Freak Show, Itsy Bitsy Thingy Locator, Fungus, Classification History, Database: Stem Collection Stomata Collection, Flower Collection, Seed Collection, Pollinator Collection Levels of Complexity: Bacterial Cell, Archaeal Cell, Plant Vascular System Lab Techniques: Preparing an Agar Slide, Inoculating an Agar Plate, Preparing the Flower Dissection Mount FOSS Next Generation Human Systems Interactions TE: Investigation 1; Parts 1-2 SE: <i>Human Organ Systems</i> DR: Structural Level Cards, Human Systems Structural Levels, Doctor Interview 1, Doctor Interview 2
7.L.1.4 Summarize the general functions of the major systems of the human body (digestive, respiration, reproduction, circulation, and excretion) and ways that these systems interact with each other to sustain life.	FOSS Next Generation Human Systems Interactions TE: Investigation 1; Part 2, Investigation 2; Parts 1-2. Investigation 3; Parts 1-3 SE: <i>Human Organ Systems, Aerobic Cellular Respiration, Sensory Receptors, Touch, Hearing, Brain Messages, Neurotransmitters, Smell and Taste, Sight</i> DR: Human Systems Structural Cards, Digestive and Excretory Systems, Human Cardiovascular System,

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	Circulatory and Respiratory Systems, Touch Menu: Touch Receptors, 3D Finger, Brain: Synapse Function, Neuron Growth, Reaction Timer
Essential Standard with Clarifying Objectives	
Evolution and Genetics	
7.L.2 Understand the relationship of the mechanisms of cellular reproduction, patterns of inheritance and external factors to potential variation among offspring.	FOSS Next Generation Diversity of Life
7.L.2.1 Explain why offspring that result from sexual reproduction (fertilization and meiosis) have greater variation than offspring that result from asexual reproduction (budding and mitosis).	FOSS Next Generation Diversity of Life TE: Investigation 4; Parts 2-3, Investigation 5; Part 4, Investigation 7; Parts 1-2 SE: <i>Bacteria Around Us, Fungal Cell Structures and Functions, Pollination Syndrome</i> DR: Exponential Growth, Fungus, Genes and Herdity
7.L.2 Infer patterns of heredity using information from Punnett squares and pedigree analysis.	FOSS Next Generation Diversity of Life TE: Investigation 7; Parts 1-2 SE: <i>Mendel and Punnett Squares</i> DR: Genes and Herdity
7.L.2.3 Explain the impact of the environment and lifestyle choices on biological inheritance (to include common genetic diseases) and survival.	FOSS Next Generation Diversity of Life TE: Investigation 6; Part 2 SE: <i>Breeding Salt Tolerant Wheat</i> FOSS Next Generation Human Systems Interactions TE: Investigation 1; Parts 1-2 SE: <i>Human Organ Systems</i> DR: Human Systems Structural Levels, Doctor Interview 1, Doctor Interview 2

Grade 8
 Physical Science

Essential Standard with Clarifying Objectives	FOSS -Delta Program
Matter: Properties and Change	
8.P.1 Understand the properties of matter and changes that occur when matter interacts in an open and closed container.	FOSS Next Generation Chemical Interactions
8.P.1.1 Classify matter as elements, compounds, or mixtures based on how the atoms are packed together in arrangements.	FOSS Next Generation Chemical Interactions TE: Investigation 1; Parts 1-2, Investigation 2; Parts 1-2, Investigation 4; Parts 1-3 Investigation 7; Parts 1-2 SE: <i>White Substance Information, Elements, Substances on Earth, Elements in the Universe, Particles in Motion, Three Phases of Matter, Expansion and Contraction, How Things Dissolve, Concentration</i> DR: Periodic Table, Particles in Solids, Liquids and Gases, Explore Dissolving
8.P.1.2 Explain how the physical properties of elements and their reactivity have been used to produce the current model of the Periodic Table.	FOSS Next Generation Chemical Interactions TE: Investigation 2; Parts 1-2 SE: <i>Elements, Substances on Earth, Elements in the Universe, Antoine-Laurent Lavoisier, Element Hunters</i> DR: Periodic Table of Elements
8.P.1.3 Compare physical changes such as size, shape and state to chemical changes that are the result of a chemical retain to include changes in temperature, color, formation of a gas or precipitate.	FOSS Next Generation Chemical Interactions TE: Investigation 7; Parts 1-2 Investigation 8; Parts 1-4, Investigation 9; Parts 1-3, Investigation 10; Parts 1-2 SE: <i>How Things Dissolve, Concentration, Rock Solid, Heat of Fusion, Better Living Through Chemistry, How Do Atoms Rearrange?, Fireworks, Antoine-Laurent Lavoisier, Organic Compounds, Element Hunters</i> DR: Explore Dissolving, Particles in Solids, Liquids, and Gases, Hoar Frost, Burning Sugar Demonstration
8.P.1.4 Explain how the idea of atoms and a balanced chemical equation support the law of conservation of mass.	FOSS Next Generation Chemical Interactions TE: Investigation 9; Parts 2-3, Investigation 10: Part 1 SE: <i>How Do Atoms Rearrange?, Fireworks, Antoine-Laurent Lavoisier, Organic Compounds</i> DR: Burning Sugar Demonstration
Essential Standard with Clarifying Objectives	FOSS -Delta Program
Energy: Conservation and Transfer	
8.P.2 Explain the environmental implications associated with the various methods of obtaining, managing, and using energy	FOSS Next Generation Earth History
8.P.2.1 Explain the environmental consequences of the various methods of obtaining, transforming and distributing energy resources	FOSS Next Generation Earth History TE: Investigation 8; Parts 1-3 SE: Geoscenarios: Coal, Yellowstone Hotspot, Coal, Oil DR: Geoscenarios Delta Science Reader Pollution Note: This objective was also addressed in depth in Gr. 7 FOSS Next Generation Weather and Water TE: Investigation9; Parts 1-3 SE: <i>Climates: Past, Present and Future</i> DR: Climate Blog, Co2 in Ice Core Record, Earth's Climate over Time, Greenhouse Gas Simulation, Human Caused Sources of Carbon Dioxide, Carbon Cycle, Climate Change Basics

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<p>8.P.2.2 Explain the implications of the depletion of renewable and nonrenewable energy resources and the importance of conservation</p>	<p>FOSS Next Generation Earth History TE: Investigation 8; Parts 1-3 SE: Geoscenarios: Glaciers, Coal, Yellowstone Hotspot, Coal, Oil DR: Geoscenarios</p> <p>Delta Science Reader Pollution</p> <p>Note: This objective was addressed in Gr. 7</p> <p>FOSS Next Generation Weather and Water TE: Investigation 9; Parts 1-3 SE: <i>Climates: Past, Present and Future</i> DR: Climate Blog, Co2 in Ice Core Record, Earth's Climate over Time, Greenhouse Gas Simulation, Human Caused Sources of Carbon Dioxide, Carbon Cycle, Climate Change Basics</p>
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Grade 8
 Earth Science

Essential Standard with Clarifying Objectives	FOSS -Delta Program
Earth Systems, Structures and Processes	
8.E.1 Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans	
8.E.1.1 Explain the structure of the hydrosphere including <ul style="list-style-type: none"> • Water distribution on earth • Local river basins and water availability 	Water distribution on earth addressed in Gr. 7 FOSS Next Generation Weather and Water TE: Investigation 8; Parts 1-3 SE: <i>Earth the Water Planet, Ocean Currents and Gyres, El Nino</i>
8.E.1.2 Summarize evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases and life forms: <ul style="list-style-type: none"> • Estuaries • Marine ecosystems • Upwelling • Behavior of gases in the marine environment • Value and sustainability of marine resources • Deep ocean technology and understandings gained 	Delta Science Reader Oceans FOSS Next Generation Populations and Ecosystems TE: Investigation 9; Parts 1-3 SE: <i>Ecoscenarios Introductions</i> DR: Organism Database, Ecoscenarios Partially addressed in Gr. 7 FOSS Next Generation Weather and Water TE: Investigation 8; Parts 2-3 SE: <i>Ocean Currents and Gyros, El Nino</i> DR: Perpetual Ocean
8.E.1.3 Predict the safety and potability of water supplies in North Carolina based on physical and biological factors, including: <ul style="list-style-type: none"> • Temperature • Dissolved oxygen • pH • Nitrates and phosphates • Turbidity • Bio-indicators 	
8.E.1.4 Conclude that good health of humans requires: <ul style="list-style-type: none"> • Monitoring the hydrosphere • Water quality standards • Methods of water treatment • Maintaining safe water quality • Stewardship 	FOSS Next Generation Populations and Ecosystems TE: Investigation 3; Parts 1-3, Investigation 9; Parts 1-3 SE: <i>An Introduction to Mono Lake, Ecoscenarios Introductions</i> DR: The Mono Lake Story, Mono Lake Food Web, Organism Database, Ecoscenarios
Essential Standard with Clarifying Objectives	FOSS -Delta Program
Earth History	
8.E.2 Understand the history of Earth and its life forms based on evidence of change recorded in fossil records and landforms.	FOSS Next Generation Earth History
8.E.2.1 Infer the age of Earth and relative age of rocks and fossils from index fossils and ordering of rock layers (relative dating and radioactive dating).	FOSS Next Generation Earth History TE: Inv. 1; Parts 1-3, Investigation 4; 1-3, Investigation 9; Parts 1-2

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

Grade 8

	<p>SE: <i>Seeing Earth, A Fossil Primer, Rocks, Fossils and Time, Floating on a Prehistoric Sea, Grand Canyon Revisited,</i></p> <p>DR: Landform Tours, Scale Model, Grand Canyon Flyover, Column Movie Maker, Sandstone Formation, Shale Formation, Limestone Formation, Timeline, Index Fossil Correlation, Dating Rock Layers, Colorado Plateau Over Time,</p>
<p>8.E.2.2 Explain the use of fossils, ice cores, composition of sedimentary rocks, faults, igneous rock formations found in rock layers as evidence of the history of the earth and its changing life forms.</p>	<p>FOSS Earth History</p> <p>TE: Investigation 3; Parts 1-3, Investigation 4; Parts 1-3, Investigation 5; 1-3, Investigation 6; Parts 1-3, Investigation 9; Parts 1-2</p> <p>SE: <i>Where in the World is Calcium Carbonate? Water on Mars? A Fossil Primer, Rocks, Fossils and Time, Floating on a Prehistoric Sea, Minerals, Crystals and Rocks, Volcanoes, The History of the Theory of Plate Tectonics, Historical Debates about a Dynamic Earth</i></p> <p>DR: Sandstone Formation, Rock Database, Shale Formation, Limestone Formation, Rock Colum Movie Maker, Sedimentary Rocks Tour, Earth's Interior, Extrusive Rock Formation, Intrusive Rock Formation, Earth's Interior, Volcano Plotting, Earthquake plotting, Shake Alert, Wegner Volcanoes around the World, Plate Boundaries Map, NOAA Plate Tectonics, Colorado Plateau over Time</p>

Grade 8

Life Science

Essential Standard with Clarifying Objectives	FOSS -Delta Program
Structures and Functions of Living Organisms	
8.L.1 Understand the hazards caused by agents of diseases that affect living organisms	
8.L.1.1 Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease	Characteristics of viruses, bacteria, fungi addressed in Grade 7 FOSS Next Generation Diversity of Life TE: Investigation 4; Parts 2-3 Investigation 9; Part 2 SE: Bacteria around Us, <i>Harmful and Helpful Bacteria</i> , <i>Viruses: Living or Nonliving?</i> DR: Levels of Complexity: Bacterial Cell, Fungal Cell, Viruses on the Attack
8.L.1.2 Explain the difference between epidemic and pandemic as it relates to the spread, treatment and prevention of disease.	
8.L.2 Understand how biotechnology is used to affect living organisms.	FOSS Next Generation Heredity and Adaptation
8.L.2.1 Summarize aspects of biotechnology including: <ul style="list-style-type: none"> • Specific genetic information available • Careers • Economic benefits to North Carolina • Ethical issues • Implications for agriculture 	FOSS Next Generation Heredity and Adaptation TE: Investigation 3; Part 1 SE: <i>Influencing Evolution</i> DR: Genetic Technology Resources
Essential Standard with Clarifying Objectives	FOSS -Delta Program
Ecosystems	
8.L.3 Understand how organisms interact with and respond to the biotic and abiotic components of their environment.	FOSS Next Generation Populations and Ecosystems FOSS Next Generation Heredity and Adaptation
8.L.3.1 Explain how factors such as food, water, shelter and space affect populations in an ecosystem.	FOSS Next Generation Populations and Ecosystems TE: Investigation 1; Parts 1-3 Investigation 2; Parts 1,3 Investigation 4; Parts 1-3, Investigation 7; Parts 1-3, Investigation 8; Parts 2-3 SE: <i>Milkweed Bugs, Life in a Community, Ecoscenario Introductions, Defining a Biome, Biosphere 2: An Experiment in Isolation, Limiting Factors, Mono Lake Throughout the Year, Invasive Species, Mono Lake in the Spotlight</i> DR: Biomes, Organism Database, Milkweed Bugs Unlimited, Milkweed Bugs Limited, Hawaii: Strangers in Paradise, The Mono Lake Story FOSS Next Generation Heredity and Adaptation TE: Investigation 3; Part 1-2 SE: <i>Adaptation, Natural Selection, Mass Extinctions</i> DR: Walking Sticks: Eat Insects, Walking Sticks: Find Insects in Three Environments, Larkey Natural Selection, The Making of the Fittest: Natural Selection and Adaptation, The Origin of the Species: The Beak of the Finch
8.L.3.2 Summarize the relationships among producers, consumers, and decomposers including the positive and negative consequences of such interactions including: <ul style="list-style-type: none"> • Coexistence and cooperation • Competition • Parasitism 	FOSS Next Generation TE: Inv. 3; Parts 1-3, Investigation 6; Parts 1-4 SE: <i>An Introduction to Mono Lake, Rachel Carson and the Silent Spring, Trophic Levels, Decomposers</i> DR: The Mono Lake Story, Mono Lake Food Web, Ecoscenarios, Organism Database

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Grade 8

<ul style="list-style-type: none"> Mutualism 	
Essential Standard with Clarifying Objectives	FOSS -Delta Program
Evolution and Genetics	
8.L.4 Understand the evolution of organisms and landforms based on evidence, theories and processes that impact the Earth over time.	FOSS Next Generation Heredity and Adaptation FOSS Next Generation Earth History
8.L.4.1 Summarize the use of evidence drawn from geology, fossils, and comparative anatomy to form the basis for biological classifications systems and the theory of evolution.	FOSS Next Generation Heredity and Adaptation TE: Investigation 1; Parts1-2 SE: <i>Fossil Dating, Mass Extinctions, An Interview with Jennifer Clack, Transitions</i> DR: Biodiversity, Fossils, Fish with Fingers, Great Transitions, The Origin of Tetrapods FOSS Earth History TE: Investigation 3; Part 3, Investigation 4; Parts 1-3, Investigation 9; Parts 1-2 SE: <i>Water on Mars? A Fossil Primer, Rocks, Fossils and Time, Floating on a Prehistoric Sea,</i> DR: Sandstone Formation, Rock Database, Shale Formation, Limestone Formation, Rock Column Movie Maker, Sedimentary Rocks Tour, Colorado Plateau over Time
8.L.4.2 Explain the relationship between genetic variation and an organism’s ability to adapt to the environment.	FOSS Next Generation Heredity and Adaptation TE: Investigation 2; Parts 1-4, Investigation 3; Parts 1-2 SE: <i>Tree Thinking, Understanding Heredity, A Larkey Yammer, Mendel and Punnett Squares, Mapping the Human Genome, Adaptations, Natural Selection, What Makes a Scientific Theory?</i> DR: Cladogram, Heredity, A Model for Predicting Genetic Variation, Larkey Impossible Traits, Walking Sticks Eat Insects, Walking Sticks Find Insects in Three Environments, Larkey Natural Selection, The Making of the Fittest: Natural Selection and Adaptation, The Origin of the Species: The Beak of the Finch, Biodiversity
Essential Standard with Clarifying Objectives	FOSS -Delta Program
Molecular Biology	
8.L.5 Understand the composition of various substances as it relates to their ability to serve as a source of energy and building materials for growth and repair of organisms.	FOSS Next Generation Populations and Ecosystems
8.L.5.1 Summarize how food provides the energy and the molecules required for building materials, growth and survival of all organisms (to include plants).	FOSS Next Generation Populations and Ecosystems TE: Investigation 5; Parts 1-4, Investigation 6; Parts 1-4 SE: <i>Energy and Life, Where Does Food Come From?, What Does Water Do? Wangari Maathai: Being a Hummingbird, Rachel Carson and the Silent Spring, Trophic Levels, Decomposers</i> DR: <i>Ecoscenarios, Biomes,</i>
8.L.5.2 Explain the relationship among a healthy diet, exercise, and the general health of the body (emphasis on the relationship between respiration and digestion).	Fully Addressed in Grade 7 FOSS Next Generation Human Systems and Interactions TE: Investigation 2; Parts1-2 SE: <i>Aerobic Cellular Respiration</i> DR: Human Cardiovascular System, Digestive and Excretory Systems, Circulatory and Respiratory Systems,

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