



Grade K

State Standard	Delta Alignment (to module/investigation/part as needed)
<p>L.K.1A.1 With teacher guidance, conduct an investigation of living organisms and nonliving objects in various real-world environments to define characteristics of living organisms that distinguish them from nonliving things (e.g., playground, garden, school grounds).</p>	<p>Animals Two by Two Investigations Guide: Investigation 1, Part 5 Investigation 2, Part 3</p> <p>Animals Two by Two Science Resources Book: <i>"Birds Outdoors"</i></p>
<p>L.K.1A.2 With teacher support, gain an understanding that scientists are humans who use observations to learn about the natural world. Obtain information from informational text or other media about scientists who have made important observations about living things (e.g. Carl Linnaeus, John James Audubon, Jane Goodall).</p>	<p>Mississippi Kindergarten Student Reader: <i>"Jane Goodall"</i></p>
<p>L.K.1B.1 Develop and use models to exemplify how animals use their body parts to (a) obtain food and other resources, (b) protect themselves, and (c) move from place to place.</p>	<p>Animals Two by Two Investigations Guide: Investigation 1, Pts. 1-5 Investigation 2, Pts. 1-3 Investigation 3, Pts. 1-3 Investigation 4, Pts. 1-4</p> <p>Animals Two by Two Science Resources Book: <i>"Fish Same and Different"</i> <i>"Fish Live in Many Places"</i> <i>"Birds Outdoors"</i> <i>"Water and Land Snails"</i> <i>"Worms in Soil"</i> <i>"Isopods"</i></p>
<p>L.K.1B.2 Identify and describe examples of how animals use their sensory body parts (eyes to detect light and movement, ears to detect sound, skin to detect temperature and touch, tongue to taste, and nose to detect smell).</p>	<p>Animals Two by Two Investigations Guide: Investigation 1, Pts. 1-5 Investigation 2, Pts. 1-3 Investigation 3, Pts. 1-3 Investigation 4, Pts. 1-4</p> <p>Animals Two by Two Science Resources Book: <i>"Fish Same and Different"</i> <i>"Fish Live in Many Places"</i> <i>"Birds Outdoors"</i> <i>"Water and Land Snails"</i> <i>"Worms in Soil"</i> <i>"Isopods"</i></p>
<p>L.K.2.1 Use informational text or other media to make observations about plants as they change during the life cycle (e.g., germination, growth, reproduction, and death) and use models (e.g., drawing, writing, dramatization, or technology) to communicate findings.</p>	<p>Animals Two by Two Science Resources Book: <i>"Living and Non-Living"</i></p> <p>Trees and Weather Science Resources Book: <i>"My Apple Tree"</i> <i>"Orange Trees"</i> <i>"Maple Trees"</i></p>



Grade K

<p>L.K.2.2 Construct explanations using observations to describe and model the life cycle (birth, growth, adulthood, death) of a familiar mammal (e.g., dog, squirrel, rabbit, deer).</p>	
<p>L.K.2.3 With teacher guidance, conduct a structured investigation to observe and measure (comparison of lengths) the changes in various individuals of a single plant species from seed germination to adult plant. Record observations using drawing or writing.</p>	<p>Mississippi Student Reader: Teacher’s Guide: Activity 1 What Is a Seed? Activity 2 Planting Day</p>
<p>L.K.2.4 Use observations to explain that young plants and animals are like but not exactly like their parents (i.e., puppies look similar, but not exactly like their parents).</p>	<p>Animals Two by Two Science Resources Book: <i>“Living and Non-Living”</i> Trees Science Resources Book: <i>“Orange Trees”</i></p>
<p>L.K.3A.1 With teacher guidance, conduct a structured investigation to determine what plants need to live and grow (water, light, and a place to grow). Measure growth by directly comparing plants with other objects</p>	<p>Trees and Weather Investigations Guide: Investigation 1, Pts. 1-6 Investigation 2, Pts. 1-5 Investigation 4, Pts. 1-9</p> <p>Trees and Weather Science Resources Book: <i>“Where Do Trees Grow?”</i> <i>“What Do Plants Need?”</i> <i>“My Apple Tree”</i> <i>“Orange Trees”</i> <i>“Maple Trees”</i></p>
<p>L.K.3A.2 Construct explanations using observations to describe and report what animals need to live and grow (food, water, shelter, and space)”. </p>	<p>Animals Two by Two Investigations Guide: Investigation 1, Pts. 1-5 Investigation 2, Pts. 1-3 Investigation 3, Pts. 1-3 Investigation 4, Pts. 1-4</p> <p>Animals Two by Two Science Resources Book: <i>“Fish Same and Different”</i> <i>“Fish Live in Many Places”</i> <i>“Birds Outdoors”</i> <i>“Water and Land Snails”</i> <i>“Worms in Soil”</i> <i>“Isopods”</i></p>
<p>L.K.3B.1 Observe and communicate that animals get food from plants or other animals. Plants make their own food and need light to live and grow</p>	<p>Animals Two by Two Science Resources Book: <i>“Birds Outdoors”</i> <i>“Water and Land Snails”</i> <i>“Worms in Soil”</i> <i>“Isopods”</i></p> <p>Trees and Weather Science Resources Book: <i>“What Do Plants Need?”</i> <i>“My Apple Tree”</i> <i>“Orange Trees”</i></p>



Grade K

	<i>"Maple Trees"</i>
L.K.3B.2 Create a model habitat which demonstrates interdependence of plants and animals using an engineering design process to define the problem, design, construct, evaluate, and improve the habitat	Animals Two by Two Investigations Guide: Investigation 4, Pts. 1-4 Animals Two by Two Science Resources Book: <i>"Isopods"</i> <i>"Animals All around Us"</i> <i>"Living and Nonliving"</i>
L.K.4.1 Obtain information from informational text or other media to document and report examples of different plants or animals that are extinct	
L.K.4.2 Observe and report how some present-day animals resemble extinct animals (i.e., elephants resemble woolly mammoths).	
P.K.5A.1 Generate questions and investigate the differences between liquids and solids and develop awareness that a liquid can become a solid and vice versa.	Mississippi Kindergarten Student Reader: <i>"What is Matter?"</i> <i>"What Are Properties"</i> <i>"What is a Solid"</i> <i>"What is a Liquid"</i> <i>"Water Can Change"</i>
P.K.5A.2 Describe and compare the properties of different materials (e.g., wood, plastic, metal, cloth, paper) and classify these materials by their observable characteristics (visual, aural, or natural textural) and by their physical properties (weight, volume, solid or liquid, and sink or float).	Materials and Motion Investigations Guide: Investigation 1, Pts. 1-3 Investigation 2, Pts. 1-3 Investigation 3, Pts. 1-4 Materials and Motion Student Resources Book: <i>"The Story of a Chair"</i> <i>"The Story of a Box"</i> <i>"What is Fabric Made From?"</i> <i>"How is Fabric Used"</i>
P.K.5B.1 Use basic shapes and spatial reasoning to model large objects in the environment using a set of small objects (e.g., blocks, construction sets).	Trees and Weather Investigations Guide: Investigation 2, Pt. 2
P.K.5B.2 Analyze a large composite structure to describe its smaller components using drawing and writing.	Trees and Weather Investigation Guide: Investigation 1, Pt. 2
P.K.5B.3 Explain why things may not work the same if some of the parts are missing	Materials and Motion Investigation Guide: Investigation 4, Pt. 4 Trees and Weather Student Resources Book: <i>"What Do Plants Need"</i>
E.K.8A.1 Construct an explanation of the pattern of the Earth's seasonal changes in the environment using evidence from observations.	Trees and Weather Investigation Guide: Investigation 4, Pts. 1-9 Trees and Weather Student Resources Book: <i>"My Apple Tree"</i> <i>"Who Lives Here"</i> <i>"Orange Trees"</i> <i>"Maple Trees"</i>
E.K.8B.1 With teacher guidance, generate and answer questions to develop a simple model, which describes	Trees and Weather Student Resources Book: <i>"Up In the Sky"</i>



Grade K

<p>observable patterns of sunlight on the Earth’s surface (day and night).</p>	
<p>E.K.8B.2 With teacher guidance, develop questions to conduct a structured investigation to determine how sunlight affects the temperature of the Earth’s natural resources (e.g., sand, soil, rocks, and water).</p>	<p>Trees and Weather Investigation Guide: Investigation 1, Pts. 1-3</p>
<p>E.K.8B.3 Develop a device (i.e., umbrella, shade structure, or hat) which would reduce heat from the sun (temperature) using an engineering design process to define the problem, design, construct, evaluate, and improve the device.*</p>	<p>Materials and Motion Investigation Guide: Investigation 3, Part 6</p>
<p>E.K.10.1 Participate in a teacher-led activity to gather, organize and record recyclable materials data on a chart or table using technology. Communicate results.</p>	<p>Materials and Motion Investigation Guide: Investigation 3, Pt. 5</p>
<p>E.K.10.2 With teacher guidance, develop questions to conduct a structured investigation to determine ways to conserve Earth's resources (i.e., reduce, reuse, and recycle) and communicate results</p>	<p>Materials and Motion Investigation Guide: Investigation 3, Pt. 5 Materials and Motion Student Resources Book: “Land, Air, and Water” “I Am Wood”</p>
<p>E.K.10.3 Create a product from the reused materials that will meet a human need (e.g., pencil holder, musical instrument, bird feeder). Use an engineering design process to define the problem, design, construct, evaluate, and improve the product.*</p>	<p>Materials and Motion, Investigation Guide: Investigation 3, Pt. 6</p>



Grade 1

State Standard	Delta Alignment (to module/investigation/part as needed)
L.1.1.1 Construct explanations using first-hand observations or other media to describe the structures of different plants (i.e., root, stem, leaves, flowers, and fruit). Report findings using drawings, writing, or models.	Plants and Animals Investigation Guide: Investigation 1, Pts. 2-4 Investigation 2, Pts. 1-3 Investigation 3, Pts. 1-2 Investigation 4, Pt. 1
L.1.1.2 Obtain information from informational text and other media to describe the function of each plant part (roots absorb water and anchor the plant, leaves make food, the stem transports water and food, petals attract pollinators, flowers produce seeds, and seeds produce new plants).	Plants and Animals Student Resources Book: <i>“What Do Plants Need?”</i> <i>“The Story of Wheat”</i> <i>“Plants and Animals Around the World”</i>
L.1.1.3 Design and conduct an experiment that shows the absorption of water and how it is transported through the plant. Report observations using drawings, sketches, or models.	Plants and Animals Investigation Guide: Investigation 2, Pt. 1
L.1.1.4 Create a model which explains the function of each plant structure (roots, stem, leaves, petals, flowers, seeds).	Plants and Animals Investigation Guide: Investigation 1, Pt. 3 Investigation 2, Pt. 2 Plants and Animals Student Resources Book: <i>“The Story of Wheat”</i>
L.1.1.5 With teacher support, gain an understanding that scientists are humans who use observations and experiments to learn about the natural world. Obtain information from informational text or other media about scientists who have made important observations about plants (e.g., Theophrastus, Gregor Mendel, George Washington Carver, Katherine Esau)	Mississippi Student Reader: <i>“Gardeners”</i> <i>“George Washington Carver”</i> <i>“Park Naturalist”</i>
L.1.2.1 Investigate, using observations and measurements (non-standard units), flowering plants (pumpkins, peas, marigolds, or sunflowers) as they change during the life cycle (i.e., germination, growth, reproduction, and seed dispersal). Use drawings, writing, or models to communicate findings.	Plants and Animals Investigation Guide: Investigation 1, Pts. 1 and 3 Investigation 2, Pts. 1-3 Investigation 3, Pts. 1-2 Investigation 4, Pts. 2-3 Plants and Animals Student Resources Book: <i>“What Do Plants Need?”</i> <i>“The Story of Wheat”</i> <i>“Plants and Animals Around the World”</i> <i>“Watch It Grow”</i>
L.1.2.2 Obtain, evaluate, and communicate information through labeled drawings, the life cycle (egg, larva, pupa, adult) of pollinating insects (e.g., bees, butterflies).	Mississippi Student Reader: <i>“Insects”</i> <i>“Butterflies and Moths”</i>
L.1.3A.1 Conduct structured investigations to make and test predictions about what plants need to live, grow, and repair including water, nutrients, sunlight, and space.	Plants and Animals Investigation Guide: Investigation 1, Pts. 1 and 3 Investigation 3, Pt. 3



Grade 1

Develop explanations, compare results, and report findings.	
L.1.3B.1 Identify the body parts of a pollinating insect (e.g., bee, butterfly) and describe how insects use these parts to gather nectar or disburse pollen. Report findings using drawings, writing, or models.	Mississippi Student Reader: <i>"Insects"</i> <i>"Butterflies and Moths"</i>
L.1.4.1 Explore the cause and effect relationship between plant adaptations and environmental changes (i.e., leaves turning toward the sun, leaves changing color, leaves wilting, or trees shedding leaves).	Plants and Animals Investigation Guide: Investigation 1, Pts. 1 and 3 Plants and Animals Science Resources Book: <i>"What Do Plants Need?"</i> <i>"The Story of Wheat"</i>
L.1.4.2 Describe how the different characteristics of plants help them to survive in distinct environments (e.g., rain forest, desert, grasslands, forests).	Plants and Animals Investigation Guide: Investigation 3, Pts. 3 Plants and Animals Science Resources Book: <i>"Plants and Animals Around the World"</i>
L.1.4.3 Create a solution for an agricultural problem (i.e. pollination, seed dispersal, over-crowding). Use an engineering design process to define the problem, design, construct, evaluate, and improve the solution.*	Plants and Animals Investigation Guide: Investigation 3, Pt. 1 Plants and Animals Science Resources Book: <i>"What Do Plants Need"</i>
P.1.6A.1 Construct explanations using first-hand observations or other media to describe how reflected light makes an object visible.	Sound and Light Investigation Guide: Investigation 3, Pt. 1-3 Investigation 4, Pt. 1-4 Sound and Light Science Resources Book: <i>"Playing in the Light"</i> <i>"Reflections"</i> <i>"Communicating With Light"</i> <i>"Seeing the Light"</i>
P.1.6A.2 Use evidence from observations to explain how shadows form and change with the position of the light source.	Sound and Light Investigation Guide: Investigation 3, Pts. 1-2 Sound and Light Science Resources Book: <i>"Playing With Light"</i>
P.1.6B.1 Conduct an investigation to provide evidence that vibrations create sound (e.g., pluck a guitar string) and that sound can create vibrations (e.g., feeling sound through a speaker).	Sound and Light Investigations Guide: Investigation 1, Pts. 1-3 Investigation 2, Pts. 1-4 Sound and Light Science Resources Book: <i>"Listen to This"</i> <i>"Vibrations and Sounds"</i> <i>"Strings in Motion"</i> <i>"More Musical Instruments"</i>
P.1.6B.2 Create a device that uses light and/or sound to communicate over a distance (e.g., signal lamp with a flashlight). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device.*	Sound and Light Investigations Guide: Investigation 1, Pts. 1 Investigation 2, Pts. 1-2 Investigation 4, Pts. 1-4 Sound and Light Science Resources Book: <i>"Vibrations and Sound"</i> <i>"Strings in Motion"</i> <i>"Seeing the Light"</i>



Grade 1

	<i>"Communicating With Light"</i>
E.1.9A.1 Analyze and interpret data from observations and measurements to describe local weather conditions (including temperature, wind, and forms of precipitation).	Air and Weather Investigations Guide: Investigation 2, Pt. 1-3 Air and Weather Science Resources Book: <i>"What is the Weather Today?"</i> <i>"Clouds"</i> <i>"Water in the Air"</i>
E.1.9A.2 Develop and use models to predict weather conditions associated with seasonal patterns and changes.	Air and Weather Investigations Guide: Investigations 3, Pts. 1-5 Investigation 4, Pts. 3 Air and Weather Science Resources Book: <i>"Wind Speed"</i> <i>"Understand the Weather"</i> <i>"Seasons"</i> <i>"Getting through the Winter"</i>
E.1.9A.3 Construct an explanation for the general pattern of change in daily temperatures by measuring and calculating the difference between morning and afternoon temperatures.	Air and Weather Investigation Guide: Investigation 2, Pt. 2 Air and Weather Science Resources Book: <i>"What is the Weather Today?"</i>
E.1.9A.4 Obtain and communicate information about severe weather conditions to explain why certain safety precautions are necessary	Air and Weather Science Resources Book: <i>"Understanding the Weather"</i>
E.1.9B.1 Locate, classify, and describe bodies of water (oceans, rivers, lakes, and ponds) on the Earth's surface using maps, globes, or other media.	Mississippi Student Reader: <i>"Why is Earth Called the Water Planet"</i> <i>"Water is a Resource"</i>
E.1.9B.2 Generate and answer questions to explain the patterns and location of frozen and liquid bodies of water on earth using maps, globes, or other media.	Mississippi Student Reader: <i>"Why is Earth Called the Water Planet"</i> <i>"Water is a Resource"</i>
E.1.9B.3 With teacher guidance, plan and conduct a structured investigation to determine how the movement of water can change the shape of the land on earth.	
E.1.10.1 Obtain and evaluate informational texts and other media to generate and answer questions about water sources and human uses of clean water.	Mississippi Student Reader: <i>"Why is Earth Called the Water Planet"</i> <i>"Water is a Resource"</i>
E.1.10.2 Communicate solutions that will reduce the impact of humans on the use and quality of water in the local environment.	Mississippi Student Reader: <i>"Why is Earth Called the Water Planet"</i> <i>"Water is a Resource"</i>
E.1.10.3 Create a device that will collect free water to meet a human need (e.g., household drinking water, watering plants/animals, cleaning). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device.	



Grade 2

State Standard	Delta Alignment (to module/investigation/part as needed)
L.2.1.1 Compare and sort groups of animals with backbones (vertebrates) from groups of animals without backbones (invertebrates).	Mississippi Student Reader: <i>"Life Goes Around"</i>
L.2.1.2 Classify vertebrates (mammals, fish, birds, amphibians, and reptiles) based on their physical characteristics.	Mississippi Student Reader: <i>"Animal Life Cycles"</i>
L.2.1.3 Compare and contrast physical characteristics that distinguish classes of vertebrates (i.e., reptiles compared to amphibians)	Mississippi Student Reader: <i>"Animal Life Cycles"</i>
L.2.1.4 Construct a scientific argument for classifying vertebrates that have unusual characteristics, such as bats, penguins, snakes, salamanders, dolphins, and duck-billed platypuses (i.e., bats have wings yet they are mammals).	Mississippi Student Reader: <i>"Animal Life Cycles"</i>
L.2.2.1 Use observations through informational texts and other media to observe the different stages of the life cycle of trees (i.e., pines, oaks) to construct explanations and compare how trees change and grow over time.	Mississippi Student Reader: <i>"Plant Life Cycles"</i>
L.2.2.2 Construct explanations using first-hand observations or other media to describe the life cycle of an amphibian (birth, growth/development, reproduction, and death). Communicate findings	Mississippi Student Reader: <i>"Animal Life Cycles"</i>
L.2.3A.1 Evaluate and communicate findings from informational text or other media to describe how animals change and respond to rapid or slow changes in their environment (fire, pollution, changes in tide, availability of food/water).	
L.2.3A.2 Construct scientific arguments to explain how animals can make major changes (e.g., beaver dams obstruct streams, or large deer populations destroying crops) and minor changes to their environments (e.g., ant hills, crawfish burrows, mole tunnels). Communicate findings.	Insects & Plants Science Resources Book: <i>"Animals and Plants in Their Habitats"</i>



Grade 2

<p>L.2.3B.1 Evaluate and communicate findings from informational text or other media to describe and to compare how animals interact with other animals and plants in the environment (i.e., predator/prey relationships, herbivore, carnivore, omnivore).</p>	<p>Insects & Plants Investigation Guide: Investigation 2, Pts. 1-4</p> <p>Insects & Plants Student Resources Book: <i>"Animals and Plants in Their Habitats"</i> <i>"How Seeds Travel"</i> <i>"So Many Kinds, So Many Places"</i> <i>"Insect Shapes and Colors"</i></p>
<p>L.2.3B.2 Conduct an investigation to find evidence where plants and animals compete or cooperate with other plants and animals for food or space. Present findings (i.e., using technology or models).</p>	<p>Insects & Plants Investigation Guide: Investigation 1, Pts. 1-3 Investigation 2, Pts. 1-4 Investigation 3, Pts. 1-4 Investigation 4, Pts. 1-5 Investigation 5, Pts. 1-5</p>
<p>L.2.4.1 Evaluate and communicate findings from informational text or other media to describe how plants and animals use adaptations to survive (e.g., ducks use webbed feet to swim in lakes and ponds, cacti have waxy coatings and spines to grow in the desert) in distinct environments (e.g., polar lands, saltwater and freshwater, desert, rainforest, woodlands).</p>	<p>Insects & Plants Science Resources Book: <i>"Animals and Plants in Their Habitats"</i> <i>"Insect Shapes and Colors"</i></p>
<p>L.2.4.2 Create a solution exemplified by animal adaptations to solve a human problem in a specific environment (e.g., snowshoes are like hare's feet or flippers are like duck's feet). Use an engineering design process to define the problem, design, construct, evaluate, and improve the solution.*</p>	<p>Insects & Plants Investigation Guide: Investigation 4 Science Extension</p>
<p>P.2.5.1 Conduct a structured investigation to collect, represent, and analyze categorical data to classify matter as solid, liquid, or gas. Report findings and describe a variety of materials according to observable physical properties (e.g., size, color, texture, opacity, solubility).</p>	<p>Solids and Liquids Investigations Guide: Investigation 1, Pts. 1-5 Investigation 2, Pts. 1-4 Investigation 3, Pts. 1-5 Investigation 4, Pts. 1-5</p> <p>Solids and Liquids Science Resources Book: <i>"Everything Matters"</i> <i>"Solid Objects and Materials"</i> <i>"Towers"</i> <i>"Bridges"</i> <i>"Liquids"</i> <i>"Pouring"</i> <i>"Comparing Solids and Liquids"</i></p>



Grade 2

P.2.5.2 Compare and measure the length of solid objects using technology and mathematical representations. Analyze and communicate findings.	
P.2.5.3 Compare the weight of solid objects and the volume of liquid objects. Analyze and communicate findings	
P.2.5.4 Construct scientific arguments to support claims that some changes to matter caused by heating can be reversed, and some changes cannot be reversed.	<p>Solids & Liquids Investigation Guide: Investigation 4, Pt. 4</p> <p>Solids & Liquids Science Resources Book: <i>“Heating and Cooling”</i> <i>“Is Change Reversible?”</i></p>
P.2.6.1 Conduct a structured investigation to collect, represent, and analyze data from observations and measurements to demonstrate the effects of pushes and pulls with different strengths and directions. Communicate findings (e.g., models or technology).	<p>Mississippi Student Reader: Teacher’s Guide: Activity 1 Measuring Force</p>
P.2.6.2 Generate and answer questions about the relationship between (1) friction and the motion of objects and (2) friction and the production of heat.	<p>Mississippi Student Reader: Teacher’s Guide: Activity 2 Friction Stops Motion</p>
P.2.6.3 Develop a plan to change the force (push or pull) of friction to solve a human problem (e.g., improve the ride on a playground slide or make a toy car or truck go faster). Use an engineering design process to define the problem, design, construct, evaluate, and improve the plan.*	<p>Mississippi Student Reader: Teacher’s Guide: Activity 2 Friction Stops Motion</p>
E.2.8.1 Recognize that there are many stars that can be observed in the night sky and the Sun is the Earth’s closest star.	<p>Mississippi Student Reader: <i>“What Can We See in the Sky at Night”</i></p> <p>Teacher’s Guide: Activity 3 What Can We See in the Sky?</p>
E.2.8.2 With teacher guidance, observe, describe, and predict the seasonal patterns of sunrise and sunset. Collect, represent, and interpret data from internet sources to communicate findings.	<p>Mississippi Student Reader: <i>“What Can We See in the Sky in Daytime?”</i> <i>“What Can We See in the Sky at Night?”</i></p>
E.2.8.3 Observe and compare the details in images of the moon and planets using the perspective of the naked eye, telescopes, and data from space exploration.	<p>Mississippi Student Reader: <i>“What Are Moon Phases?”</i> <i>“About Moon Phases”</i></p>
E.2.8.4 With teacher support, gain an understanding that scientists are humans who use observations and experiments to learn about space. Obtain information from informational text or other media about scientists who have made important discoveries about objects in space (e.g., Galileo Galilei, Johannes Kepler, George Ellery Hale, Jill Tarter) or the development of technologies (e.g.,	<p>Mississippi Student Reader: <i>“Neil Armstrong”</i></p>



Grade 2

various telescopes and detection devices, computer modeling, and space exploration).	
E.2.8.5 Use informational text and other media to observe, describe and predict the visual patterns of motion of the Sun (sunrise, sunset) and Moon (phases).	Mississippi Student Reader: <i>“What Can We See in the Sky in Daytime?”</i> <i>“What Can We See in the Sky at Night?”</i>
E.2.8.6 Create a model that will demonstrate the observable pattern of motion of the Sun or Moon. Use an engineering design process to define the problem, design, construct, evaluate, and improve the model.*	Mississippi Student Reader: Teacher’s Guide: Activity 4 The Sun Rises and Sets
E.2.10.1 Use informational text, other media, and first-hand observations to investigate, analyze and compare the properties of Earth materials (including rocks, soils, sand, and water).	Pebbles, Sand & Silt Investigation Guide: Investigation 1, Pt. 1-5 Investigation 2, Pt. 1-4 Pebbles, Sand & Silt Science Resources Book: <i>“Exploring Rocks”</i> <i>“Colorful Rocks”</i> <i>“The Story of Sand”</i> <i>“Rocks Move”</i> <i>“Landforms”</i>
E.2.10.2 Conduct an investigation to identify and classify everyday objects that are resources from the Earth (e.g., drinking water, granite countertops, clay dishes, wood furniture, or gas grill). Classify these objects as renewable and nonrenewable resources.	Pebbles, Sand & Silt Investigation Guide: Investigation 3, Pt. 1-4 Pebbles, Sand & Silt Science Resources Book: <i>“Making Thing with Rocks”</i> <i>“What Are Natural Resources”</i>
E.2.10.3 Use informational text and other media to summarize and communicate how Earth materials are used (e.g., soil and water to grow plants; rocks to make roads, walls or building; or sand to make glass).	Pebbles, Sand & Silt Investigation Guide: Investigation 3, Pt. 1-5 Pebbles, Sand & Silt Science Resources Book: <i>“Making Things With Rocks”</i> <i>“What Are Natural Resources”</i>
E.2.10.4 Use informational text, other media, and first-hand observations to investigate and communicate the process and consequences of soil erosion.	Pebbles, Sand & Silt Investigation Guide: Investigation 4, Pt. 1-4 Pebbles, Sand & Silt Science Resources Book: <i>“What Is in Soil?”</i> <i>“Testing Soil”</i> <i>“Erosion”</i> <i>“Ways to Represent Land and Water”</i>
E.2.10.5 With teacher guidance, investigate possible solutions to prevent or repair soil erosion.	Pebbles, Sand & Silt Investigation Guide: Investigation 4, Pt. 4 Pebbles, Sand & Silt Science Resources Book: <i>“Erosion”</i> <i>“Ways to Represent Land and Water”</i>



Grade 3

State Standard	FOSS Alignment (to module/investigation/part as needed)
<p>L.3.1.1 Examine evidence to communicate information that the internal and external structures of animals (e.g., heart, stomach, bone, lung, brain, skin, ears, appendages) function to support survival, growth, and behavior.</p>	<p>Structures of Life Investigation Guide: Investigation 4, Pts. 1-3 Structures of Life Science Resources Book: <i>“Inside a Snail’s Shell”</i> <i>“The Human Skelton”</i> <i>“Crayfish, Snails, and Humans”</i></p>
<p>L.3.1.2 Examine evidence to communicate information that the internal and external structures of plant (e.g., thorns, leaves, stems, roots, or colored petals) function to support survival, growth, behavior, and reproduction.</p>	<p>Structures of Life Investigation Guide: Investigation 1, Pts. 1-4 Investigation 2, Pts. 1-3 Structures of Life Science Resources Book: <i>“A Change in the Environment”</i> <i>“Food Chains”</i> <i>“Adaptations”</i> <i>“Life on Earth”</i></p>
<p>L.3.1.3 Obtain and communicate examples of physical features or behaviors of vertebrates and invertebrates and how these characteristics help them survive in particular environments, (e.g., animals hibernate, migrate, or estivate to stay alive when food is scarce or temperatures are not favorable).</p>	<p>Structures of Life Investigation Guide: Investigation 1, Pt. 3 Investigation 2, Pts. 2-3 Investigation 3, Pts. 1-5 Investigation 4, Pts. 1-2 Structures of Life Science Resources Book: <i>“A Change in the Environment”</i> <i>“Food Chains”</i> <i>“Adaptations”</i> <i>“Life on Earth”</i></p>
<p>L.3.2.1 Identify traits and describe how traits are passed from parent organism(s) to offspring in plants and animals</p>	<p>Structures of Life Investigation Guide: Investigation 1, Pt. 3 Investigation 2, Pts. 2-3 Investigation 3, Pt. 2 Investigation 4, Pts. 1-2 Structures of Life Science Resources Book: <i>“Barbara McClintock”</i> <i>“Life Cycles”</i> <i>“Crayfish, Snails, and Humans”</i></p>
<p>L.3.2.2 Describe and provide examples of plant and animal offspring from a single parent organism (e.g., bamboo, fern, or starfish) as being an exact replica with identical traits as the parent organism.</p>	<p>Structures of Life Investigation Guide: Investigation 1, Pt. 3-4 Investigation 2, 2-3 Structures of Life Science Resources Book: <i>“Life Cycles”</i> <i>“Crayfish”</i> <i>“The Reason for Fruit”</i></p>



Grade 3

<p>L.3.2.3 Describe and provide examples of offspring from two parent organisms as containing a combination of inherited traits from both parent organisms</p>	<p>Structures of Life Investigation Guide: Investigation 1, Pt. 3 Investigation 2, Pts. 2-3 Investigation 3, Pt. 2 Investigation 4, Pts. 1-4 Structures of Life Science Resources Book: <i>“Barbara McClintock”</i> <i>“Life Cycles”</i> <i>“Adaptations”</i> <i>“The Human Skelton”</i> <i>“Barn Owls”</i> <i>“Fossils”</i> <i>“Skeletons on the Outside”</i> <i>“Crayfish, Snails, and Humans”</i></p>
<p>L.3.2.4 Obtain and communicate data to provide evidence that plants and animals have traits inherited from both parent organisms and that variations of these traits exist in groups of similar organisms (e.g., flower colors in pea plants or fur color and pattern in animal offspring).</p>	<p>Structures of Life Investigation Guide: Investigation 1, Pt. 3 Investigation 2, Pts. 2-3 Investigation 3, Pt. 2 Investigation 4, Pts. 1-4 Structures of Life Science Resources Book: <i>“Barbara McClintock”</i> <i>“Life Cycles”</i> <i>“Adaptations”</i> <i>“The Human Skelton”</i> <i>“Barn Owls”</i> <i>“Fossils”</i> <i>“Skeletons on the Outside”</i> <i>“Crayfish, Snails, and Humans”</i></p>
<p>L.3.2.5 Research to justify the concept that traits can be influenced by the environment (e.g., stunted growth in normally tall plants due to insufficient water, changes in an arctic fox’s fur color due to light and/or temperature, or flamingo plumage).</p>	<p>Structures of Life Investigation Guide: Investigation 1, Pt. 3 Investigation 2, Pts. 2-3 Investigation 3, Pt. 2 Investigation 4, Pts. 1-4 Structures of Life Science Resources Book: <i>“Barbara McClintock”</i> <i>“Adaptations”</i></p>
<p>L.3.4.1 Obtain data from informational text to explain how changes in habitats (both those that occur naturally and those caused by organisms) can be beneficial or harmful to the organisms that live there</p>	<p>Structures of Life Investigation Guide: Investigation 2, Pt. 2, 4-5 Structures of Life Science Resources Book: <i>“Adaptations”</i> <i>“A Change in the Environment”</i> <i>“Food Chains”</i></p>



Grade 3

<p>L.3.4.2 Ask questions to predict how natural or man-made changes in a habitat cause plants and animals to respond in different ways, including hibernating, migrating, responding to light, death, or extinction (e.g., sea turtles, the dodo bird, or nocturnal species)</p>	<p>Structures of Life Investigation Guide: Investigation 3, Pt. 2 Investigation 4, Pt. 5 Structures of Life Science Resources Book: "Adaptations" "A Change in the Environment" "Food Chains" "Barn Owls"</p>
<p>L.3.4.3 Analyze and interpret data to explain how variations in characteristics among organisms of the same species may provide advantages in surviving, finding mates, and reproducing (e.g., plants with larger thorns being less likely to be eaten by predators or animals with better camouflage colorations being more likely to survive and bear offspring).</p>	<p>Structures of Life Investigation Guide: Investigation 3, Pt. 2 Structures of Life Science Resources Book: "Adaptations" "All About Animal Adaptations" "Walking Stick Survivors"</p>
<p>L.3.4.4 Define and improve a solution to a problem created by environmental changes and any resulting impacts on the types of density and distribution of plant and animal populations living in the environment (e.g., replanting sea oats in coastal areas or developing or preserving wildlife corridors and green belts). Use an engineering design process to define the problem, design, construct, evaluate, and improve the environment.*</p>	<p>Structures of Life Investigation Guide Investigation 3, Pt. 2 Investigation 4, Pt. 5</p>
<p>L.3.4.5 Construct scientific argument using evidence from fossils of plants and animals that lived long ago to infer the characteristics of early environments (e.g., marine fossils on dry land, tropical plant fossils in arctic areas, or fossils of extinct organisms in any environment).</p>	<p>Structures of Life Science Resources Book: "Fossils"</p>
<p>P.3.5.1 Plan and conduct scientific investigations to determine how changes in heat (i.e., an increase or decrease) change matter from one state to another (e.g., melting, freezing, condensing, boiling, or evaporating).</p>	<p>Mississippi Student Reader: Teacher's Guide: Activity 1 What Is a Solid? Activity 2 What Is a Liquid? Activity 3 What Is a Gas? Activity 4 Melting Ice Activity 5 From Liquid to Gas Activity 6 From Gas to Liquid</p>
<p>P.3.5.2 Develop and use models to communicate the concept that matter is made of particles too small to be seen that move freely around in space (e.g., inflation and shape of a balloon, wind blowing leaves, or dust suspended in the air).</p>	<p>Mississippi Student Reader: "What is Matter?" "What Are Solids, Liquids, and Gases?"</p>



Grade 3

<p>P.3.5.3 Plan and conduct investigations that particles speed up or slow down with addition or removal of heat.</p>	<p>Mississippi Student Reader: <i>"What Are Solids, Liquids and Gases?"</i> <i>"What Are Physical Changes"</i></p>
<p>P.3.6.1 Compare and contrast the effects of different strengths and directions of forces on the motion of an object (e.g., gravity, polarity, attraction, repulsion, or strength).</p>	<p>Motion and Matter Investigations Guide: Investigation 3, Pts. 1-3 Investigation 2, Pts. 1-4 Motion and Matter Science Resources Book: <i>"Magnetic Poles"</i> <i>"Changes in Motion"</i> <i>"Patterns of Motion"</i> <i>"All About Motion and Balance"</i></p>
<p>P.3.6.2 Plan an experiment to investigate the relationship between a force applied to an object (e.g., friction, gravity) and resulting motion of the object.</p>	<p>Motion and Matter Investigation Guide: Investigation 3, Pts. 1-4 Motion and Matter Science Resources Book: <i>"Change of Motion"</i> <i>"Patterns of Motion"</i> <i>"What Goes Around"</i></p>
<p>P.3.6.3 Research and communicate information to explain how magnets are used in everyday life.</p>	<p>Motion and Matter Science Resources Book: <i>"Magnets at Work"</i> <i>"Magnetism and Gravity"</i></p>
<p>P.3.6.4 Define and solve a simple design problem by applying scientific ideas about magnets (e.g., can opener, door latches, paperclip holders, finding studs in walls, magnetized paint). Use an engineering design process to define the problem, design, construct, evaluate, and improve the magnet.*</p>	<p>Motion and Matter Investigation Guide: Investigation 1, Pts. 1-3 Investigation 3, Pt. 4 Motion and Matter Science Resources Book: <i>"Magnets at Work"</i></p>
<p>E.3.7A.1 Plan and conduct controlled scientific investigations to identify the processes involved in forming the three major types of rock, and investigate common techniques used to identify them.</p>	<p>Mississippi Student Reader: <i>About the Rock Cycle</i> Teacher's Guide: <i>Activity 7 Rocks: Clues to the Past</i></p>
<p>E.3.7A.2 Develop and use models to demonstrate the processes involved in the development of various rock formations, including superposition, and how those formations can fracture and move over time.</p>	<p>Mississippi Student Reader: <i>What Forces Shape Earth's Surface?</i> Teacher's Guide: <i>Activity 8 Continents Adrift</i> <i>Activity 9 Plates in Motion</i> <i>Activity 10 Ocean-Floor Spreading</i> <i>Activity 11 Subduction</i> <i>Activity 12 Building Mountains</i></p>



Grade 3

<p>E.3.7A.3 Ask questions to generate testable hypotheses regarding the formation and location of fossil types, including their presence in some sedimentary rock.</p>	<p>Mississippi Student Reader Teacher Guide: Activity 7 Rocks: Clues to Earth’s Past</p>
<p>E.3.7B.1 Obtain and evaluate scientific information (e.g. using technology) to describe the four major layers of Earth and the varying compositions of each layer.</p>	<p>Mississippi Student Reader: <i>“What are Earth’s Layers?”</i></p>
<p>E.3.7B.2 Develop and use models to describe the characteristics of Earth's continental landforms and classify landforms as volcanoes, mountains, valleys, canyons, planes, and islands.</p>	<p>Mississippi Student Reader: <i>“What are Earth’s Landforms?”</i></p>
<p>E.3.7B.3 Develop and use models of weathering, erosion, and deposition processes which explain the appearance of various Earth features (e.g., the Grand Canyon, Arches National Park in Utah, Plymouth Bluff in Columbus, or Red Bluff in Marion County, Mississippi)</p>	<p>Mississippi Student Reader: <i>“What Forces Shape the Earth’s Surface?”</i></p>
<p>E.3.7B.4 Compare and contrast constructive (e.g., deposition, volcano) and destructive (e.g., weathering, erosion, earthquake) processes of the Earth</p>	<p>Mississippi Student Reader: <i>“What Forces Shape the Earth’s Surface?”</i></p>
<p>E.3.9.1 Develop models to communicate the characteristics of the Earth's major systems, including the geosphere, hydrosphere, atmosphere, and biosphere (e.g., digital models, illustrations, flip books, diagrams, charts, tables)</p>	
<p>E.3.9.2 Construct explanations of how different landforms and surface features result from the location and movement of water on Earth’s surface (e.g., watersheds, drainage basins, deltas, or rivers)</p>	<p>Water & Climate Investigation Guide: Investigation 4, Pt. 3 Water and Climate Science Resources Book: <i>“Wetlands for Flood Control”</i></p>
<p>E.3.9.3 Use graphical representations to communicate the distribution of freshwater and saltwater on Earth (e.g., oceans, lakes, rivers, glaciers, groundwater, or polar ice caps).</p>	<p>Water & Climate Science Resources Book: <i>“A Report from the Blue Planet”</i></p>
<p>E.3.10.1 Identify some of Earth's resources that are used in everyday life such as water, wind, soil, forests, oil, natural gas, and minerals and classify as renewable or nonrenewable.</p>	<p>Water & Climate Science Resources Book: <i>“Natural Resources”</i> <i>“Water: A Vital Resource”</i> <i>“Using the Energy of Water”</i> <i>“Water Everywhere”</i></p>



Grade 3

E.3.10.2 Obtain and communicate information to exemplify how humans attain, use, and protect renewable and nonrenewable Earth resources.	Water & Climate Science Resources Book: <i>“Natural Resources”</i>
E.3.10.3 Use maps and historical information to identify natural resources in the state connecting (a) how resources are used for human needs and (b) how the use of those resources impacts the environment.	
E.3.10.4 Design a process for cleaning a polluted environment (e.g., simulating an oil spill in the ocean or a flood in a city and creating a solution for containment and/or cleanup). Use an engineering design process to define the problem, design, construct, evaluate, and improve the environment.*	



Grade 4

State Standard	FOSS Alignment (to module/investigation/part as needed)
L.4.1.1 Use technology or other resources to research and discover general system function (e.g., machines, water cycle) as they relate to human organ systems and identify organs that work together to create organ systems.	Mississippi Student Reader: <i>"Body Building Blocks"</i> <i>"What Are The Body's Main Systems?"</i>
L.4.1.2 Obtain and communicate data to describe patterns that indicate the nature of relationships between human organ systems, which interact with one another to control digestion, respiration, circulation, excretion, movement, coordination, and protection from infection.	Mississippi Student Reader: <i>"Body Building Blocks"</i> <i>"What Are The Body's Main Systems?"</i>
L.4.1.3 Construct models of organ systems (e.g. circulatory, digestive, respiratory, muscular, skeletal, nervous) to demonstrate both the unique function of the system and how multiple organs and organ systems work together to accomplish more complex functions.	Mississippi Student Reader: Teacher's Guide: Activity 1 Human Bones Activity 2 Muscles and Movement
L.4.1.4 Research and communicate how noninfectious diseases (e.g. diabetes, heart disease) and infectious diseases (e.g. cold, flu) serve to disrupt the function of the body system.	
L.4.1.5 Using informational text, investigate how scientific fields, medical specialties, and research methods help us find new ways to maintain a healthy body and lifestyle (e.g. diet, exercise, vaccines, and mental health).	Mississippi Student Reader: <i>"Charles Drew, M.D."</i> <i>"Elizabeth Blackwell, M.D."</i>
L.4.2.1 Compare and contrast life cycles of familiar plants and animals	Environments Investigation Guide: Investigation 1, Pts. 1-2 Investigation 3, Pts. 1-4 Investigation 4, Pts. 1-3 Mississippi Student Reader: <i>"Animal Life Cycles"</i> <i>"About Plants"</i> <i>"Nonvascular Plants"</i> <i>"Vascular Plants"</i> <i>"Making Food"</i> <i>"Using Food"</i> <i>"Plant Adaptations"</i> <i>"Plant Responses"</i>



Grade 4

<p>L.4.2.2 Develop and use models to explain the unique and diverse life cycles of organisms other than humans (e.g., flowering plants, frogs, or butterflies) including commonalities (e.g., birth, growth, reproduction, or death).</p>	<p>Environments Investigation Guide: Investigation 1, Pts. 1-2 Investigation 3, Pts. 1-4 Investigation 4, Pts. 1-3 Mississippi Student Reader: <i>"Animal Life Cycles"</i> <i>"About Plants"</i> <i>"Nonvascular Plants"</i> <i>"Vascular Plants"</i> <i>"Making Food"</i> <i>"Using Food"</i> <i>"Plant Adaptations"</i> <i>"Plant Responses"</i></p>
<p>P.4.6A.1 Obtain and communicate information to compare how different processes (including burning, friction, and electricity) serve as sources of heat energy</p>	<p>Energy Investigation Guide: Investigation 1, Pts. 1-4 Energy Science Resources Book: <i>"Energy Sources"</i> <i>"Lighting A Bulb"</i> <i>"Edison Sees the Light"</i> <i>"Series and Parallel Circuits"</i> <i>"Energy"</i></p>
<p>P.4.6A.2 Plan and conduct scientific investigations to classify different materials as either an insulator or conductor of electricity</p>	<p>Energy Investigation Guide: Investigation 1, Pt. 2 Energy Science Resources Book: <i>"Energy Sources"</i></p>
<p>P.4.6A.3 Develop models demonstrating how heat and electrical energy can be transformed into other forms of energy (e.g., motion, sound, heat, or light).</p>	<p>Energy Investigation Guide: Investigation 1, Pts. 1-4 Investigation 3, Pts. 1-3 Investigation 4, Pts. 1-3 Investigation 5, Pts. 1-3 Energy Science Resources Book: <i>"Edison Sees the Light"</i> <i>"Using Magnetic Fields"</i> <i>"Energy Sources"</i> <i>"Electromagnets Everywhere"</i> <i>"Science Practices"</i> <i>"Morse Gets Clicking"</i> <i>"Engineering Practices"</i> <i>"Energy"</i> <i>"Thinking Like an Engineer"</i> <i>"What Causes Change of Motion?"</i> <i>"Engineering a Solar Lighting Solution"</i> <i>"Bowling"</i> <i>"Electricity Creates Magnetism"</i> <i>"Force and Energy"</i> <i>"Potential and Kinetic Energy at Work"</i></p>
<p>P.4.6A.4 Develop models that demonstrate the path of an electric current in a complete, simple circuit (e.g., lighting a light bulb or making a sound).</p>	<p>Energy Investigation Guide: Investigation 1, Pts, 1-2 Energy Science Resources Book: <i>"Edison Sees the Light"</i></p>



Grade 4

	<p><i>“Energy Sources”</i></p>
<p>P.4.6A.5 Use informational text and technology resources to communicate technological breakthroughs made by historical figures in electricity (e.g. Alessandro Volta, Michael Faraday, Nicola Tesla, Thomas Edison, incandescent light bulbs, batteries, Light Emitting Diodes).</p>	<p>Energy Science Resources Book: <i>“Edison Sees the Light”</i> <i>“Electricity Creates Magnetism”</i> <i>“Morse Gets Clicking”</i> <i>“Force and Energy”</i></p>
<p>P.4.6A.6 Design a device that converts any form of energy from one form to another form (e.g., construct a musical instrument that will convert vibrations to sound by controlling varying pitches, a solar oven that will convert energy from the sun to heat energy, or a simple circuit that can be used to complete a task). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device.*</p>	<p>Energy Investigations Guide: Investigation 1, Pts. 1-4 Investigation 3, Pts. 1-3 Investigation 5, Pts. 1,3 Energy Science Resources Book: <i>“Waves”</i> <i>“Energy Sources”</i> <i>“More About Sound”</i> <i>“Electromagnets Everywhere”</i> <i>“Alternative Sources of Electricity”</i> <i>“Mr. Osgood’s Class Report”</i> <i>“Engineering a Solar Light System”</i></p>
<p>P.4.6B.1 Construct scientific evidence to support the claim that white light is made up of different colors. Include the work of Sir Isaac Newton to communicate results.</p>	<p>Energy Investigations Guide: Investigation 5, Pt. 2 Energy Science Resources Book: <i>“Light Interactions”</i> <i>“Throw a Little Light on Sight”</i> <i>“More Light on the Subject”</i> FOSS Video: <i>“All About Light”</i></p>
<p>P.4.6B.2 Obtain and communicate information to explain how the visibility of an object is related to light</p>	<p>Energy Science Resources Book: <i>“Light Interactions”</i> <i>“Alternative Sources of Electricity”</i></p>
<p>P.4.6B.3 Develop and use models to communicate how light travels and behaves when it strikes an object, including reflection, refraction, and absorption</p>	<p>Energy Investigations Guide: Investigation 5, Pts. 1-3 Energy Science Resources Book: <i>“Light Interactions”</i> <i>“Alternative Sources of Electricity”</i></p>
<p>P.4.6B.4 Plan and conduct scientific investigations to explain how light behaves when it strikes transparent, translucent, and opaque materials.</p>	
<p>P.4.6C.1 Plan and conduct scientific investigations to test how different variables affect the properties of sound (i.e., pitch and volume).</p>	<p>Energy Investigations Guide: Investigation 5, Pt. 1 Energy Science Resources Book: <i>“Waves”</i> <i>“More About Sound”</i> FOSS Video:</p>



Grade 4

<p>P.4.6C.2 In relation to how sound is perceived by humans, analyze and interpret data from observations and measurements to report how changes in vibration affect the pitch and volume of sound</p>	<p><i>“Sound Energy”</i> Energy Investigation Guide: Investigation 5, Pt. 1 Energy Science Resources Book: “Properties of Sound” “Waves” FOSS Video: “What is Sound?”</p>
<p>P.4.6C.3 Obtain and communicate information about scientists who pioneered in the science of sound, (e.g., Alexander Graham Bell, Robert Boyle, Daniel Bernoulli, and Guglielmo Marconi).</p>	<p>Energy Science Resources Book: “Edison Sees the Light” “Electricity Creates Magnetism” “Morse Gets Clicking” “Force and Energy”</p>
<p>E.4.9A.1 Develop and use models to explain how the sun’s energy drives the water cycle. (e.g., evaporation, condensation, precipitation, transpiration, runoff, and groundwater).</p>	<p>Mississippi Student Reader: “The Water Cycle”</p>
<p>E.4.9B.1 Analyze and interpret data (e.g., temperature, precipitation, wind speed/direction, relative humidity, or cloud types) to predict changes in weather over time.</p>	<p>Mississippi Student Reader: “Predicting Weather”</p>
<p>E.4.9B.2 Construct explanations about regional climate differences using maps and long-term data from various regions.</p>	<p>Mississippi Student Reader: “Predicting Weather”</p>
<p>E.4.9B.3 Design weather instruments utilized to measure weather conditions (e.g., barometer, hygrometer, rain gauge, anemometer, or wind vane). Use an engineering design process to define the problem, design, construct, evaluate, and improve the weather instrument.*</p>	<p>Mississippi Student Reader: “Predicting Weather”</p>
<p>E.4.9C.1 Analyze and interpret data to describe and predict how natural processes (e.g., weathering, erosion, deposition, earthquakes, tsunamis, hurricanes, or storms) affect Earth’s surface.</p>	<p>Soils, Rocks, and Landforms Investigations Guide: Investigation 1, Pts. 2-4 Investigation 2, Pts. 1-3 Soils, Rocks, and Landforms Science Resources Book: “Weathering” “Erosion and Deposition” “Landforms Photo Album”</p>
<p>E.4.9C.2 Develop and use models of natural processes to explain the effect of the movement of water on the ocean shore zone, including beaches, barrier islands, estuaries, and inlets (e.g., marshes, bays, lagoons, fjord, or sound).</p>	<p>Soils, Rocks, and Landforms Investigations Guide: Investigation 2, Pts. 2-4 Investigation 3, Pt. 4 Soils, Rocks, and Landforms Science Resources Book: “It Happened So Fast” “Rapid Changes Cards”</p>



Grade 4

<p>E.4.9C.3 Construct scientific arguments from evidence to support claims that human activities, such as conservation efforts or pollution, affect the land, oceans, and atmosphere of Earth.</p>	<p>Soils, Rocks, and Landforms Investigations Guide: Investigation 4, Pts. 1,3 Soils, Rocks, and Landforms <i>Science Resources Book</i>: “Monumental Rocks” “Earth Materials in Art”</p>
<p>E.4.9C.4 Research and explain how systems (i.e., the atmosphere, geosphere, and/or hydrosphere), interact and support life in the biosphere.</p>	
<p>E.4.9C.5 Obtain and communicate information about severe weather phenomena (e.g., thunderstorms, hurricanes, or tornadoes) to explain steps humans can take to reduce the impact of severe weather events.</p>	<p>Mississippi Student Reader: “Severe Weather”</p>
<p>E.4.10.1 Organize simple data sets to compare energy and pollution output of various traditional, nonrenewable resources (e.g. coal, crude oil, wood).</p>	<p>Soils, Rocks, and Landforms Investigation Guide: Investigation 4, Pt. 1 FOSS Video: “Natural Resources” Chpts. 2,3,5,7</p>
<p>E.4.10.2 Use technology or informational text to investigate, evaluate, and communicate various forms of clean energy generation.</p>	<p>Soils, Rocks, and Landforms Investigation Guide: Investigation 4, Pt. 1 FOSS Video: “Natural Resources” Chpt. 8</p>



Grade 5

State Standard	FOSS Alignment (to module/investigation/part as needed)
<p>L.5.3A.1 Research and communicate the basic process of photosynthesis that is used by plants to convert light energy into chemical energy that can be stored and released to fuel an organism’s activities.</p>	<p>Living Systems Investigations Guide: Investigation 2, Pt. 2 Living Systems Science Resources Book: “Is Earth a System” “The Biosphere” “Producers”</p>
<p>L.5.3A.2 Analyze environments that do not receive direct sunlight and devise explanations as to how photosynthesis occurs, either naturally or artificially.</p>	<p>Living Systems Investigations Guide: Investigation 4, Pt. 4 Living Systems Science Resources Book: “North Atlantic Ocean” “Ecosystem” Review” Video: “Marine Ecosystems”</p>
<p>L.5.3B.1 Obtain and evaluate scientific information regarding the characteristics of different ecosystems and the organisms they support (e.g., salt and fresh water, deserts, grasslands, forests, rain forests, or polar tundra lands).</p>	<p>Living Systems Investigations Guide: Investigation 1, Pts. 1-4 Investigation 4, Pts. 4 Living Systems Science Resources Book: “Monterey Bay National Marine Sanctuary” “Comparing Aquatic and Terrestrial Ecosystems” “North Atlantic Ocean” “Ecosystem” Video: “Marine Ecosystems”</p>
<p>L.5.3B.2 Develop and use a food chain model to classify organisms as producers, consumers, or decomposers. Trace the energy flow to explain how each group of organisms obtains energy.</p>	<p>Living Systems Investigations Guide: Investigation 1, Pts. 2-4 Living Systems Science Resources Book: “Monterey Bay National Marine Sanctuary” “Comparing Aquatic and Terrestrial Ecosystems”</p>
<p>L.5.3B.3 Design and interpret models of food webs to justify what effects the removal or the addition of a species (i.e., introduced or invasive) would have on a specific population and/or the ecosystem as a whole.</p>	<p>Living Systems Investigations Guide: Investigation 1, Pts. 2-4 Online Activity: “Simulations: Food Webs”</p>
<p>L.5.3B.4 Communicate scientific or technical information that explains human positions in food webs and our potential impacts on these systems.</p>	



<p>P.5.5A.1 Obtain and evaluate scientific information to describe basic physical properties of atoms and molecules.</p>	<p>Mixtures and Solutions Investigation Guide: Investigation 1, Pts. 1-4 Investigation, 2, Pts. 1-3 Investigation 3, Pts. 1-4 Investigation 4, Pts. 1-4 Investigation 5, Pts. 1-3</p> <p>Mixtures and Solutions Science Resources Book: <i>"Mixture"</i> <i>"Taking Mixtures Apart"</i> <i>"Science Practices"</i> <i>"Engineering Practices"</i> <i>"Extracts"</i> <i>"The Story of Salt"</i> <i>"Beachcombing Science"</i> <i>"Solid to Liquid"</i> <i>"Liquid and Gas Changes"</i> <i>"Celsius and Fahrenheit"</i> <i>"The Air"</i> <i>"Famous Scientists"</i> <i>"Carbon Dioxide Concentration in the Air"</i> <i>"The Frog Story"</i> <i>"The Bends"</i> <i>"A Sweet Solution"</i> <i>"Sour Power"</i> <i>"East Bay Academy for Young Scientists"</i> <i>"Drinking Ocean Water"</i> <i>"Creative Solutions"</i> <i>"Ask a Chemist"</i> <i>"When Substances Change"</i> <i>"Air Bags"</i></p> <p>Other modules that address this performance expectation:</p> <p>Earth and Sun Investigations Guide: Investigation 3, Parts 1-3 Investigation 4, Parts 1-4 Investigation 5, Parts 1-4</p> <p>Earth and Sun Science Resources Book: <i>"What Is Air?"</i> <i>"Earth's Atmosphere"</i> <i>"Weather Instruments"</i> <i>"Uneven Heating"</i> <i>"Heating the Air: Radiation and Conduction"</i> <i>"Wind and Convection"</i> <i>"Wind Power"</i> <i>"Solar Technology"</i> <i>"Condensation"</i> <i>"Where Is Earth's Water?"</i> <i>"The Water Cycle"</i> <i>"Severe Weather"</i></p> <p>Mississippi Student Reader:</p>
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Grade 5

<p>P.5.5A.2 Collect, analyze, and interpret data from measurements of the physical properties of solids, liquids, and gases (e.g., volume, shape, movement, and spacing of particles).</p>	<p><i>“What Makes Up Matter”</i></p> <p>Mixtures and Solutions Investigation Guide: Investigation 1, Pts. 1-3 Investigation 2, Pt. 4 Investigation 3, Pts. 1-4 Investigation 4, Pts. 1-4 Investigation 5, Pts. 1-3</p> <p>Mixtures and Solutions <i>Science Resources Book</i>: <i>“Mixtures”</i> <i>“Taking Mixtures Apart”</i> <i>“Science Practices”</i> <i>“Engineering Practices”</i> <i>“Solid to Liquid”</i> <i>“Liquid and Gas Changes”</i> <i>“Celsius and Fahrenheit”</i> <i>“Solutions Up Close”</i> <i>“Concentrated Solutions”</i> <i>“The Air”</i> <i>“Famous Scientists”</i> <i>“Carbon Dioxide Concentration In the Air”</i> <i>“The Frog Story”</i> <i>“The Bends”</i> <i>“A Sweet Solution”</i> <i>“Sour Power”</i> <i>“East Bay Academy for Young Scientists”</i> <i>“Drinking Water”</i> <i>“Creative Solutions”</i></p>
<p>P.5.5A.3 Analyze matter through observations and measurements to classify materials (e.g., powders, metals, minerals, or liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility, or density)</p>	<p>Mixtures and Solutions Investigation Guide: Investigation 1, Pts. 1-4 Investigation 3, Pts. 1-4 Investigation 4, Pts. 1-4 Investigation 5, Pts. 1-3</p> <p>Mixtures and Solutions <i>Science Resources Book</i>: <i>“Concentrated Solutions”</i> <i>“Mixtures”</i> <i>“Sweet Solutions”</i> <i>“Sour Power”</i> <i>“Air Bags”</i> <i>“When Substances Change”</i></p>
<p>P.5.5A.4 Make and test predictions about how the density of an object affects whether the object sinks or floats when placed in a liquid.</p>	<p>Mixtures and Solutions Investigation Guide: Investigation 3, Pt. 4</p> <p>Mixtures and Solutions <i>Science Resources Book</i>: <i>“Carbon Dioxide Concentration in the Air”</i> <i>“The Bends”</i> <i>“The Frog Story”</i></p>



Grade 5

<p>P.5.5A.5 Design a vessel that can safely transport a dense substance (e.g., syrup, coins, marbles) through water at various distances and under variable conditions. Use an engineering design process to define the problem, design, construct, evaluate, and improve the vessel.*</p>	
<p>P.5.5B.1 Obtain and evaluate scientific information to describe what happens to the properties of substances in mixtures and solutions.</p>	<p>Mixtures and Solutions Investigations Guide: Investigation 1, Pts. 1-4 Investigation 3, Pts. 1-3 Mixtures and Solutions <i>Science Resources Book</i>: "Solutions Up Close" "Concentrated Solutions" "Mixtures"</p>
<p>P.5.5B.2 Analyze and interpret data to communicate that the concentration of a solution is determined by the relative amount of solute versus solvent in various mixtures</p>	<p>Mixtures and Solutions Investigations Guide: Investigation 3, Pts. 1-4 Mixtures and Solutions <i>Science Resources Book</i>: "Solutions Up Close" "Concentrated Solutions" "The Air" "Famous Scientists" "Carbon Dioxide Concentration In the Air" "The Frog Story"</p>
<p>P.5.5B.3 Investigate how different variables (e.g., temperature change, stirring, particle size, or surface area) affect the rate at which a solute will dissolve.</p>	<p>Mixtures and Solutions Investigations Guide: Investigation 4, Pts. 1-3 Mixtures and Solutions <i>Science Resources Book</i>: "The Bends" "Sweet Solution" "Sour Power"</p>
<p>P.5.5B.4 Design an effective system (e.g., sifting, filtration, evaporation, magnetic attraction, or floatation) for separating various mixtures. Use an engineering design process to define the problem, design, construct, evaluate, and improve the system.*</p>	<p>Mixtures and Solutions Investigations Guide: Investigation 1, Pts. 1-3 Mixtures and Solutions <i>Science Resources Book</i>: "Mixtures" "Taking Mixtures Apart" "Science Practices" "Engineering Practices"</p>
<p>P.5.5C.1 Analyze and communicate the results of chemical changes that result in the formation of new materials (e.g., decaying, burning, rusting, or cooking)</p>	<p>Mixtures and Solutions Investigations Guide: Investigation 5, Pts. 1-3 Mixtures and Solutions <i>Science Resources Book</i>: "Ask a Chemist" "When Substances Change" "Air Bags"</p>



Grade 5

<p>P.5.5C.2 Analyze and communicate the results of physical changes to a substance that results in a reversible change (e.g., changes in states of matter with the addition or removal of energy, changes in size or shape, or combining/separating mixtures or solutions).</p>	<p>Mixtures and Solutions Investigations Guide: Investigation 1, Pts. 1-4 Mixtures and Solutions <i>Science Resources Book</i>: "Mixtures" "Taking Mixtures Apart" "Science Practices" "Engineering Practices" "Extracts" "The Story of Salt"</p>
<p>P.5.5C.3 Analyze and interpret data to support claims that when two substances are mixed, the total weight of matter is conserved.</p>	<p>Mixtures and Solutions Investigations Guide: Investigation 3, Pts. 1-3 Mixtures and Solutions <i>Science Resources Book</i>: "Solutions up Close" "Concentrated Solutions" "The Air" "Famous Scientists"</p>
<p>P.5.6.1 Obtain and communicate information describing gravity's effect on an object.</p>	<p>Mississippi Student Reader: Teacher's Guide: Activity 1 Measuring Force</p>
<p>P.5.6.2 Predict the future motion of various objects based on past observation and measurement of position, direction, and speed.</p>	<p>Mississippi Student Reader: Teacher's Guide: Activity 4 Wheels Overcome Friction</p>
<p>P.5.6.3 Develop and use models to explain how the amount or type of force, both contact and noncontact, affects the motion of an object.</p>	<p>Mississippi Student Reader: Teacher's Guide: Activity 3 Levers for Lifting</p>
<p>P.5.6.4 Plan and conduct scientific investigations to test the effects of balanced and unbalanced forces on the speed and/or direction of objects in motion.</p>	<p>Mississippi Student Reader: Teacher's Guide: Activity 1 Measuring Force Other grade level FOSS modules that address this performance expectation:</p>
<p>P.5.6.5 Predict how a change of force, mass, and/or friction affects the motion of an object to convert potential energy into kinetic energy</p>	<p>Mississippi Student Reader: Teacher's Guide: Activity 5 Gears: Wheels with Teeth, Activity 6 Pulleys: Groovy Wheels</p>
<p>P.5.6.6 Design a system to increase the effects of friction on the motion of an object (e.g., non-slip surfaces or vehicle braking systems or flaps on aircraft wings). Use an engineering design process to define the problem, design, construct, evaluate, and improve the system.*</p>	<p>Mississippi Student Reader: Teacher's Guide: Activity 5 Gears: Wheels with Teeth</p>
<p>E.5.8A.1 Develop and use scaled models of Earth's solar system to demonstrate the size, composition (i.e., rock or gas), location, and order of the planets as they orbit the Sun.</p>	<p>Earth & Sun Investigation Guide: Investigation 2, Pt. 4-5 Earth and Sun <i>Science Resources Book</i>: "Exploring the Solar System" "Planets of the Solar System" "Why Doesn't Earth Fly Off Into Space" "Stargazing" "Star Scientists" "Our Galaxy"</p>



Grade 5

<p>E.5.8A.2 Use evidence to argue why the sun appears brighter than other stars.</p>	<p>Earth & Sun Investigation Guide: Investigation 2, Pt. 1-5</p> <p>Earth and Sun Science Resources Book: <i>"The Night Sky"</i> <i>"Looking through Telescopes"</i> <i>"Comparing the Size of Earth and the Moon"</i> <i>"Apollo 11 Space Mission"</i> <i>"How Did Earth's Moon Form?"</i> <i>"Changing Moon"</i> <i>"Lunar Cycle"</i> <i>"Eclipses"</i> <i>"Exploring the Solar System"</i> <i>"Planets of the Solar System"</i> <i>"Why Doesn't Earth Fly Off Into Space"</i> <i>"Stargazing"</i> <i>"Star Scientists"</i> <i>"Our Galaxy"</i></p>
<p>E.5.8A.3 Describe how constellations appear to move from Earth's perspective throughout the seasons (e.g., Ursa Major, Ursa Minor, and Orion).</p>	<p>Earth & Sun Investigation Guide: Investigation 1, Pts. 1-2 Investigation 2, Pts. 1-3</p> <p>Earth and Sun Science Resources Book: <i>"The Night Sky"</i> <i>"Looking through Telescopes"</i></p>
<p>E.5.8A.4 Construct scientific arguments to support claims about the importance of astronomy in navigation and exploration, including the use of telescopes, compasses, and star charts.</p>	<p>Mississippi Student Reader: <i>"How Have We Learned About Space?"</i></p>
<p>E.5.8B.1 Analyze and interpret data from observations and research (e.g., from NASA, NOAA, or the USGS) to explain patterns in the location, movement, and appearance of the moon throughout a month and over the course of a year.</p>	<p>Earth & Sun Investigation Guide: Investigation 1, Pts. 1-2 Investigation 2, Pts. 1-3</p> <p>Earth and Sun Science Resources Book:</p>
<p>E.5.8B.2 Develop and use a model of the Earth-Sun-Moon system to analyze the cyclic patterns of lunar phases, solar and lunar eclipses, and seasons.</p>	<p>Earth & Sun Investigation Guide: Investigation 1, Pts. 1-2 Investigation 2, Pts. 1-3</p> <p>Earth and Sun Science Resources Book: <i>"Changing Shadows"</i> <i>"Sunrise and Sunset"</i> <i>"The Night Sky"</i> <i>"Looking through Telescopes"</i> <i>"Comparing the Size of Earth and the Moon"</i> <i>"Changing Moon"</i> <i>"Lunar Cycle"</i> <i>"Eclipses"</i></p>



Grade 5

<p>E.5.8B.3 Develop and use models to explain the factors (e.g., tilt, revolution, and angle of sunlight) that result in Earth’s seasonal changes</p>	<p>Earth & Sun Investigation Guide: Investigation 1, Pt. 3 Earth and Sun Science Resources Book: <i>“Changing Shadows”</i> <i>“Sunrise and Sunset”</i></p>
<p>E.5.8B.4 Obtain information and analyze how our understanding of the solar system has evolved over time (e.g., Earth-centered model of Aristotle and Ptolemy compared to the Sun-centered model of Copernicus and Galileo).</p>	<p>Mississippi Student Reader: <i>“How Have We Learned About Space?”</i></p>
<p>E.5.10.1 Collect and organize scientific ideas that individuals and communities can use to conserve Earth’s natural resources and systems (e.g., implementing watershed management practices to conserve water resources, utilizing no-till farming to improve soil fertility, reducing emissions to abate air pollution, or recycling to reduce landfill waste).</p>	<p>Mississippi Student Reader: <i>“Land Pollution”</i> <i>“Air Pollution”</i> <i>“Water Pollution”</i> <i>“Noise and Light Pollution”</i> <i>“Rachel Carson”</i> <i>“About Alternative Energy”</i></p>
<p>E.5.10.2 Design a process for better preparing communities to withstand manmade or natural disasters (e.g., removing oil from water or soil, systems that reduce the impact of floods, structures that resist hurricane forces). Use an engineering design process to define the problem, design, construct, evaluate, and improve the disaster plan.*</p>	<p>Mississippi Student Reader: <i>“What Is Pollution?”</i> <i>“ Land Pollution”</i> <i>“Air Pollution”</i> <i>“ Water Pollution”</i> <i>“ Noise and Light Pollution”</i> <i>“ Rachel Carso”</i> <i>“About Alternative Energy Sources”</i></p>