Mystery Science Alignment with the South Carolina Academic Standards and Performance Indicators for Science

Mystery Science - South Carolina Alignment
Mystery Science aligns to the South Carolina Academic Standards and Performance Indicators for Science (2014). The core Mystery (exploration & activity) is designed to take one hour per week. Optional Extras can extend each lesson. To view each Mystery's alignment to 3 dimensional learning (disciplinary core ideas, science and engineering practices, and crosscutting concepts) view our NGSS Alignment document. Mini-Lessons are 5-minute videos that answer K-5 student questions and can be used as a jumping off point to engage learners for a full lesson planned by the teacher.

Have extra time? "Optional Extras" are extensions to each Mystery. We recommend you use them during your unit or to extend the length of each unit. They include an informational text reading that builds on the Mystery's topic, assessments, and suggestions for supplemental activities.

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Kindergarten

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Life Science	Exploring Organisms & the Environment	**K.L.2A.1** Obtain information to answer questions about different organisms found in the environment (such as plants, animals, or fungi).	Plant & Animal Secrets	**Mystery 1:** Why do woodpeckers peck wood? **Mystery 2, Read Along:** Where do animals live? **Mystery 3:** How can you find animals in the woods? **Mystery 4, Read Along:** How do animals make their homes in the forest? **Mystery 5:** How do plants and trees grow? **Mystery 6, Read Along:** Why would you want an old log in your backyard?
		K.L.2A.2 Conduct structured investigations to determine what plants need to live and grow (including water and light)		
		K.L.2A.3 Develop and use models to exemplify how animals use their body parts to (1) obtain food and other resources, (2) protect themselves, and (3) move from place to place.		
		K.L.2A.4 Analyze and interpret data to describe how humans use their senses to learn about the world around them.		
		K.L.2A.5 Construct explanations from observations of what animals need to survive and grow (including air, water, nutrients, and shelter).		
		K.L.2A.6 Obtain and communicate information about the needs of organisms to explain why they live in particular areas.		

Kindergarten, continued

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Earth & Space Science	*Exploring Weather Patterns*	**K.E.3A.1** Analyze and interpret local weather condition data (including precipitation, wind, temperature, and cloud cover) to describe weather patterns that occur from day to day, using simple graphs and pictorial weather symbols.	Weather Watching	**Mystery 1:** Have you ever watched a storm? **Mystery 2, Read Along:** How can you get ready for a big storm?
		K.E.3A.2 Develop and use models to predict seasonal weather patterns and changes.	Weather Watching	**Mystery 3:** What will the weather be like on your birthday? **Mystery 4, Read Along:** How do you know what to wear for the weather?
		K.E.3A.3 Obtain and use models to predict seasonal weather patterns and changes.		
		K.E.3A.4 Define problems caused by the effects of weather on human activities and design solutions or devices to solve the problem.	Weather Watching	**Mystery 5:** How could you warm up a frozen playground? **Mystery 6, Read Along:** How could you walk barefoot across hot pavement without burning your feet?
Physical Science	Exploring Properties of Objects & Materials	**K.P.4A.1** Analyze and interpret data to compare the qualitative properties of objects (such as size, shape, color, texture, weight, flexibility, attraction to magnets, or ability to sink or float) and classify objects based on their similar properties.		*South Carolina Specific Standard*
		K.P.4A.2 Develop and use models to describe and compare the properties of different materials (including wood, plastic, metal, cloth, and paper) and classify materials by their observable properties, by their uses, and by whether they are natural or human-made.		*South Carolina Specific Standard*
		K.P.4A.3 Conduct structured investigations to answer questions about which materials have the properties that are best suited to solve a problem or need.		*South Carolina Specific Standard*

Grade 1

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Life Science	*Plants & Their Environments*	**1.L.5A.1** Obtain and communicate information to construct explanations for how different plant structures (including roots, stems, leaves, flowers, fruits, and seeds) help plants survive, grow, and produce more plants.	Plant & Animal Superpowers	**Mystery 5:** Why don't trees blow down in the wind? **Mystery 6, Read Along:** What do sunflowers do when you're not looking?
		1.L.5A.2 Construct explanations of the stages of development of a flowering plant as it grows from a seed using observations and measurements.		
		1.L.5B.1 Construct structured investigations to answer questions about what plants need to live and grow (including air, water, sunlight, minerals, and space).	Plant Adventures	**Mystery 1:** How did a seed travel halfway around the world? **Mystery 2:** Do plants eat dirt? **Mystery 3:** Why do trees grow so tall? **Mystery 4:** Should you water a cactus?
		1.L.5B.2 Develop and use models to compare how the different characteristics of plants help them survive in distinct environments (including deserts, forests, and grasslands).		
		1.L.5B.3 Analyze and interpret data from observations to describe how changes in the environment cause plants to respond in different ways (such as turning leaves toward the Sun, leaves changing color, leaves wilting, or trees shedding leaves).	Mini-Lessons	**Mini-Lesson:** Why do leaves change color in the fall?** **Mini-Lesson:** How do flowers bloom in the spring?** **Mini-Lesson:** What's the biggest apple in the world?**

** Indicates a Mini-Lesson with an included hands-on STEAM activity from Mystery Science.

Grade 1, continued

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Earth & Space Science	*Exploring the Sun and Moon*	**1.E.3A.1** Use, analyze, and interpret data from observations to describe and predict seasonal patterns of sunrise and sunset.	Spinning Sky	**Mystery 1:** Could a statue's shadow move? **Mystery 2, Read Along:** What does your shadow do when you're not looking? **Mystery 3:** How can the sun help you if you're lost? **Mystery 4, Read Along:** Why do you have to go to bed early in the summer? **Mystery 5:** Why do the stars come out at night? **Mystery 6, Read Along:** How can stars help you if you get lost?
		1.E.3A.2 Use data from personal observations to describe, predict, and develop models to exemplify how the appearance of the the moon changes over time in a predictable pattern.		*South Carolina Specific Standard*
		1.E.3A.3 Obtain and communicate information to describe how technology has enabled the study of the Sun, the Moon, planets, and stars.		*South Carolina Specific Standard*
		1.E.3A.4 Conduct structured investigations to answer questions about the effect of sunlight on Earth's surface.		*South Carolina Specific Standard*
		1.E.3A.5 Define problems related to the warming effect of sunlight and design possible solutions to reduce its impact on a particular area.		*South Carolina Specific Standard*
	Earth's Natural Resources	**1.E.4A.1** Analyze and interpret data from observations and measurements to compare the properties of Earth materials (including rocks, soils, sand, and water).		*South Carolina Specific Standard*

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Earth & Space Science (Cont.)	*Earth's Natural Resources*	**1.E.4A.2** Develop and use models (such as drawings or maps) to describe patterns in the distribution of land and water on Earth and classify bodies of water (including oceans, rivers and streams, lakes, and ponds).		*South Carolina Specific Standard*
		1.E.4A.3 Conduct structured investigations to answer questions about how the movement of water can change the shape of the land.		*South Carolina Specific Standard*
		1.E.4B.1 Obtain and communicate information to summarize how natural resources are used in different ways (such as soil and water to grow plants; rocks to make roads, walls, or buildings; or sand to make glass).	Mini-Lessons	**Mini-Lesson:** How is glass made?
		1.E.4B.2 Obtain and communicate information to explain ways natural resources can be conserved (such as reducing trash through reuse, recycling, or replanting trees).	Mini-Lessons	**Mini-Lesson:** How is plastic made?
Physical Science	*Exploring Light & Shadows*	**1.P.2A.1** Obtain and communicate information to describe how light is required to make objects visible.	Lights & Sounds*	**Mystery 1:** How do they make silly sounds in cartoons?* **Mystery 2, Read Along:** Where do sounds come from?* **Mystery 3:** What if there were no windows? **Mystery 4, Read Along:** Can you see in the dark? **Mystery 5:** How could you send a secret message to someone far away? **Mystery 6, Read Along:** How do boats find their way in the fog?
		1.P.2A.2 Analyze and interpret data from observations to compare how light behaves when it shines on different materials,		
		1.P.2A.3 Conduct structured investigations to answer questions about how shadows change when the position of the light source changes.		
		1.P.2A.4 Develop and use models to describe what happens when light shines on mirrors based on observations and data collected.		

* The Lights & Sounds unit includes two lessons that focus on sound and vibrations. South Carolina science standards do not address sound until Grade 4. The lessons are included here for completeness of the unit, but the light lessons can be taught on their own.

Grade 2

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Life Science	*Animals & Their Environments*	**2.L.5A.1** Obtain and communicate information to classify animals (such as mammals, birds, amphibians, reptiles, fish, or insects) based on their physical characteristics.	Animal Adventures	**Mystery 1:** How many different kinds of animals are there? **Mystery 2:** Why do frogs say "ribbit"? **Mystery 3:** How could you get more birds to visit a bird feeder?
		2.L.5A.2 Construct explanations for how structures (including structures for seeing, hearing, grasping, protection, locomotion, and obtaining and using resources) of different animals help them survive.	Plant & Animal Superpowers Mini-Lessons	**Mystery 1:** Why do birds have beaks? **Mystery 2, Read Along:** Why do baby ducks follow their mother? **Mystery 3:** Why are polar bears white? **Mystery 4, Read Along:** Why do family members look alike? **Mini-Lesson:** Why are butterflies so colorful?** **Mini-Lesson:** What's the biggest spider in the world?**
		2.L.5B.2 Develop and use models to exemplify characteristics of animals that help them survive in distinct environments (such as salt and freshwater, deserts, forests, wetlands, or polar lands).		
		2.L.5B.1 Obtain and communicate information to describe and compare how animals interact with other animals and plants in the environment.		
		2.L.5A.3 Construct explanations using observations and measurements of an animal as it grows and changes to describe the stages of development of the animal.		
		2.L.5B.3 Analyze and interpret data from observations to describe how animals respond to changes in their environment (such as changes in food availability, water, or air).		*South Carolina Specific Standard*
		2.L.5B.4 Construct scientific arguments to explain how animals can change their environments (such as the shape of the land or the flow of water).		*South Carolina Specific Standard*

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Earth & Space Science	*Weather*	**2.E.2A.1** Analyze and interpret data from observations and measurements to describe local weather conditions (including temperature, wind, and forms of precipitation).		*South Carolina Specific Standard*
		2.E.2A.2 Analyze local weather data to predict daily and seasonal patterns over time.	Mini-Lessons	**Mini-Lesson:** Why does it get cold in winter? **Mini-Lesson:** What is the coldest place on Earth?
		2.E.2A.3 Develop and use models to describe and compare the effects of wind (moving air) on objects.		*South Carolina Specific Standard*
		2.E.2A.4 Obtain and communicate information about severe weather conditions and explain why certain safety precautions are necessary.	Mini-Lessons	**Mini-Lesson:** Why are tornadoes so hard to predict? **Mini-Lesson:** What makes hurricanes so dangerous?
Physical Science	*Properties of Solids & Liquids*	**2.P.3A.1** Analyze and interpret data from observations and measurements to describe the properties used to classify matter as a solid or a liquid.		*South Carolina Specific Standard*
		2.P.3A.2 Develop and use models to exemplify how matter can be mixed together and separated again based on the properties of the mixture.		*South Carolina Specific Standard*
		2.P.3A.3 Conduct structured investigations to test how adding or removing heat can cause changes in solids and liquids.		*South Carolina Specific Standard*
		2.P.3A.4 Construct scientific arguments using evidence from investigations to support claims that some changes in solids or liquids are reversible and some are not when heat is added or removed.		*South Carolina Specific Standard*

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Physical Science *(Cont.)*	*Exploring Pushes & Pulls*	**2.P.3B.1** Conduct structured investigations to answer questions about how the poles of magnets attract and repel each other.	Invisible Forces	**Mystery 4:** What can magnets do? **Mystery 5:** How can you unlock a door using a magnet?
		2.P.3B.2 Analyze and interpret data from observations to compare the effects of magnets on various materials.		
		2.P.3B.3 Obtain and communicate information to exemplify the uses of magnets in everyday life.		
		2.P.4A.1 Analyze and interpret data from observations and measurements to compare the effects of different strengths and directions of pushing and pulling on the motion of an object.	Force Olympics	**Mystery 1:** What the biggest excavator? **Mystery 2, Read Along:** Why do builders need so many big machines? **Mystery 3:** How can you knock down a wall made of concrete? **Mystery 4, Read Along:** How can you knock down the most bowling pins? **Mystery 5:** How can we protect a mountain town from falling rocks? **Mystery 6, Read Aloud:** How could you invent a trap?
		2.P.4A.2 Develop and use models to exemplify the effects of pushing and pulling on an object.		
		2.P.4A.3 Construct explanations of the relationship between the motion of an object and the pull of gravity using observations and data collected.		
		2.P.4A.4 Conduct structured investigations to answer questions about the relationship between friction and the motion of objects.	Invisible Forces	**Mystery 1:** How could you win a tug of war against a bunch of adults? **Mystery 2:** What makes bridges so strong? **Mystery 3:** How can you go faster down a slide?
		2.P.4A.5 Define problems related to the effects of friction and design possible solutions to reduce the effects on the motion of an object.		

* Force Olympics was designed for Kindergarten NGSS, but can be taught at Grade 2 with modifications. Expect elements of this unit to be intended for a younger audience.

Grade 3

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Life Science	*Environments & Habitats*	**3.L.5A.1** Analyze and interpret data about the characteristics of environments (including salt and fresh water, deserts, grasslands, forests, rain forests, and polar lands) to describe how the environment supports a variety of organisms		*South Carolina Specific Standard*
		3.L.5A.2 Develop and use a food chain model to classify organisms as producers, consumers, and decomposers and to describe how organisms obtain energy.		*South Carolina Specific Standard*
		3.L.5B.1 Obtain and communicate information to explain how changes in habitats (such as those that occur naturally or those caused by organisms) can be beneficial or harmful to the organisms that live there.	Animals Through Time	**Mystery 7:** What's the best way to get rid of mosquitoes?
		3.L.5B.2 Develop and use models to explain how changes in a habitat cause plants and animals to respond in different ways (such as hibernating, migrating, responding to light, death, or extinction).	Animals Through Time	**Mystery 4:** What kinds of animals might there be in the future? **Mystery 5:** Can selection happen without people?
		3.L.5B.3 Construct scientific arguments using evidence from fossils of plants and animals that lived long ago to infer the characteristics of early environments.	Animals Through Time	**Mystery 1:** Where can you find whales in the desert? **Mystery 2:** How do we know what dinosaurs looked like? **Mystery 3:** Can you outrun a dinosaur?

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Earth & Space Science	*Earth's Materials & Processes*	**3.E.4A.1** Analyze and interpret data from observations and measurements to describe and compare different Earth materials (including rocks, minerals, and soil) and classify each type of material based on its distinct physical properties.	Mini-Lessons	**Mini-Lesson:** Why does this rock look like a sponge? **Mini-Lesson:** How are diamonds made? **Mini-Lesson:** Can you make lava?
		3.E.4A.2 Develop and use models to describe and classify the pattern distribution of land and water features on Earth.	Work of Water	**Mystery 1:** If you floated down a river, where would you end up? **Mystery 2:** Why is there sand at the beach?
		3.E.4A.3 Obtain and communicate information to exemplify how humans obtain, use, and protect renewable and nonrenewable Earth resources.	Energizing Everything	**Mystery 8:** Where does energy come from?
		3.E.4B.1 Develop and use models to describe the characteristics of Earth's continental landforms and classify landforms as volcanoes, mountains, valleys, canyons, plains, and islands.		*South Carolina Specific Standard*
		3.E.4B.2 Plan and conduct scientific investigations to determine how natural processes (including weathering, erosion, and gravity) shape Earth's surface.	Work of Water	**Mystery 1:** If you floated down a river, where would you end up? **Mystery 2:** Why is there sand at the beach? **Mystery 3:** What's strong enough to make a canyon? **Mystery 4:** How can you stop a landslide?
		3.E.4B.3 Obtain and communicate information to explain how natural events (such as fires, landslides, earthquakes, volcanic eruptions, or floods) and human activities (such as farming, mining, or building) impact the environment.		
		3.E.4B.4 Define problems caused by a natural event or human activity and design devices or solutions to reduce the impact on the environment.	The Birth of Rocks	**Mystery 1:** Could a volcano pop up where you life? **Mystery 2:** Why do some volcanoes explode? **Mystery 3:** Will a mountain last forever? **Mystery 4:** How could you survive a landslide?

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Physical Science	*Properties & Changes in Matter*	**3.P.2A.1** Analyze and interpret data from observations and measurements to describe and compare the physical properties of matter (including length, mass, temperature, and volume of liquids).	Material Magic	**Mystery 1:** Why do we wear clothes? **Mystery 2:** Can you really fry an egg on a hot sidewalk? **Mystery 3:** Why are so many toys made out of plastic? **Mystery 4:** What materials might be invented in the future? **Mystery 5:** Could you build a house out of paper?
		3.P.2A.2 Construct explanations using observations and measurements to describe how matter can be classified as a solid, liquid or gas.		
		3.P.2A.3 Plan and conduct scientific investigations to determine how changes in heat (increase or decrease) change matter from one state to another (including melting, freezing, condensing, boiling, and evaporating).		
		3.P.2A.4 Obtain and communicate information to compare how different processes (including burning, friction, and electricity) serve as sources of heat energy.		
		3.P.2A.5 Define problems related to heat transfer and design devices or solutions that facilitate (conductor) or inhibit (insulator) the transfer of heat.		
	Energy Transfer: Electricity & Magnetism	**3.P.3A.1** Obtain and communicate information to develop models showing how electrical energy can be transformed into other forms of energy (including motion, sound, heat, or light).	Energizing Everything	**Mystery 6:** What if there were no electricity? **Mystery 7:** How long did it take to travel across the country before cars and planes?
		3.P.3A.2 Develop and use models to describe the path of an electric current in a complete simple circuit as it accomplishes a task (such as lighting a bulb or making a sound).		
		3.P.3A.3 Analyze and interpret data from observations and investigations to classify different materials as either an insulator or conductor of electricity.		*South Carolina Specific Standard*
		3.P.3B.1 Develop and use models to describe and compare the properties of magnets and electromagnets (including polarity, attraction, repulsion, and strength).		*South Carolina Specific Standard*
		3.P.3B.2 Plan and conduct scientific investigations to determine the factors that affect the strength of an electromagnet.		*South Carolina Specific Standard*

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Life Science	*Characteristics & Growth of Organisms*	**4.L.5A.1** Obtain and communicate information about the characteristics of plants and animals to develop models which classify plants as flowering or nonflowering and animals as vertebrate or invertebrate.		*South Carolina Specific Standard*
		4.L.5A.2 Analyze and interpret data from observations and measurements to compare the stages of development of different seed plants.		*South Carolina Specific Standard*
		4.L.5A.3 Develop and use models to compare the stages of growth and development in various animals.		*South Carolina Specific Standard*
		4.L.5A.4 Construct scientific arguments to support claims that some characteristics of organisms are inherited from parents and some are influenced by the environment.	Animals Through Time	**Mystery 6:** Why do dogs wag their tails? **Mystery 8:** How long can people (and animals) survive in outer space?
		4.L.5B.1 Develop and use models to compare how humans and other animals use their senses and sensory organs to detect and respond to signals from the environment.	Human Machine	**Mystery 4:** How does your brain control your body?
		4.L.5B.2 Construct explanations for how structural adaptations (such as the types of roots, stems, or leaves; color of flowers; or seed dispersal) allow plants to survive and reproduce.	Power of Flowers*	**Mystery 1:** Why do plants grow flowers? **Mystery 2:** Why do plants give us fruit? **Mystery 3:** Why are some apples red and some green? **Mystery 4:** How could you make the biggest fruit in the world?
		4.L.5B.3 Construct explanations for how structural adaptations (such as methods for defense, locomotion, obtaining resources, or camouflage) allow animals to survive in the environment.	Human Machine Mini-Lessons	**Mystery 1:** Why do your biceps bulge? **Mystery 2:** What do people who are blind see? **Mystery 3:** How can some animals see in the dark? **Mini-Lesson:** Why do our skeletons have so many bones?** **Mini-Lesson:** How does the heart pump blood?**

*Power of Flowers picks up where Plant Adventures (SC grade 1) leaves off. If your students haven't learned about what plants need for survival or need a refresher, we suggest that you teach Plant Adventures first.

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Grade 4, continued

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Earth & Space Science	*Weather & Climate*	**4.E.2A.1** Obtain and communicate information about some of the gases in the atmosphere (including oxygen, nitrogen, and water vapor) to develop models that exemplify the composition of Earth's atmosphere where weather takes place.		*South Carolina Specific Standard*
		4.E.2A.2 Develop and use models to explain how water changes as it moves between the atmosphere and Earth's surface during each phase of the water cycle (including evaporation, condensation, precipitation, and runoff).	Stormy Skies	**Mystery 1:** Where do clouds come from?
		4.E.2B.1 Analyze and interpret data from observations, measurements, and weather maps to describe patterns in local weather conditions (including temperature, precipitation, wind speed/direction, relative humidity, and cloud types) and predict changes in weather over time.	Stormy Skies	**Mystery 2:** How can we predict when it's going to storn?
		4.E.2B.2 Obtain and communicate information about severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) to explain steps humans can take to reduce the impact of severe weather phenomena.	Stormy Skies	**Mystery 4:** How can you keep a house from blowing away in a windstorm?
		4.E.2B.3 Construct explanations about regional climate differences using data from the long term weather conditions of the region.	Stormy Skies	**Mystery 3:** Why are some places always hot?

Grade 4, continued

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Earth & Space Science ***(Cont.)***	*Stars & The Solar System*	**4.E.3A.1** Develop and use models of Earth's solar system to exemplify the location and order of the planets as they orbit the Sun and the main composition (rock or gas) of the planets.	Spaceship Earth	**Mystery 6:** What are the wandering stars? **Mystery 7:** Why is gravity different on other planets?
		4.E.3A.2 Obtain and communicate information to describe how constellations (including Ursa Major, Ursa Minor, and Orion) appear to move from Earth's perspective throughout the seasons.	Spaceship Earth	**Mystery 4:** Why do the stars change with the seasons?
		4.E.3A.3 Construct scientific arguments to support claims about the importance of astronomy in navigation and exploration (including the use of telescopes, astrolabes, compasses, and sextants).	Mini-Lessons	**Mini-Lesson:** What is a black hole? **Mini-Lesson:** Is Pluto a planet? **Mini-Lesson:** Why isn't Pluto a planet anymore? **Mini-Lesson:** Could there be life on other planets?
		4.E.3B.1 Analyze and interpret data from observations to describe patterns in the (1) location, (2) movement, and (3) appearance of the Moon throughout the year.	Spaceship Earth	**Mystery 5:** Why does the moon change shape?
		4.E.3B.2 Construct explanations of how day and night result from Earth's rotation on its axis.	Spaceship Earth	**Mystery 1:** How fast does the Earth spin?
		4.E.3B.3 Construct explanations of how the Sun appears to move throughout the day using observations of shadows.	Spaceship Earth	**Mystery 2:** Who set the first clock? **Mystery 3:** How can the Sun tell you the season?
		4.E.3B.4 Develop and use models to describe the factors (including tilt, revolution, and angle of sunlight) that result in Earth's seasonal changes.		

Grade 4, continued

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Physical Science	*Forms of Energy - Light/ Sound*	**4.P.4A.1** Construct scientific arguments to support the claim that white light is made up of different colors.	Mini-Lessons	**Mini-Lesson:** How is a rainbow made?**
		4.P.4A.2 Analyze and interpret data from observations and measurements to describe how the apparent brightness of light can vary as a result of the distance and intensity of the light source.	Spaceship Earth	**Mystery 8:** Could there be life on other planets?
		4.P.4A.3 Obtain and communicate information to explain how the visibility of an object is related to light.	Human Machine Mini-Lessons	**Mystery 2:** What do people who are blind see? **Mystery 3:** How can some animals see in the dark? **Mini-Lesson:** Why is snow white?**
		4.P.4A.4 Develop and use models to describe how light travels and interacts when it strikes an object (including reflection, refraction, and absorption) using evidence from observations.		
		4.P.4A.5 Plan and conduct scientific investigations to explain how light behaves when it strikes transparent, translucent, and opaque materials.		
		4.P.4B.1 Plan and conduct scientific investigations to test how different variables affect the properties of sound (including pitch and volume).	Waves of Sound	**Mystery 1:** How far can a whisper travel? **Mystery 2:** What would happen if you screamed in outer space? **Mystery 3:** Why are some sounds high and some sounds low?
		4.P.4B.2 Analyze and interpret data from observations and measurements to describe how changes in vibration affects the pitch and volume of sound.		
		4.P.4B.3 Define problems related to the communication of information over a distance and design devices or solutions that use sound to solve the problem.		

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Grade 5

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Life Science	Interdependent Relationships in Ecosystems	**5.L.4A.1** Analyze and interpret data to summarize the abiotic factors (including quantity of light and water, range of temperature, salinity, and soil composition) of different terrestrial ecosystems and aquatic ecosystems.		*South Carolina Specific Standard*
		5.L.4A.2 Obtain and communicate information to describe and compare the biotic factors (including individual organisms, populations, and communities) of different terrestrial and aquatic ecosystems.	Web of Life	**Mystery 1:** Why would a hawk move to New York City? **Mystery 2:** What do plants eat? **Mystery 3:** Where do fallen leaves go? **Mystery 4:** Do worms really eat dirt? **Mystery 5:** Why do you have to clean a fish tank but not a pond? **Mystery 6:** Why did the dinosaurs go extinct?
		5.L.4B.1 Analyze and interpret data to explain how organisms obtain their energy and classify an organisms as producers, consumers (including herbivore, carnivore, and omnivore), or decomposers (such as fungi and bacteria).		
		5.L.4B.2 Develop and use models of food chains and food webs to describe the flow of energy in an ecosystem.		
		5.L.4B.3 Construct explanations for how organisms interact with each other in an ecosystem (including predators and prey, and parasites and hosts).		
		5.L.4B.4 Construct scientific arguments to explain how limiting factors (including food, water, space, and shelter) or a newly introduced organism can affect an ecosystem.		

Grade 5, continued

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Earth & Space Science	Changes in Landforms and Oceans	**5.E.3A.1** Construct explanations of how different landforms and surface features result from the location and movement of water on Earth's surface through watersheds (drainage basins) and rivers.	Watery Planet	**Mystery 1:** How much water is in the world? **Mystery 2:** When you turn on the faucet, where does the water come from? **Mystery 3:** Can we make it rain?
		5.E.3B.2 Develop and use models to explain the effect of the movement of ocean water (including waves, currents, and tides) on the ocean shore zone (including beaches, barrier islands, estuaries, and inlets).		
		5.E.3B.1 Analyze and interpret data to describe and predict how natural processes (such as weathering, erosion, deposition, earthquakes, tsunamis, hurricanes, or storms) affect Earth's surface.	Mini-Lessons	**Mini-Lesson:** How do earthquakes happen? **Mini-Lesson:** What's worse: a hurricane or a tornado? **Mini-Lesson:** Why is it so hard for firefighters to put out wildfires?
		5.E.3A.2 Develop and use models to describe and compare the characteristics and locations of the landforms on continents with those on the ocean floor (including the continental shelf and slope, the mid-ocean ridge, the rift zone, the trench, and the abyssal plain).		*South Carolina Specific Standard*
		5.E.3B.3 Construct scientific arguments to support claims that human activities (such as conservation efforts or pollution) affect the land and oceans of Earth.		*South Carolina Specific Standard*
		5.E.3B.4 Define problems caused by natural processes or human activities and test possible solutions to reduce the impact on landforms and the ocean shore zone.	Watery Planet	**Mystery 4:** How can you save a town from a hurricane?

Grade 5, continued

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Physical Science	Matter & Mixtures	**5.P.2A.1** Analyze and interpret data from observations and measurements of the physical properties of matter (including volume, shape, movement, and spacing of particles) to explain why matter can be classified as a solid, liquid or gas.	Chemical Magic	**Mystery 1:** Are magic potions real? **Mystery 2:** Could you transform something worthless into gold? **Mystery 3:** What would happen if you drank a glass of acid? **Mystery 4:** What do fireworks, rubber, and silly putty have in common? **Mystery 5:** Why do some things explode?
		5.P.2B.1 Obtain and communicate information to describe what happens to the properties of substances when two or more substances are mixed together.		
		5.P.2B.2 Analyze and interpret data to support claims that when two substances are mixed the total amount (mass) of the substances does not change.		
		5.P.2B.3 Develop models using observations to describe mixtures, including solutions, based on their characteristics.		
		5.P.2B.4 Construct explanations for how the amount of solute and the solvent determine the concentration of a solution.		*South Carolina Specific Standard*
		5.P.2B.5 Conduct controlled scientific investigations to test how different variables (including temperature change, particle size, and stirring) affect the rate of dissolving.		*South Carolina Specific Standard*
		5.P.2B.6 Design and test the appropriate method(s) (such as filtration, sifting, attraction to magnets, evaporation, chromatography, or floatation) for separating various mixtures.		*South Carolina Specific Standard*

Grade 5, continued

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Strand	Topic	South Carolina Academic Standards & Performance Indicators for Science	Mystery Science Unit	Mystery Science Lessons
Physical Science (Cont.)	Forces & Motion	**5.P.5A.1** Use mathematical and computational thinking to describe and predict the motion of an object (including position, direction, and speed).	Energizing Everything	**Mystery 1:** How is your body similar to a car? **Mystery 2:** What makes roller coasters go so fast? **Mystery 3:** Why is the first hill of a roller coaster always the highest? **Mystery 4:** Could you knock down a building using only dominoes? **Mystery 5:** Can you build a chain reaction machine?
		5.P.5A.2 Develop and use models to explain how the amount or type of force (contact and noncontact) affects the motion of an object.		
		5.P.5A.3 Plan and conduct controlled scientific investigations to test the effects of balanced and unbalanced forces on the rate and direction of motion of objects.		
		5.P.5A.4 Analyze and interpret data to describe how a change of force, a change in mass, or friction affects the motion of an object.	Mini-Lessons	**Mini-Lesson:** Why can't airplanes fly to space?**
		5.P.5A.5 Design and test possible devices or solutions that reduce the effects of friction on the motion of an object.		

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