



Mystery Science Alignment with the Indiana Academic Science Standards (2016)

Mystery Science - Indiana Alignment

Mystery Science aligns to the Indiana Academic Science Standards (2016). Each lesson (exploration & activity) is designed to take one hour per week. To view each lesson's alignment to three-dimensional learning (disciplinary core ideas, science and engineering practices, and crosscutting concepts) view our <u>NGSS Alignment</u> 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.

Lesson Extensions. Extensions are available for each lesson and offer an opportunity for students to continue their science content learning. They include assessments and a curated collection of additional activity suggestions, online resources, project ideas, and readings to help extend the learning.

Table of Contents						
Kindergarten	Life Science	Earth & Space Science	Physical Science			
Grade 1	Life Science	Earth & Space Science	Physical Science			
Grade 2	Life Science	Earth & Space Science	Physical Science			
Grade 3	Life Science	Earth & Space Science	Physical Science			
Grade 4	Life Science	Earth & Space Science	Physical Science			
Grade 5	Life Science	Earth & Space Science	Physical Science			





Kindergarten

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	K.LS.1 Describe and compare the growth and development of common living plants and animals.			Lesson 1: Why do woodpeckers peck wood? Lesson 2, Read-Along: Where do animals live?
Life Science	K.LS.2 Describe and compare the physical features of common living plants and animals.	Plant & Animal	Grade K	Lesson 3: How can you find animals in the woods? Lesson 4, Read-Along: How do animals make their homes in the forest?
	K.LS.3 Use observations to describe patterns of what plants and animals (including humans) need to survive.	<u>Secrets</u>		Lesson 5: How do plants and trees grow? Lesson 6, Read-Along: Why would you want an old log in your backyard?
	K.ESS.1 Make observations to determine the effect of sunlight on Earth's surface and use tools and materials to build a structure to reduce the warming effect on Earth's surface.	Sunny Skies	Grade K	 Lesson 1, Read-Along: How could you walk barefoot across hot pavement without burning your feet? Lesson 2: How could you warm up a frozen playground? Lesson 3: Why does it get cold in winter?
	K.ESS.2 Describe and compare objects seen in the night and day sky, observing that the sun and moon move across the sky.			
Earth & Space Science	K.ESS.3 Investigate the local weather conditions to	Wild Weather	Grade K	Lesson 1, Read-Along: How can you get ready for a big storm? Lesson 2: Have you ever watched a storm? Lesson 3: How many different kinds of weather are there?
	describe patterns over time.	<u>Circle of</u> <u>Seasons</u>	Grade K	Lesson 1, Read-Along: How do you know what to wear for the weather? Lesson 2: What would the weather be like on your birthday? Lesson 3: Why do birds lay eggs in the spring?
	K.ESS.4 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.			





Kindergarten, continued

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	K.PS.1 Plan and conduct an investigation using all senses to describe and classify different kinds of objects by their composition and physical properties. Explain these choices to others and generate questions about the objects.			Indiana specific standard
	K.PS.2 Identify and explain the possible uses for an object based on its properties and compare these uses with other students' ideas.			Indiana specific standard
Physical Science	K.PS.3 Plan and conduct an investigation to compare the effects of different strengths or directions of pushes and pulls on the motion of an object.	<u>Force</u> <u>Olympics</u>	Grade K	Lesson 1: What the biggest excavator? Lesson 2, Read-Along: Why do builders need so many big machines? Lesson 3: How can you knock down a wall made of concrete?
	K.PS.4 Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.			Lesson 4, Read-Along: How can you knock down the most bowling pins? Lesson 5: How can we protect a mountain town from falling rocks? Lesson 6, Read-Along: How could you invent a trap?





Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	1.LS.1 Develop representations to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	<u>Plant</u> <u>Adventures</u>	Grade 2	Lesson 1: How did a seed travel halfway around the world? Lesson 2: Do plants eat dirt?
Life Science	1.LS.2 Develop a model mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. Explore how those external parts could solve a human problem.	Plant & Animal Superpowers	Grade 1	Lesson 5: Why don't trees blow down in the wind? Lesson 6, Read-Along: What do sunflowers do when you're not looking?
	1.LS.3 Make observations of plants and animals to compare the diversity of life in different habitats.	Plant	Grade 2	Lesson 3: Why do trees grow so tall?
	1.LS.4 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.	<u>Adventures</u>		Lesson 4: Should you water a cactus? Lesson 5: Where do plants grow best?
Earth & Space Science	1.ESS.1 Use observations of the sun, moon, and stars to describe patterns that can be predicted.	<u>Spinning Sky</u>	Grade 1	Lesson 1: Could a statue's shadow move? Lesson 2, Read-Along: What does your shadow do when you're not looking? Lesson 3: How can the sun help you if you're lost? Lesson 4, Read-Along: Why do you have to go to bed early in the summer? Lesson 5: Why do the stars come out at night? Lesson 6, Read-Along: How can stars help you if you get lost?





Grade 1, continued

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	1.ESS.2 Observe compare properties of sand, clay, silt, and organic matter. Look for evidence of sand, clay, silt, and organic matter as components of soil samples.			Indiana Specific Standard
Earth & Space Science	1.ESS.3 Observe a variety of soil samples and describe in words and pictures the soil properties in terms of color, particle size and shape, texture, and recognizable living and nonliving items.			Indiana Specific Standard
(Cont.)	1.ESS.4 Develop solutions that could be implemented to reduce the impact of humans on the land, water, air, and/or other living things in the local environment.			Indiana Specific Standard
	1.PS.1 Characterize materials as solid, liquid, or gas and investigate their properties, record observations and explain the choices to others based on evidence (i.e. physical properties).			Indiana specific standard
	1.PS.2 Predict and experiment with methods (sieving, evaporation) to separate solids and liquids based on their physical properties.			Indiana specific standard
Physical Science	1.PS.3 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.			Lesson 1: How do they make silly sounds in cartoons? Lesson 2, Read-Along: Where do sounds come from? Lesson 3: What if there were no windows?
	1.PS.4 Make observations to collect evidence and explain that objects can only be seen when illuminated.	<u>Lights &</u> <u>Sounds</u>	Grade 1	Lesson 4, Read-Along: Can you see in the dark? Lesson 5: How could you send a secret message to someone far away? Lesson 6, Read-Along: How do boats find their way in the fog?





Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	2.LS.1 Determine patterns and behavior (adaptations) of parents and offspring which help offspring survive.	Plant & Animal Superpowers	Grade 1	Lesson 1: Why do birds have beaks? Lesson 2, Read-Along: Why do baby ducks follow their mothers? Lesson 3: Why are polar bears white?
Life Science	2.LS.2 Compare and contrast details of body plans and structures within the life cycles of plants and animals.	<u>Animal</u>	Grade 2	Lesson 4, Read-Along: Why do family members look alike? Lesson 1: How many different kinds of animals are there?
	2.LS.3 Classify living organisms according to variations in specific physical features (i.e. body coverings, appendages) and describe how those features provide an advantage for	Adventures Mini-Lessons		Lesson 2: Why do frogs say "ribbit"? Lesson 3: How could you get more birds to visit a bird feeder? Mini-lesson: Why do leaves change color in the fall?**
	survival in different environments.			Mini-lesson: What is the biggest spider in the world?**
	2.ESS.1 Record detailed weather observations, including cloud cover, cloud type, and type of precipitation on a daily basis over a period of weeks and correlate observations to the time of year.			
Earth & Space	2.ESS.2 Investigate the severe weather of the region and its impact on the community, looking at forecasting to prepare for, and respond to, severe weather.	Stormy Skies	Grade 3	Lesson 1: Where do clouds come from? Lesson 2: How can we predict when it's going to storm?
Science	2.ESS.4 Obtain information to identify where water is found on Earth and that it can be solid or liquid.			
	2.ESS.3 Investigate how wind or water change the shape of the land and design solutions for prevention.	Work of Water	Grade 2	 Lesson 1: If you floated down a river, where would you end up? Lesson 2: Why is there sand at the beach? Lesson 3: What's strong enough to make a canyon? Lesson 4: How can you stop a landslide?





Grade 2, continued

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	2.PS.1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.			
Physical	2.PS.2 Predict the result of combining solids and liquids in pairs. Mix, observe, gather, record, and discuss evidence of whether the result may have different properties than the original materials.	<u>Material Magic</u>	Grade 2	Lesson 1: Why do we wear clothes? Lesson 2: Can you really fry an egg on a hot sidewalk? Lesson 3: Why are so many toys made out of plastic? Lesson 4: What materials might be invented in the future?
Science	2.PS.3 Construct an argument with evidence that some changes caused by heating and cooling can be reversed and some cannot.	<u>Mini-Lessons</u>		Lesson 5: Could you build a house out of paper? Mini-lesson: How do they turn wood into paper? Mini-lesson: How is glass made?
	2.PS.4 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.			





Mystery Science aligns to the Indiana Academic Science Standards (2016). Each lesson (exploration & activity) is designed to take one hour per week. Extensions can expand upon each lesson. To view each lesson's alignment to 3 dimensional learning (disciplinary core ideas, science and engineering practices, and crosscutting concepts) view our <u>NGSS Alignment</u> 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.

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	3.LS.1 Analyze evidence that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms.	<u>Power of</u> <u>Flowers</u> *	Grade 3	Lesson 3: Why are some apples red and some green? Lesson 4: How could you make the biggest fruit in the world?
Life	3.LS.4 Construct an argument that some animals form groups that help members survive.	Animals Through <u>Time</u>	Grade 3	Lesson 6: Why do dogs wag their tails?
Science	3.LS.2 Plan and conduct an investigation to determine the basic needs of plants to grow, develop, and reproduce.	Power of	Grade 3	Lesson 1: Why do plants grow flowers? Lesson 2: Why do plants give us fruit?
	3.LS.3 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	<u>Flowers</u> * <u>Mini-Lessons</u>		Mini-lesson: How do flowers bloom in the spring?** Mini-lesson: Why are butterflies so colorful?** Mini-lesson: Why do owls say "hoo"? Mini-lesson: Why do penguins have wings if they can't fly?
	3.ESS.1 Obtain and combine information to determine seasonal weather patterns across the different regions of the United States.	Stormy Skies	Grade 3	Lesson 3: Why are some places always hot?
Earth & Space Science	3.ESS.2 Develop solutions that could be implemented to reduce the impact of weather related hazards.	Stormy Skies	Grade 3	Lesson 4: How can you keep a house from blowing away in a windstorm?
Science	3.ESS.3 Observe the detailed characteristics of rocks and minerals. Identify and classify rocks as being composed of different combinations of minerals.	Mini-Lessons		Mini-lesson: Why does this rock look like a sponge? Mini-lesson: Can you make lava?

* <u>Power of Flowers</u> picks up where Plant Adventures (Indiana Grade 1) leaves off. We suggest you teach <u>Plant Adventures</u> first if your students haven't learned, or need a refresher, about what plants need for survival.

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





Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
Earth & Space Science (Cont.)	3.ESS.4 Determine how fossils are formed, discovered, layered over time, and used to provide evidence of the organisms and the environments in which they lived long ago.	Animals Through <u>Time</u> <u>Mini-Lessons</u>	Grade 3	Lesson 1: Where can you find whales in a desert? Lesson 2: How do we know what dinosaurs looked like? Lesson 3: Can you outrun a dinosaur? Mini-lesson: Were dragons ever real? Mini-lesson: How old is the Earth?
	3.PS.1 Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.	Invisible Forces	Grade 3	 Lesson 1: How could you win a tug-of-war against a bunch of adults? Lesson 2: What makes bridges so strong? Lesson 3: How can you go faster down a slide? Lesson 4: What can magnets do? Lesson 5: How can you unlock a door using a magnet?
Physical Science	3.PS.2 Identify types of simple machines and their uses. Investigate and build simple machines to understand how they are used.			Indiana specific standard
	3.PS.3 Generate sound energy using a variety of materials and techniques, and recognize that it passes through solids, liquids, and gases (i.e. air).			Lesson 1: How far can a whisper travel? Lesson 2: What would happen if you screamed in outer
	3.PS.4 Investigate and recognize properties of sound that include pitch, loudness (amplitude), and vibration as determined by the physical properties of the object making the sound.	Waves of Sound	Grade 4	space? Lesson 3: Why are some sounds high and some sounds low?





Mystery Science aligns to the Indiana Academic Science Standards (2016). Each lesson (exploration & activity) is designed to take one hour per week. Extensions can expand upon each lesson. To view each lesson's alignment to 3 dimensional learning (disciplinary core ideas, science and engineering practices, and crosscutting concepts) view our <u>NGSS Alignment</u> 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.

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	4.LS.1 Observe, analyze, and interpret how offspring are very much, but not exactly, like their parents or one another. Describe how these differences in physical characteristics among individuals in a population may be advantageous for survival and reproduction.	<u>Animals</u> <u>Through Time</u>	Grade 3	Lesson 4: What kinds of animals might there be in the future? Lesson 5: Can selection happen without people?
Life Science	4.LS.2 Use evidence to support the explanation that a change in the environment may result in whether a plant or animal will survive and reproduce, move to a new location, or die.	<u>Animals</u> <u>Through Time</u>	Grade 3	Lesson 7: What's the best way to get rid of mosquitoes? Lesson 8: How long can people (and animals) survive in outer space?
	4.LS.3 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction in different ecosystems.	<u>Human Machine</u> <u>Mini-Lessons</u>	Grade 4	Lesson 1: Why do your biceps bulge? Lesson 2: What do people who are blind see? Lesson 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?** Mini-lesson: How do broken bones heal?
Earth & Space	4.ESS.1 Investigate how the moon appears the move through the sky and it changes day to day, emphasizing the importance of how the moon impacts the Earth, the rising and setting times, and solar and lunar eclipses.	Mini-Lessons		Mini-lesson: What would it be like to live on the Moon? Mini-lesson: What is the Moon made of? Mini-lesson: How often do eclipses happen? Mini-lesson: Why does the Moon turn blood red during a lunar eclipse?
Science	4.ESS.2 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	<u>Energizing</u> Everything	Grade 4	Lesson 8: Where does energy come from?

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





Mystery Science aligns to the Indiana Academic Science Standards (2016). Each lesson (exploration & activity) is designed to take one hour per week. Extensions can expand upon each lesson. To view each lesson's alignment to 3 dimensional learning (disciplinary core ideas, science and engineering practices, and crosscutting concepts) view our <u>NGSS Alignment</u> 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.

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
Earth &	4.ESS.3 Describe how geological forces change the shape of the land suddenly and over time.	The Birth of	Grade 4	Lesson 1: Could a volcano pop up where you live? Lesson 2: Why do some volcanoes explode?
Space Science	4.ESS.4 Develop solutions that could be implemented to reduce the impact of humans on the natural environment and the natural environment on	<u>Rocks</u>		Lesson 3: Will a mountain last forever? Lesson 4: How could you survive a landslide?
(Cont.)	humans.	<u>Mini-Lessons</u>		Mini-lesson: How do earthquakes happen?
	4.PS.1 Investigate transportation systems and devices that operate on or in land, water, air and space and recognize the forces (lift, drag, friction, thrust and gravity) that affect their motion.	Mini-Lessons		Mini-lesson: Why can't airplanes fly to space?**
	4.PS.2 Investigate the relationship of the speed of an object to the energy of that object.	<u>Energizing</u> Everything		
	4.PS.3 Investigate how multiple simple machines work together to perform everyday tasks.			Lesson 1: How is your body similar to a car? Lesson 2: What makes roller coasters go so fast?
Physical Science	4.PS.4 Describe and investigate the different ways in which energy can be generated and/or converted from one form of energy to another form of energy.		Grade 4	 Lesson 3: Why is the first hill of a roller coaster always the highest? Lesson 4: Could you knock down a building using only dominoes? Lesson 5: Can you build a chain reaction machine? Lesson 6: What if there were no electricity?
	4.PS.5 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.			Lesson 7: How long did it take to travel across the country before cars and planes?

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





Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
	5.LS.1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment,			Lesson 1: Why would a hawk move to New York City? Lesson 2: What do plants eat? Lesson 3: Where do fallen leaves go?
Life Science	5.LS.2 Observe and classify common Indiana organisms as producers, consumers, decomposers, or predator and prey based on their relationships and interactions with other organisms in their ecosystem.	<u>Web of Life</u>	Grade 5	Lesson 4: Do worms really eat dirt? Lesson 5: Why do you have to clean a fish tank but not a pond? Lesson 6: Why did the dinosaurs go extinct?
	3.LS.3. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.	<u>Human</u> <u>Machine</u>	Grade 4	Lesson 4: How does your brain control your body?
	5.ESS.1 Analyze the scale of our solar system and its components: our solar system includes the Sun, Moon, and seven other planets and their moons, and many other objects like asteroids and comets.	<u>Spaceship</u> Earth	Grade 5	 Lesson 1: How fast does the Earth spin? Lesson 2: Who set the first clock? Lesson 3: How can the Sun tell you the season? Lesson 4: Why do the stars change with the seasons?
Earth & Space Science	5.ESS.2 Represent data in graphical displays to			 Lesson 5: Why does the moon change shape? Lesson 6: What are the wandering stars? Lesson 7: Why is gravity different on other planets? Lesson 8: Could there be life on other planets?
	reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Mini-Lessons		 Mini-lesson: Is Pluto a planet? Mini-lesson: Why isn't Pluto a planet anymore? Mini-lesson: Why do places have different times? Mini-lesson: Why does it get cold in winter? Mini-lesson: Is Earth the only planet with life?





Grade 5, continued

Strand	Indiana Standard	Mystery Science Unit	Mystery Science Grade	Mystery Science Lessons
Earth & Space Science (Cont.)	3.ESS.3 Investigate ways individual communities within the United States protect the Earth's resources and environment.	Watery Planet	Grade 5	 Lesson 1: How much water is in the world? Lesson 2: When you turn on the faucet, where does the water come from? Lesson 3: Can we make it rain? Lesson 4: How can you save a town from a hurricane?
	3.ESS.4 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.			
		<u>Mini-Lessons</u>		Mini-lesson: How deep does the ocean go?Mini-lesson: Why is the ocean salty?Mini-lesson: What's worse: a hurricane or a tornado?
Physical Science	5.PS.1 Describe and measure the volume and mass of a sample of a given material.	Chemical Magic	Grade 5	 Lesson 1: Are magic potions real? Lesson 2: Could you transform something worthless into gold? Lesson 3: What would happen if you drank a glass of acid? Lesson 4: What do fireworks, rubber, and Silly Putty have in common? Lesson 5: Why do some things explode?
	5.PS.2 Demonstrate that regardless of how parts of an object are assembled the mass of the whole object is identical to the sum of the mass of the parts; however, the volume can differ from the sum of the volumes. (Law of Conservation of Mass)			
	5.PS.3 Determine if matter has been added or lost by comparing mass when melting, freezing, or dissolving a sample of a substance. (Law of Conservation of Mass)			
	5.PS.4 Describe the difference between weight being dependent on gravity and mass comprised of the amount of matter in a given substance or material.	<u>Spaceship</u> <u>Earth</u>	Grade 5	Lesson 7: Why is gravity different on other planets?

