

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

Mystery Science - Indiana Alignment
Mystery Science aligns to the Indiana Academic Science Standards (2016). The core Mystery (exploration & activity) is designed to take one hour per week. 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.

> ***Lesson Extensions.*** Extensions are available for each Mystery 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.

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Kindergarten

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**K.LS.1** Describe and compare the growth and development of common living plants and animals.	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.LS.2 Describe and compare the physical features of common living plants and animals.		
	K.LS.3 Use observations to describe patterns of what plants and animals (including humans) need to survive.		
Earth & Space Science	**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.	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?
	K.ESS.2 Describe and compare objects seen in the night and day sky, observing that the sun and moon move across the sky.		
	K.ESS.3 Investigate the local weather conditions to describe patterns over time.	Weather Watching	**Mystery 1:** Have you ever watched a storm? **Mystery 2, Read Along:** How can you get ready for a big storm? **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.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

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Physical Science	**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*
	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.	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?
	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.		

Grade 1

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**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.	Plant Adventures	**Mystery 1:** How did a seed travel halfway around the world? **Mystery 2:** Do plants eat dirt?
	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	**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.LS.3 Make observations of plants and animals to compare the diversity of life in different habitats.	Plant Adventures	**Mystery 3:** Why do trees grow so tall? **Mystery 4:** Should you water a cactus? **Mystery 5:** Where do plants grow best?
	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.		
Earth & Space Science	**1.ESS.1** Use observations of the sun, moon, and stars to describe patterns that can be predicted.	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?



MYSTERY science

Grade 1, continued

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Earth & Space Science (Cont.)	**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*
	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*
	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*
Physical Science	**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*
	1.PS.3 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	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.PS.4 Make observations to collect evidence and explain that objects can only be seen when illuminated.		

Grade 2

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**2.LS.1** Determine patterns and behavior (adaptations) of parents and offspring which help offspring survive.	Plant & Animal Superpowers	**Mystery 1:** Why do birds have beaks? **Mystery 2, Read Along:** Why do baby ducks follow their mothers? **Mystery 3:** Why are polar bears white? **Mystery 4, Read Along:** Why do family members look alike?
	2.LS.2 Compare and contrast details of body plans and structures within the life cycles of plants and animals.	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.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 survival in different environments.	Mini-Lessons	**Mini-Lesson:** Why do leaves change color in the fall?** **Mini-Lesson:** What is the biggest spider in the world?**
Earth & Space Science	**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.	Stormy Skies	**Mystery 1:** Where do clouds come from? **Mystery 2:** How can we predict when it's going to storm?
	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.		
	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	**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?

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MYSTERY science

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Physical Science	**2.PS.1** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	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? **Mini-Lesson:** How do they turn wood into paper? **Mini-Lesson:** How is glass made?
	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.		
	2.PS.3 Construct an argument with evidence that some changes caused by heating and cooling can be reversed and some cannot.	Mini-Lessons	
	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.		

Grade 3

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**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.	Power of Flowers*	**Mystery 3:** Why are some apples red and some green? **Mystery 4:** How could you make the biggest fruit in the world?
	3.LS.4 Construct an argument that some animals form groups that help members survive.	Animals Through Time	**Mystery 6:** Why do dogs wag their tails?
	3.LS.2 Plan and conduct an investigation to determine the basic needs of plants to grow, develop, and reproduce.	Power of Flowers* Mini-Lessons	**Mystery 1:** Why do plants grow flowers? **Mystery 2:** Why do plants give us fruit? **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.LS.3 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.		
Earth & Space Science	**3.ESS.1** Obtain and combine information to determine seasonal weather patterns across the different regions of the United States.	Stormy Skies	**Mystery 3:** Why are some places always hot?
	3.ESS.2 Develop solutions that could be implemented to reduce the impact of weather related hazards.	Stormy Skies	**Mystery 4:** How can you keep a house from blowing away in a windstorm?
	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?

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

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MYSTERY science

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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 Time Mini-Lessons	**Mystery 1:** Where can you find whales in a desert? **Mystery 2:** How do we know what dinosaurs looked like? **Mystery 3:** Can you outrun a dinosaur? **Mini-Lesson:** Were dragons ever real? **Mini-Lesson:** How old is the Earth?
Physical Science	**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	**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? **Mystery 4:** What can magnets do? **Mystery 5:** How can you unlock a door using a magnet?
	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).	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?
	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.		



MYSTERY science

Grade 4

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**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.	Animals Through Time	**Mystery 4:** What kinds of animals might there be in the future? **Mystery 5:** Can selection happen without people?
	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.	Animals Through Time	**Mystery 7:** What's the best way to get rid of mosquitoes? **Mystery 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.	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?** **Mini-Lesson:** How do broken bones heal?
Earth & Space Science	**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?
	4.ESS.2 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	Energizing Everything	**Mystery 8:** Where does energy come from?

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Earth & Space Science (Cont.)	**4.ESS.3** Describe how geological forces change the shape of the land suddenly and over time.	The Birth of Rocks Mini-Lessons	**Mystery 1:** Could a volcano pop up where you live? **Mystery 2:** Why do some volcanoes explode? **Mystery 3:** Will a mountain last forever? **Mystery 4:** How could you survive a landslide? **Mini-Lesson:** How do earthquakes happen?
	4.ESS.4 Develop solutions that could be implemented to reduce the impact of humans on the natural environment and the natural environment on humans.		
Physical Science	**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.	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? **Mystery 6:** What if there were no electricity? **Mystery 7:** How long did it take to travel across the country before cars and planes?
	4.PS.3 Investigate how multiple simple machines work together to perform everyday tasks.		
	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.		
	4.PS.5 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.		

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MYSTERY science

Grade 5

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Strand	Indiana Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**5.LS.1** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment,	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.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.		
	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.	Human Machine	**Mystery 4:** How does your brain control your body?
Earth & Space Science	**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.	Spaceship Earth	**Mystery 1:** How fast does the Earth spin? **Mystery 2:** Who set the first clock? **Mystery 3:** How can the Sun tell you the season? **Mystery 4:** Why do the stars change with the seasons? **Mystery 5:** Why does the moon change shape? **Mystery 6:** What are the wandering stars? **Mystery 7:** Why is gravity different on other planets? **Mystery 8:** Could there be life on other planets?
	5.ESS.2 Represent data in graphical displays to 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?



MYSTERY science

Grade 5, continued

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Strand	Indiana Standard	Mystery Science Unit	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	**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? **Mystery 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.	Mini-Lessons	**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	**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.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.	Spaceship Earth	**Mystery 7:** Why is gravity different on other planets?