

Mystery Science Alignment with Arizona Science Standards (2018)

Mystery Science - Arizona Alignment
Mystery Science aligns to the new 2018 Arizona Science Standards. 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	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**K.L1U1.6** Obtain, evaluate, and communicate information about how organisms use different body parts for survival.	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 5:** Why don't trees blow down in the wind? **Mystery 6, Read Along**: What do sunflowers do when you're not looking? **Mini-Lesson:** Why are butterflies so colorful?** **Mini-Lesson:** Why can't fish breathe on land? **Mini-Lesson:** Why do penguins have wings if they can't fly? **Mini-Lesson:** Could a turtle live outside its shell?
	K.L1U1.7 Observe, ask questions, and explain how specialized structures found on a variety of plants and animals (including humans) help them sense and respond to their environment.		
	K.L2U1.8 Observe, ask questions, and explain the differences between the characteristics of living and non-living things.		*Arizona specific standard*
Earth & Space Science	**K.EU1.3** Observe, record, and ask questions about temperature, precipitation, and other weather data to identify patterns or changes in local weather.	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 would the weather be like on your birthday? **Mystery 4, Read Along:** How do you know what to wear for the weather? **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.E1U1.4 Observe, describe, ask questions, and predict seasonal weather patterns; and how those patterns impact plants and animals (including humans).		
	K.E2U1.5 Observe and ask questions about patterns of the motion of the sun, moon, and stars in the sky.	Spinning Sky	**Mystery 1:** Could a statue's shadow move? **Mystery 2, Read Along:** What does a 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?

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



MYSTERY science

Kindergarten, continued

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Physical Science	**K.P2U1.1** Investigate how senses can detect light, sound, and vibrations even when they come from far away; use the collected evidence to develop and support an explanation.	Mini-Lessons	**Mini-Lesson:** How is a rainbow made?** **Mini-Lesson:** Why is snow white?** **Mini-Lesson:** Why do owls say "hoo"?
	K.P2U2.2 Design and evaluate a tool that helps people extend their senses.		*Arizona specific standard*

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MYSTERY science

Grade 1

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**1.L1U1.6** Observe, describe, and predict life cycles of animals and plants.	Mini-Lessons	**Mini-Lesson:** Why do leaves change color in the fall?** **Mini-Lesson:** Why do birds lay eggs in the spring? **Mini-Lesson:** Why do animals come back after going to warm places in winter?
	1.L2U2.7 Develop and use models about how living things use resources to grow and survive; design and evaluate habitats for organisms using earth materials.	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 home 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?
	1.L2U1.8 Construct an explanation describing how organisms obtain resources from the environment including materials that are used again by other organisms.		
	1.L3U1.9 Obtain, evaluate, and communicate information to support an evidence-based explanation that plants and animals produce offspring of the same kind, but offspring are generally not identical to each other or their parents.	Plant & Animal Superpowers Mini-Lessons	**Mystery 4, Read Along:** Why do family members look alike? **Mini-Lesson:** Why are pumpkins orange? **Mini-Lesson:** Why do baby animals look so cute?
	1.L4U1.10 Develop a model to describe how animals and plants are classified into groups and subgroups according to their similarities.	Animal Adventures Mini-Lessons	**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? **Mini-Lesson:** What is the biggest spider in the world?**
	1.L4U3.11 Ask questions and explain how factors can cause species to go extinct.		*Arizona specific standard*

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MYSTERY science

Grade 1, continued

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Earth & Space Science	**1.E1U1.5** Obtain, evaluate, and communicate information about the properties of Earth materials and investigate how humans use natural resources in everyday life.		*Arizona specific standard*
Physical Science	**1.P2U1.1** Plan and carry out investigations demonstrating the effect of placing objects made with different materials in the path of a beam of light and predict how objects with similar properties will affect the beam of light.	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.P2U1.2 Use models to provide evidence that vibrating matter creates sound and sound can make matter vibrate		
	1.P3U1.3 Plan and carry out investigations which demonstrate how equal forces can balance objects and how unequal forces can push, pull, or twist objects, making them change their speed, direction, or shape.	Force Olympics	**Mystery 1:** What's 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 Along:** How could you invent a trap?
	1.P4U2.4 Design and evaluate ways to increase or reduce heat from friction between two objects.		*Arizona specific standard*

Grade 2

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**2.L2U1.9** Obtain, analyze, and communicate evidence that organisms need a source of energy, air, water, and certain temperature conditions to survive.	Plant Adventures	**Mystery 1:** How did a tree 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? **Mystery 5:** Where do plants grow best?
	2.L2U1.10 Develop a model representing how life on Earth depends on energy from the Sun and energy from other organisms.		*Arizona specific standard*
Earth & Space Science	**2.E1U1.4** Observe and investigate how wind and water change the shape of the land resulting in a variety of landforms.	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?
	2.E1U1.5 Develop and use models to represent that water can exist in different states and is found in oceans, glaciers, lakes, rivers, ponds, and the atmosphere.	Stormy Skies	**Mystery 1:** Where do clouds come from? **Mystery 2:** How can we predict when it's going to storm? **Mystery 4:** How can you keep a house from blowing away in a windstorm?
	2.E1U2.6 Analyze patterns in weather conditions of various regions of the world and design, test, and refine solutions to protect humans from severe weather conditions.	Mini-Lessons	**Mini-Lesson:** What makes hurricanes so dangerous? **Mini-Lesson:** How deep does the ocean go? **Mini-Lesson:** Why is the ocean so salty? **Mini-Lesson:** What's worse: a hurricane or a tornado? **Mini-Lesson:** Why are tornadoes so hard to predict?
	2.E1U3.7 Construct an argument from evidence regarding positive and negative changes in water and land systems that impact humans and the environment.		
	2.E2U1.8 Observe and explain the sun's position at different times during a twenty-four-hour period and changes in the apparent shape of the Moon from one night to another.		*Arizona specific standard*



MYSTERY science

Grade 2, continued

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Physical Science	**2.P1U1.1** Plan and carry out an investigation to determine that matter has mass, takes up space, and is recognized by its observable properties; use the collected evidence to develop and support an explanation.	Material Magic	**Mystery 1:** Why do we wear clothes? **Mystery 4:** What materials might be invented in the future? **Mystery 5:** Could you build a house out of paper?
	2.P1U1.2 Plan and carry out investigations to gather evidence to support an explanation on how heating or cooling can cause a phase change in matter.	Material Magic	**Mystery 2:** Can you really fry an egg on a hot sidewalk? **Mystery 3:** Why are toys made out of plastic?
	2.P4U1.3 Obtain, evaluate and communicate information about ways heat energy can cause change in objects or materials.	Mini-Lessons	**Mini-Lesson:** How is glass made? **Mini-Lesson:** Can you make lava?

Grade 3

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**3.L1U1.5** Develop and use models to explain that plants and animals (including humans) have internal and external structures that serve various functions that aid in growth, survival, behavior, and reproduction.	Human Machine	**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? **Mystery 4:** How does your brain control your body?
		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?
		Mini-Lessons	**Mini-Lesson:** Why do our skeletons have so many bones?** **Mini-Lesson:** How does the heart pump blood?** **Mini-Lesson:** Why do we get goosebumps? **Mini-Lesson:** Why can't fish breathe on land?
	3.L2U1.6 Plan and carry out investigations to demonstrate ways plants and animals react to stimuli.	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?
	3.L2U1.7 Develop and use system models to describe the flow of energy from the Sun to and among living organisms.		
	3.L2U1.8 Construct an argument from evidence that organisms are interdependent.		
Earth & Space Science	**3.E1U1.4** Construct an explanation describing how the Sun is the primary source of energy impacting Earth systems.	Web of Life*	**Mystery 6:** Why did the dinosaurs go extinct?

* Web of Life is designed for Grade 5 NGSS, but can be taught in Grade 3 with modifications. Expect aspects of this unit to be a challenge.

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MYSTERY science

Grade 3, continued

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Physical Science	**3.P2U1.1** Ask questions and investigate the relationship between light, objects, and the human eye.	Human Machine	**Mystery 2:** What do people who are blind see? **Mystery 3:** How can some animals see in the dark?
	3.P2U1.2 Plan and carry out an investigation to explore how sound waves affect objects at varying distances.	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.P4U1.3 Develop and use models to describe how light and sound waves transfer energy.	Mini-Lessons	**Mini-Lesson:** How do things glow in the dark?



MYSTERY science

Grade 4

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**4.L4U1.11** Analyze and interpret environmental data to demonstrate that species either adapt and survive, or go extinct over time.	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:** Where do bugs go in winter? **Mini-Lesson:** Were dragons ever real?
Earth & Space Science	**4.E1U1.5** Use models to explain seismic waves and their effect on the Earth.	Mini-Lessons	**Mini-Lesson:** How do earthquakes happen?
	4.E1U1.6 Plan and carry out an investigation to explore and explain the interactions between Earth's major systems and the impact on Earth's surface materials and processes.	The Birth of Rocks	**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?
	4.E1U1.7 Develop and/or revise a model using various rock types, fossil location, and landforms to show evidence that Earth's surface has changed over time.	Mini-Lessons	**Mini-Lesson**: How old is the Earth?
	4.E1U1.8 Collect, analyze, and interpret data to explain weather and climate patterns.	Stormy Skies	**Mystery 3:** Why are some places always hot?
	4.E1U3.9 Construct and support an evidence-based argument about the availability of water and its impact on life.	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?
	4.E1U2.10 Define problem(s) and design solution(s) to minimize the effects of natural hazards.	Mini-Lessons	**Mini-Lesson:** Why is it so hard to put out wildfires? **Mini-Lesson:** What makes hurricanes so dangerous? **Mini-Lesson:** Why are tornadoes so hard to predict?



MYSTERY science

Grade 4, continued

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Physical Science	**4.P4U1.1** Develop and use a model to demonstrate how a system transfers energy from one object to another even when the objects are not touching.	Energizing Everything	**Mystery 7:** How long did it take to travel across the country before cars and planes?
	4.P4U1.2 Develop and use a model that explains how energy is moved from place to place through electric currents.	Energizing Everything Mini-Lessons	**Mystery 6:** What if there were no electricity? **Mini-Lessons:** How do batteries work?
	4.P2U1.3 Develop and use a model to demonstrate magnetic forces.	Invisible Forces	**Mystery 4:** What can magnets do? **Mystery 5:** How can you unlock a door using a magnet?
	4.P4U3.4 Engage in argument from evidence on the use and impact of renewable and nonrenewable resources to generate electricity.	Energizing Everything	**Mystery 8:** Where does energy come from?



MYSTERY science

Grade 5

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Strand	Arizona State Standard	Mystery Science Unit	Mystery Science Lessons
Life Science	**5.L3U1.9** Obtain, evaluate, and communicate information about patterns between the offspring of plants, and the offspring of animals (including humans); construct an explanation of how genetic information is passed from one generation to the next.	Animals Through Time	**Mystery 4:** What kinds of animals might there be in the future? **Mystery 5:** Can selection happen without people? **Mystery 6:** Why do dogs wag their tails? **Mystery 7**: What's the best way to get rid of mosquitoes? **Mystery 8:** How long can people (and animals) survive in outer space?
	5.L3U1.10 Construct an explanation based on evidence that the changes in an environment can affect the development of the traits in a population of organisms.		
	5.L4U3.11 Obtain, evaluate, and communicate evidence about how natural and human-caused changes to habitats or climate can impact populations.		
	5.L4U3.12 Construct an argument based on evidence that inherited characteristics can be affected by behavior and/or environmental conditions.		
Earth & Space Science	**5.E2U1.7** Develop, revise, and use models based on evidence to construct explanations about the movement of the Earth and Moon within our Solar System.	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 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.E2U1.8 Obtain, analyze, and communicate evidence to support an explanation that the gravitational force of Earth on objects is directed toward the planet's center.	Mini-Lessons	**Mini-Lesson:** Why do different places have different times? **Mini-Lesson:** How often do eclipses happen?

* Animals Through Time is designed for Grade 3 NGSS, but can be taught in Grade 5 with modifications.



MYSTERY science

Grade 5, continued

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Physical Science	**5.P1U1.1** Analyze and interpret data to explain that matter of any type can be subdivided into particles too small to see and, in a closed system, if properties change or chemical reactions occur, the amount of matter stays the same.	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? **Mini-Lesson:** How is plastic made? **Mini-Lesson:** How do things glow in the dark? **Mini-Lesson:** How do they turn wood into paper?
	5.P1U1.2 Plan and carry out investigations to demonstrate that some substances combine to form new substances with different properties and others can be mixed without taking on new properties.	Mini-Lessons	
	5.P2U1.3 Construct an explanation using evidence to demonstrate that objects can affect other objects even when they are not touching.	Invisible Forces*	**Mystery 1:** Can 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 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.P3U1.4 Obtain, analyze, and communicate evidence of the effects that balanced and unbalanced forces have on the motion of objects.		
	5.P3U2.5 Define problems and design solutions pertaining to force and motion.	Energizing Everything	
	5.P4U1.6 Analyze and interpret data to determine how and where energy is transferred when objects move.		

* Invisible Forces is designed for Grade 3 NGSS, but can be taught in Grade 5 with modifications.