Grade 1 Planning Guide

Kindergarten Planning Guide | Grade 1 Planning Guide | Grade 2 Planning Guide
Grade 3 Planning Guide | Grade 4 Planning Guide | Grade 5 Planning Guide
Combined K-5 Planning Guide

What is Included in this Document?

Grade Level Pacing Guides
The Pacing Guide is a resource to support your year-long planning. The units can be taught in any order. In most units, the lessons build on one another. Therefore, we strongly recommend the lessons within each unit are taught in the sequence they are presented. 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.

Mystery Science - NGSS Alignment
Mystery Science is aligned to the Next Generation Science Standards (NGSS). Each lesson is aligned to a topic, performance expectation, science and engineering practice, disciplinary core idea, and crosscutting concept. This document explains how each lesson is aligned to the Next Generation Science Standards.

What are Read-Along Lessons?
Read-Along lessons are 30-45 minute lessons. Each lesson contains a digital read-along book that is meant to be read out loud with students and include opportunities to pause and engage in classroom discussion. They also include a short activity that may sometimes require supplies found in your classroom.

Generate Activity Supply Lists
To make planning easier, you can generate supply lists by grade, classroom, unit, or lesson using our Supply Calculator.

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Grade 1

Mystery Science recommends teaching the lessons within each unit in the order they are presented. The units themselves can be taught in any order. The lesson (exploration & activity) is designed to take 30-45 minutes per week. Extensions can expand upon each lesson. The Read-Along lessons offer an opportunity to develop students' literacy as they learn science.

	Animal Superpowers (5-10 weeks)	Plant Superpowers (3-6 weeks)	Sun & Shadows (4-8 weeks)	Moon & Stars (3-6 weeks)	Lights & Sounds (6-9 weeks)
Week 1	✨New!✨ Lesson 1: How can you help a lost baby animal find its parents? ***(1-LS3-1)***	✨New!✨ Lesson 1: What will a baby plant look like when it grows up? ***(1-LS3-1)***	Lesson 1: Could a statue's shadow move? ***(1-ESS1-1)***	✨New!✨ Lesson 1: When can you see the full moon? ***(1-ESS1-1)***	Lesson 1: How do they make silly sounds in cartoons? ***(1-PS4-1)***
Week 2	Lesson 2: Why do birds have beaks? ***(1-LS1-1)***	Lesson 2: Why don't trees blow down in the the wind? ***(1-LS1-1, K-2-ETS1-2, K-2-ETS1-3)***	Lesson 2 Read-Along: What does your shadow do when you're not looking? ***(1-ESS1-1)***	Lesson 2: Why do the stars come out at night? ***(1-ESS1-1)***	Lesson 2 Read-Along: Where do sounds come from? ***(1-PS4-1)***
Week 3	Lesson 3 Read-Along: Why do baby ducks follow their mother? ***(1-LS1-2)***	Lesson 3 Read-Along: What do sunflowers do when you're not looking? ***(1-LS1-1)***	Lesson 3: How can the sun help you if you're lost? ***(1-ESS1-1)***	Lesson 3 Read-Along: How can stars help you if you get lost? ***(1-ESS1-1)***	Lesson 3: What if there were no windows? ***(1-PS4-3)***
Week 4	Lesson 4: Why are polar bears white? ***(1-LS1-1)***		Lesson 4 Read-Along: Why do you have to go to bed early in the summer? ***(1-ESS1-2)***		Lesson 4 Read-Along: Can you see in the dark? ***(1-PS4-2)***
Week 5	Lesson 5 Read-Along: Why do family members look alike? ***(1-LS3-1)***				Lesson 5: How could you send a secret message to someone far away? ***(1-PS4-4, K-2-ETS1-2)***
Week 6					Lesson 6 Read-Along:How do boats find their way in the fog? ***(1-PS4-4)***

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.

More Science each week	Longer Science units	Cross Curricular Integration
Use items from the Extensions if you have more time.	Add a week after each lesson to teach items from the Extensions.	If you want to extend the lesson during literacy time, use reading and writing Extensions.

Animal Superpowers (5-10 weeks)

Animal Traits & Survival

Grade 1 Mystery Science & NGSS Alignment - Life Science (LS)

In this unit, students explore how parts of animals are essential for survival. Students also make observations of parents and their offspring, determining how they are similar and how their behaviors help offspring survive.

Grade 1 Life Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
✨New!✨ Lesson 1 How can you help a lost baby animal find its parents?	1-LS3-1	Parent & Offspring Traits	Observing baby animals together with their parents provides evidence for the similarities, but also the differences between them. Some animals are born looking extremely similar to their parents, while others take a while to grow and develop. Close observations of traits is fun, but also imperative for animal rescue organizations that need to identify and care for lost baby animals. **DCIs: LS3.A, LS3.B**	Students make close observations of baby bird images in order to examine their traits. They use this information to **construct an explanation** that the young birds have some similar traits to their parent birds, but there are many traits that also differ between them.	After students look closely at several different examples of baby animals and their parents, they observe the **pattern** that offspring do not look exactly the same, but do have many traits in common with their parents.
Lesson 1 Why do birds have beaks?	1-LS1-1	Animal Structures & Survival	All living things have body parts that help them survive and grow. Each kind of animal has special body parts that help them get the food they need to survive. Some animals use their hands, mouth, beaks, trunks, or tongues to eat their food. The shape of the body part they use to get food is best suited for the type of food the animal eats. **DCIs: LS1.A**	Students **model** how different bird beaks are well suited for eating different kinds of foods. Students **conduct an investigation** to figure out how much food (straw pieces) they can pick up using each beak. **Analyzing these results**, students construct **arguments using their evidence** about which beak would help the birds survive in different environments.	Students consider the relationship between the shape of a bird's beak **(structure)**, and the food it eats **(function)**.They begin to observe the **pattern** that all animals have structures that help them accomplish unique functions.
Lesson 2 Read-Along Why do baby ducks follow their mother? 📖	1-LS1-2	Animal Behavior & Offspring Survival	Offspring, the children of living things, need to get their needs met in order to survive. All offspring need food, shelter, protection, and comfort. They also need to learn how to survive on their own. Animal parents (including humans) have the important job of teaching their offspring how to survive before they grows up. Offspring learn from their parents and rely on them to meet their survival needs when they are young. **DCIs: LS1.B**	Students **obtain information** about different animal mothers engaging in behavior to help their offspring survive. They **evaluate and communicate the information** by discussing why each animal mother does each behavior for her offspring.	Students consider the **patterns** in behavior of parents and offspring that help offspring survive.

(continued)

Animal Superpowers (5-10 weeks)

Animal Traits & Survival

Grade 1 Mystery Science & NGSS Alignment - Life Science (LS)

Grade 1 Life Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
Lesson 4 Why are polar bears white?	1-LS1-1	Camouflage & Animal Survival	This lesson continues the exploration that animals have body parts to help them survive and grow. Animals have different behaviors and body parts that help protect themselves from danger. The color of an animal's fur, feather, skin, or scales can help them blend in with their habitat. Camouflage helps both prey and predators survive! **DCIs: LS1.A**	Students **model** how camouflage helps moths survive by **carrying out an investigation** with differently patterned paper moths and trees. They see how many moths they can find in the paper forest. Moths that match the pattern of the tree will be harder to see, while moths that are patterned differently than the tree will be much more visible. Students make an **argument** about which moths a hungry bird would eat first based on **evidence** from their investigation. Next, they choose a place in the classroom and design their own moth that will camouflage into the area.	Students consider the relationship between the color of an animal's fur, feathers, or skin **(structure)**, and how this helps it survive in its habitat **(function)**.They begin to observe the **pattern** that all animals have structures that help them survive.
Lesson 5 Read-Along Why do family members look alike? 📖	1-LS3-1	Inheritance & Variation of Traits	All living things share similar characteristics with their parents. For example, a baby duckling looks like a duck, not a cow! You'll notice that young animals and plants look similar to their parents, but not identical. **DCIs: LS3.A, LS3.B**	Students use observations of animal parents and their offspring to **construct an explanation** about young plants and animals being similar, but not identical, to their parents. They play the game MatchUp, between mother and baby animals, using their knowledge of similar characteristics.	Students consider shared characteristics between parents and their offspring as a **pattern**.

Plant Superpowers (3-6 weeks)

Plant Traits & Survival

Grade 1 Mystery Science & NGSS Alignment - Life Science (LS)

In this unit, students explore how parts of plants are essential for survival. Students also make observations of plant parents and their offspring, determining how they are alike and different.

Grade 1 Life Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
✨New!✨ Lesson 1 What will a baby plant look like when it grows up?	1-LS3-1	Plant Traits & Offspring	Plants have specific parts such as roots, stems, and leaves. Examining these traits can help to identify a plant. To know what a baby plant (seedling) will look like when it grows up into an adult plant, you can observe traits of the parent plant because young plants look very similar to their parent plant. **DCIs: LS3.A**	Students make observations from images and videos of plants to examine their traits. They use this information to **construct an explanation** that the young plants have similar traits to their parent plants.	As students examine the leaves and stems of plants, students discover the **pattern** that offspring look similar to their parent plants.
Lesson 2 Why don't trees blow down in the wind?	1-LS1-1 K-2-ETS1-2 K-2-ETS1-3	Plant Survival & Engineering	All living things have structures, or external parts. Animals use their body parts to help them survive, grow, and communicate. Plants also have external parts that help them to survive. Humans can mimic the structure and function of an animal or plant's external parts to design solutions to their problems. **DCIs: LS1.A, ETS1.A, ETS1.B, ETS1.C**	Students **develop a model** of an umbrella and **conduct an investigation** to test wind's effect on it. Students **design a solution** to solve the problem of needing a shade structure that won't blow over in the wind, by mimicking a tree's external part.	Students observe the relationship between a tree's roots and leaves (**structure**) and how they help the tree stand in the wind (**function**). They apply this relationship in a natural object to a designed object.
Lesson 3 Read-Along What do sunflowers do when you're not looking? 📖	1-LS1-1	Plant Movement & Survival	Sunflowers move throughout the day so that they are always facing the sun! Their stem bends so that the sunflower always gets as much sun as possible to help it grow. The flower starts the day facing east, where the sun rises, and ends the day facing west, where the sun sets. **DCIs: LS1.A, LS1.D**	Students **conduct an investigation** to test how plants respond to light. They observe how the direction a plant grows depends on the position of the light.	Students observe the relationship between a sunflower's flower and stem **(structure)** and how the flower parts bend to get as much sun as possible throughout the day **(function)**. This response to the environment helps sunflowers grow.

Sun & Shadows (4-8 weeks)

Day Patterns

Grade 1 Mystery Science & NGSS Alignment - Earth & Space Science (ESS)

In this unit, students observe that the Sun and shadows seem to move in patterns. The make observations of the Sun and shadows throughout the day and across the seasons.

Grade 1 Earth & Space Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
Lesson 1 Could a statue's shadow move?	1-ESS1-1	Sun, Shadows, & Daily Patterns	Patterns of motion are all around us; they're even in the sky! If you observe a still object throughout the day, you'll see that its shadow changes. The Sun doesn't stay in the same place all day. It is the Sun's movement across the sky that changes the shape of an object's shadow. **DCIs: ESS1.A**	Students **conduct two investigations**. In the first, they place a gnome in the sun and trace its shadow. They **observe** how the shadow changes as time passes, or as the sun moves across the sky. In their second **investigation**, they use model gnomes to **analyze** how to move a light source to change the shape and length of the shadow of the gnome. **Interpreting this data**, they **construct an explanation** about what causes a shadow to move.	Students consider the movement of shadows to be caused by the **pattern** of the sun's movement across the sky.
Lesson 2 Read-Along What does your shadow do when you're not looking? 📖	1-ESS1-1	Sun, Shadows, & Daily Patterns	Each day, the Sun moves across the sky in an arch shape. It is low in the mornings, high in the afternoon, and low again in the evenings. When the Sun is low in the sky, it makes shadows long. When it is high in the sky, shadows are short. If you look closely, you'll notice your shadow also changes sides in the morning and evening. **DCIs: ESS1.A**	Students **conduct an investigation** to gather information about how their shadow changes throughout the day. They trace their shadow in the morning and afternoon, then **analyze the data** to identify differences in the shadows. Using the data, they **construct an explanation** about why their shadows point in different directions.	Students explain changes in shadows by considering the **patterns** in the Sun's movement across the sky. They identify the **cause and effect** relationship between the height of the Sun in the sky and a shadow's length and direction.
Lesson 3 How can the sun help you if you're lost?	1-ESS1-1	Sun & Daily Patterns	The Sun's movement across the sky is a pattern! We can use its path to help us figure out the direction we're headed. Since we know the Sun always rises in the east, moves across the sky, and sets in the west, we can use the time of day and the Sun's position to figure out which way is east and which way is west. **DCIs: ESS1.A**	Students develop a Sun Finder, a **model** of the Sun's movement across the sky. **Using the model**, they reason about how the sun can help guide them during the day. Since they know that they walked toward the Sun to get to their friend's house in the morning, they must use **evidence to argue** whether they should walk toward or away from the Sun to get home in the afternoon.	Students analyze the **pattern** of the Sun's movement across the sky each day.

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Sun & Shadows (4-8 weeks)

Day Patterns

Grade 1 Mystery Science & NGSS Alignment - Earth & Space Science (ESS)

Grade 1 Earth & Space Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
Lesson 4 Read-Along Why do you have to go to bed early in the summer? 📖	1-ESS1-2	Daylight & Seasonal Patterns	Depending on the season, it takes different amounts of time for the Sun to move across the sky. This makes it seem like some seasons have longer days, and others have shorter days. During the summer, the Sun rises earlier and sets later - there are *more* hours of daylight. In the winter, the Sun rises later and sets earlier - there are *less* hours of daylight. **DCIs: ESS1.B**	Students **obtain information** about the seasonal patterns of sunrise and sunset through a printable student reader. Students read the text independently to determine seasonal daylight patterns.	Students consider the **pattern** that there are more hours of daylight during the summer than there are in the winter.

Moon & Stars (3-6 weeks)

Night Patterns

Grade 1 Mystery Science & NGSS Alignment - Earth & Space Science (ESS)

In this unit, students observe that the Moon and stars seem to move in patterns in the sky. They also determine why stars are only visible at night.

Grade 1 Earth & Space Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
✨**New!**✨ Lesson 1 When can you see the full moon?	1-ESS1-1	Moon Phases & Patterns	When the Moon appears as a full moon, it looks like a large bright circle in the sky. But the Moon doesn't always appear to be this shape. The bright part of the Moon can appear as different shapes. But is there a pattern to the shapes - do they follow a cycle? If so, then we can use that information to predict when the next full moon will appear. **DCIs: ESS1.A**	Students make observations of the Moon's appearance over the course of four weeks, drawing pictures of each moon phase. Then, students **analyze the data** they've gathered in order to answer the question of when the full moon will appear.	Students discover that the Moon's phases follow a cyclical **pattern** that repeats every four weeks (each month).
Lesson 2 Why do the stars come out at night?	1-ESS1-1	Stars & Daily Patterns	It seems that stars only come out at night, but they are actually always there. It's just that we can only *see* them at night. We can't see stars during the day because the Sun is out and its brightness outshines the stars. When the Sun sets, the stars are not outshone and you can see them. It isn't just the Sun that outshines stars, this is true about any bright light. If the moon is very bright, or there are bright city lights, it will be harder to see stars. **DCIs: ESS1.A**	Students **develop and use a model** of the Big Dipper in the night sky. They **carry out an investigation** to determine why stars are only visible in the night sky. Students **construct an explanation** about the stars being outshone by the Sun in the daytime sky, and then being visible again when the Sun sets.	Students consider the **pattern** that the stars are only visible in the night sky. They explore the **cause and effect** relationship between the Sun's brightness and the visibility of the stars.
Lesson 3 Read-Along How can stars help you if you get lost? 📖	1-ESS1-1	Stars & Seasonal Patterns	There are groups of stars in the sky that form a pattern; they are called constellations. One constellation, the Big Dipper, can help us find where the North Star is! Even though the Big Dipper changes its spot in the sky in different seasons, it always points to the North Star. **DCIs: ESS1.A**	Students **obtain, evaluate, and communicate information** about the cardinal directions. They **conduct an investigation** to determine which direction each part of their classroom is facing.	Students consider the **pattern** that stars are in different places in the sky during different seasons. They consider the **pattern** that the Big Dipper help us find the North Star.

Lights & Sounds (6-9 weeks)

Properties of Light & Sound

Grade 1 Mystery Science & NGSS Alignment - Physical Science (PS)

In this unit, students investigate light and sound! They explore how materials vibrate and how vibrating materials can make sounds. They also investigate light and illumination and use those investigations to create simple devices that allow them to communicate across a distance.

Grade 1 Physical Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
Lesson 1 How do they make silly sounds in cartoons?	1-PS4-1	Sounds & Vibrations	There are so many different types of sounds! Some are loud, soft, high, low, or even silly. People are capable of making a lot of different sounds. Each sound is made with a back and forth movement, called a vibration. Different vibrations make different sounds. **DCIs: PS4.A**	Students **carry out investigations** exploring how to make different sounds. First, they use their hands and feet to make the sounds of a rain storm. Next, they use the vibration of a ruler to create a 'boing' sound as the soundtrack to a bouncing ball animation. Students **construct the explanation** that objects vibrate when they make a sound, and if the vibration stops, the sound stops as well.	Students consider the relationship between vibrations **(cause)** and sound **(effect)**.
Lesson 2 Read-Along Where do sounds come from? 📖	1-PS4-1	Sounds & Vibrations	Sounds are caused by an object vibrating. If a vibration stops, then the sound will stop too. Musical instruments make many unique and interesting sounds! When an instruments makes music, it comes from a part of the instrument vibrating. **DCIs: PS4.A**	Students **carry out investigations** to explore different sounds and how they are created. They create three different sound makers and **construct an explanation** about where the vibrations are happening in each sound experiment.	Students consider the relationship between vibrations **(cause)** and sound **(effect)**.
Lesson 3 What if there were no windows?	1-PS4-3	Light, Materials, Transparent & Opaque	Glass is a transparent material, it is see-through and light can pass through it. Imagine what life would have been like with no glass. There would have been no windows, no eyeglasses, and even no windshields in a car! There are also materials that are *somewhat* see-through (some light can pass through) called translucent materials. Materials that are not see-through at all (no light can pass through) are called opaque materials. **DCIs: PS4.B**	Students **investigate** the difference between transparent, translucent, and opaque materials by sorting them. They determine whether a material is transparent, translucent or opaque. Students then create a stained glass window using tissue paper. In this activity, they **construct an argument** to answer what happens to tissue paper when it is layered.	Students reason about the **cause and effect** relationship between the type of material (cause) and the amount of light that can pass through it (effect).

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Lights & Sounds (6-9 weeks)

Properties of Light & Sound

Grade 1 Mystery Science & NGSS Alignment - Physical Science (PS)

Grade 1 Physical Science	Performance Expectations	Focus	Disciplinary Core Ideas (DCIs) (Lesson Conceptual Flow)	Scientific & Engineering Practices (SEPs)	Crosscutting Concepts (CCC)
Lesson 4 Read-Along Can you see in the dark? 📖	1-PS4-2	Light & Illumination	If you've ever been in a completely dark space, you know you can't see anything! Even the slightest bit of light helps us see our surroundings. In a dark room there is often light from the hallway coming in through the crack under the door. The night sky is full of bright stars, and roads have street lights. Objects can only be seen if they are illuminated or give off their own light. **DCIs: PS4.B**	Students **carry out an investigation** using a Mystery Box. They look inside the completely dark box to see if they can see the shape of the object inside. They allow more light in through peepholes to illuminate the object and allow them to see it. Students use their observations to **construct the explanation** that objects need light to be seen.	Students consider the **cause and effect** relationship between light (cause) and being able to see objects (effect).
Lesson 5 How could you send a secret message to someone far away?	1-PS4-4 K-2-ETS1-2	Light, Communication, & Engineering	People use many different devices to communicate over long distances. Cell phones and iPads help us communicate with people far away, but they had to be invented. People don't just communicate with sound, we can also use light. A great example is a traffic light which tells cars to go, slow down, or stop using light signals. **DCIs: PS4.C, ETS1.B**	Students are presented with the problem that they need to send a message at night, without using noise. They **design a solution** with a partner by correlating light colors to a specific message. Using their secret code, partners take turns communicating information across the room with light signals.	Students consider light signals and their understood meaning as a **pattern**.
Lesson 6 Read-Along How do boats find their way in the fog? 📖	1-PS4-4	Lights, Sounds, & Communication	Colors, lights, and sounds help us communicate over long distances. Sounds can even help us communicate when it is difficult to see. People who drive cars and boats use colors, lights, and sounds to help them find their way around the road or sea. **DCIs: PS4.C**	Students **obtain information** about light and sound signals. They play red light/green light to practice responding to common signals. Students **conduct an investigation** of different sounds. They find their 'sound partner'--the student who has the same sound object in their cup. Students **analyze** different sounds with their eyes closed. They determine which type of sound they heard.	Students consider that different light and sound signals form a **pattern** used for communication.