

Mystery Science Alignment with Florida Science Standards



Mystery Science is a hands-on curriculum that aligns with the Florida Next Generation Sunshine State Standards.

Mystery Science's units of study contain:

- Hands-on, easy-prep activities with EVERY lesson
- Engaging, real-world investigative phenomena
- Thoughtful discussions to build background knowledge
- Lesson & unit assessments to evaluate comprehension
- Curated, cross-curricular extensions

Mystery Science also offers the Anchor Layer, which enriches the unit with an anchor phenomenon, incorporates anchor connections after each lesson, & concludes the unit with a performance task.

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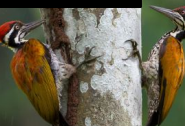
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Animal Needs (Animal Secrets)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Animal Needs: Food Why do woodpeckers peck wood?	Students obtain information through virtual observations of different animal behaviors. They use this evidence to explain that one of the basic needs of animals is food.	K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.
Lesson 2 	Animal Needs: Shelter Read-Along Where do animals live?	Students obtain information through media about how different animal homes are built. They use this evidence to explain that animals need shelter.	K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.
Lesson 3 	Animal Needs: Safety How can you find animals in the woods?	Students obtain information through virtual observations of different animal behaviors. They use this evidence to explain that one of the basic needs of animals is shelter.	K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.
Lesson 4 	Animals & Changing the Environment Read-Along How do animals make their homes in the forest?	Students take a nature walk to look for evidence of animal homes.	K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.

Plant Needs (Plant Secrets)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Living & Nonliving Are plants alive?	Students make observations of plants in order to identify their needs and that they are, in fact, living things.	K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.
Lesson 2 	Plant Needs: Water & Light How do plants and trees grow?	Students investigate to determine the basic needs of plants. They observe to identify ways young plants resemble the parent plant and how the plant changes as it proceeds through its life cycle.	K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.
Lesson 3 	Human Impacts on the Environment Read-Along Why would you want an old log in your backyard?	Students obtain evidence of living organisms by virtually keeping watch of a log and the living things that visit it.	K.L.14.3 Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do.

Florida Specific Standard: K.L.14.1 Recognize the five senses and related body parts.

Florida Specific Standard: K.L.14.2 Recognize that some books and other media portray animals and plants with characteristics and behaviors they do not have in real life.

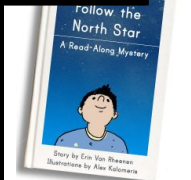
Day Patterns (Sun & Shadows)

This unit is found under 1st grade on our site, but we recommend teaching lessons in Kindergarten if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Sun, Shadows, & Daily Patterns Could a statue's shadow move?	Students observe how shadows change as time passes, or as the Sun moves across the sky. They analyze how to move a light source to change the shape and direction of shadows, constructing an explanation of what causes a shadow to move.	K.E.5.2 Recognize the repeating pattern of day and night.
Lesson 2 	Sun, Shadows, & Daily Patterns Read-Along What does your shadow do when you're not looking?	Students conduct an investigation to gather information about how their shadow changes throughout the day.	K.E.5.2 Recognize the repeating pattern of day and night.
Lesson 3 	Sun & Daily Patterns How can the Sun help you if you're lost?	Students develop a Sun Finder, a model of the Sun's movement across the sky. They use this model to reason about how the Sun can help guide them during the day.	K.E.5.2 Recognize the repeating pattern of day and night. K.E.5.3 Recognize that the Sun can only be seen in the daytime.
Lesson 4 	Daylight & Seasonal Patterns Read-Along Why do you have to go to bed early in the summer?	Students obtain information about the seasonal patterns of sunrise and sunset.	K.E.5.2 Recognize the repeating pattern of day and night. K.E.5.3 Recognize that the Sun can only be seen in the daytime.

Night Patterns (Moon & Stars)

This unit is found under 1st grade on our site, but we recommend teaching lessons in Kindergarten if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Moon Phases & Patterns When can you see the full moon?	Students record observations of the Moon's shape using a series of photos collected over the course of four weeks. Using this information, students discover that the Moon follows a cyclical pattern, which they can use to predict when a full moon will appear.	K.E.5.4 Observe that sometimes the Moon can be seen at night and sometimes during the day.
Lesson 2 	Stars & Daily Patterns Why do stars come out at night?	Students develop and use a model of the Big Dipper in the night sky. After conducting a simple investigation, students construct an explanation for why stars are only visible in the night sky.	1.E.5.1 Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky.
We recommend teaching this in 1st Grade if following Florida Standards.			
Lesson 3 	Stars & Seasonal Patterns Read-Along How can stars help you if you get lost?	Students observe that groups of stars in the sky form a pattern: constellations. Even though the Big Dipper changes its spot in the sky in different seasons, it always points to the North Star.	1.E.5.1 Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky. 1.E.5.3 Investigate how magnifiers make things appear bigger and help people see things they could not see without them.
We recommend teaching this in 1st Grade if following Florida Standards.			

Florida Specific Standard:

K.E.5.5 Observe that things can be big and things can be small as seen from Earth.
K.E.5.6 Observe that some objects are far away and some are nearby as seen from Earth.
 The following mini-lesson can be used to support Florida Specific Science Standards.

Florida Specific Standard:

K.E.5.1 Explore the Law of Gravity by investigating how objects are pulled toward the ground unless something holds them up.
 The following mini-lesson can be used to support Florida Specific Science Standards.

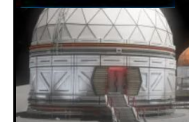
Mini-lesson



K.E.5.5, K.E.5.6

What is the Moon made of?

Mini-lesson



K.E.5.1

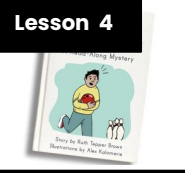
What would it be like to live on the Moon?

Light, Sound, & Communication (Lights & Sounds)

This unit is found under 1st grade on our site, but we recommend teaching lessons in Kindergarten if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Sounds & Vibrations How do they make silly sounds in cartoons?	Students explore how to make different sounds with everyday objects. They construct an explanation that objects vibrate when they make a sound, and if the vibration stops, the sound stops.	K.P.10.1 Observe that things that make sound vibrate.
Lesson 2 	Sounds & Vibrations Read-Along Where do sounds come from?	Students create three different sound makers and construct an explanation about where the vibrations are happening in each sound experiment.	K.P.10.1 Observe that things that make sound vibrate.
Lesson 3 	Light, Materials, Transparent & Opaque What if there were no windows?	Students investigate the properties of different materials that they can and cannot see through. Then they create a stained glass window using tissue paper to explore how materials interact with light.	K.P.8.1 Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light) and texture.
Lesson 4 	Light & Illumination Read-Along Can you see in the dark?	Students look inside a completely dark box to determine if they can see the shape of the object inside. They allow more light into the box to illuminate the object and allow them to see it. Students use their observations explain that objects need light to be seen.	3.P.10.1 Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical. 3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.
We recommend teaching this in 3rd Grade if following Florida Standards.			
Lesson 5 	Light, Communication, & Engineering How could you send a secret message to someone far away?	Students are presented with the problem that they need to send a message at night, without using noise. They design a solution to create a color-coded message system and communicate with light signals.	3.P.10.1 Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical. 3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.
We recommend teaching this in 3rd Grade if following Florida Standards.			
Lesson 6 	Lights, Sounds, & Communication Read-Along How do boats find their way in the fog?	Students obtain information about light and sound signals. They analyze different sounds with eyes closed to determine which type of sound they hear.	K.P.10.1 Observe that things that make sound vibrate.

Pushes & Pulls (Force Olympics)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Pushes & Pulls What's the biggest excavator?	Students observe different machines and use those observations as evidence for why machines make work easier.	K.P.12.1 Investigate that things move in different ways, such as fast, slow, etc. K.P.13.1 Observe that a push or pull can change the way an object is moving.
Lesson 2 	Pushes, Pulls, & "Work Words" Read-Along Why do builders need so many big machines?	Students observe construction equipment being used in different ways to move objects.	K.P.12.1 Investigate that things move in different ways, such as fast, slow, etc. K.P.13.1 Observe that a push or pull can change the way an object is moving.
Lesson 3 	★ Strength of Pushes & Pulls How can you knock down a heavy wall?	Students carry out an investigation to determine the strength of a model wrecking ball's push needed to knock down a wall, but not the houses behind it.	1.P.13.1 Demonstrate that the way to change the motion of an object is by applying a push or a pull.
We recommend teaching this in 1st Grade if following Florida Standards.			
Lesson 4 	Speed & Direction of Force Read-Along How can you knock down the most bowling pins?	Students play a game of bumper bowling to observe the way that objects can move in straight lines, zigzags, and back and forth.	1.P.13.1 Demonstrate that the way to change the motion of an object is by applying a push or a pull.
We recommend teaching this in 1st Grade if following Florida Standards.			
Lesson 5 	Direction of Motion & Engineering How can we protect a mountain town from falling rocks?	Students conduct an investigation of how to protect a town from a falling boulder. They design a solution to safely guide the direction of the boulder away from the town.	1.P.12.1 Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.
We recommend teaching this in 1st Grade if following Florida Standards.			
Lesson 6 	Forces & Engineering Read-Along How could you invent a trap?	Students define a problem they would like to solve and then design a solution using what they know about the locations of objects and how they can move.	1.P.13.1 Demonstrate that the way to change the motion of an object is by applying a push or a pull.
We recommend teaching this in 1st Grade if following Florida Standards.			

Florida Specific Standard: K.P.9.1 Recognize that the shape of materials such as paper and clay can be changed by cutting, tearing, crumpling, smashing, or rolling. The following mini-lesson can be used to support Florida Specific Science Standards.

Mini-lesson



K.P.9.1

What's the biggest apple in the world?

Animal Traits & Survival (Animal Superpowers)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Parent & Offspring Traits How can you help a lost baby animal find its parents?	Students observe the traits of adult and baby animals in order to construct an explanation that most young animals are like, but not exactly like, their parents.	1.L.16.1 Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.
Lesson 2 	Offspring Trait Variation Can you predict what an animal's babies will look like?	Students observe the traits of parent and baby animals to construct an explanation that offspring look similar to their parents, but can also vary in many ways. They predict what a puppy might look like based on the traits of the parent dogs.	1.L.16.1 Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population.
Lesson 3 	★ Parent & Offspring Behavior Why are baby birds so loud?	Students make observations to obtain information about the behaviors of animal parents and their offspring. They identify patterns in animal behaviors that help offspring survive.	1.L.16.1 Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population. 1.L.17.1 Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.
Lesson 4 	Animal Structures & Survival Why do birds have beaks?	Students investigate how different bird beaks are well suited for eating different kinds of food. They explain which beak would help a particular bird survive in a particular environment.	1.L.17.1 Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.
Lesson 5 	Camouflage & Animal Survival Why are polar bears white?	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.	1.L.17.1 Through observation, recognize that all plants and animals, including humans, need the basic necessities of air, water, food, and space.

Plant Traits & Survival (Plant Superpowers)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Plant Traits & Offspring What will a baby plant look like when it grows up?	Students observe seedlings and adult plants and use their observations to identify the pattern that young plants are similar to their parent plants.	1.L.16.1 Make observations that plants and animals closely resemble their parents, but variations exist among individuals within a population. 1.L.14.2 Identify the major parts of plants, including stem, roots, leaves, and flowers.
Lesson 2 	Plant Survival & Engineering Why don't trees blow down in the wind?	Students learn how plants respond to light. They conduct an investigation to compare how the parts of a plant respond to light.	1.L.14.2 Identify the major parts of plants, including stem, roots, leaves, and flowers.
Lesson 3 	Plant Movement & Survival Read-Along What do sunflowers do when you're not looking?	Students learn how plants respond to light. They conduct an investigation to compare how the parts of a plant respond to light.	1.L.14.2 Identify the major parts of plants, including stem, roots, leaves, and flowers.

This concept is covered in Kindergarten

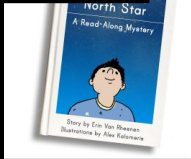
Florida Specific Standard:
1.L.14.3 Differentiate between living and nonliving things.

Florida Specific Standard:
1.L.14.1 Make observations of living things and their environments using the five senses.

Florida Specific Standard: **1.E.5.2** Explore the Law of Gravity by demonstrating that Earth's gravity pulls any object on or near Earth toward it even though nothing is touching the object.

Florida Specific Standard: **1.E.5.4** Identify the beneficial and harmful properties of the Sun.

Night Patterns (Moon & Stars)

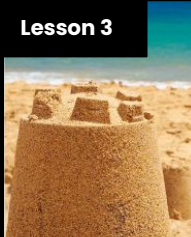
	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Moon Phases & Patterns When can you see the full moon?	<i>Students record observations of the Moon's shape using a series of photos collected over the course of four weeks. Using this information, students discover that the Moon follows a cyclical pattern, which they can use to predict when a full moon will appear.</i>	K.E.5.4 Observe that sometimes the Moon can be seen at night and sometimes during the day.
We recommend teaching this in Kindergarten if following Florida Standards.			
Lesson 2 	Stars & Daily Patterns Why do stars come out at night?	Students develop and use a model of the Big Dipper in the night sky. After conducting a simple investigation, students construct an explanation for why stars are only visible in the night sky.	1.E.5.1 Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky.
Lesson 3 	Stars & Seasonal Patterns Read-Along How can stars help you if you get lost?	Students observe that groups of stars in the sky form a pattern: constellations. Even though the Big Dipper changes its spot in the sky in different seasons, it always points to the North Star.	1.E.5.1 Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky. 1.E.5.3 Investigate how magnifiers make things appear bigger and help people see things they could not see without them.

This concept is covered in 5th Grade

Florida Specific Standard: 3.E.5.4 Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome.

Erosion & Earth's Surface (Work of Water) • Page 1 of 2

This unit is found under 2nd grade on our site, but we recommend teaching lessons in 1st grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Mapping Landforms & Bodies of Water Where's the best place to hide a treasure?	Students develop a model (a map) of different landforms and bodies of water in a given location based on the shape of each feature.	1.E.6.1 Recognize that water, rocks, soil, and living organisms are found on Earth's surface.
Lesson 2 	Mapping: Mountains & Rivers If you floated down a river, where would you end up?	Students develop a model of the Earth's surface and use it to discover an important principle about how rivers work: rivers flow downhill, from high places to low places.	1.E.6.1 Recognize that water, rocks, soil, and living organisms are found on Earth's surface.
Lesson 3 	Rocks, Sand, & Erosion Why is there sand at the beach?	<i>Students investigate the effects of rocks tumbling in a river. Based on their observations, they construct an explanation for why rocks on the top of mountains are much bigger than the sand at the beach.</i>	2.E.6.1 Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes. 2.E.6.2 Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed.
We recommend teaching this in 2nd Grade if following Florida Standards.			
Lesson 4 	Mapping & Severe Weather Where do flash floods happen?	Students use a model (i.e. a map) to examine the different factors, including the shapes and kinds of land, that contribute to flash floods. They use this to predict where flash floods are most likely to happen.	1.E.6.3 Recognize that some things in the world around us happen fast and some happen slowly.
Lesson 5 	Erosion, Earth's Surface, & Landforms What's strong enough to make a canyon?	Students create a model landform and investigate how some Earth events can occur quickly, while others occur slowly.	1.E.6.3 Recognize that some things in the world around us happen fast and some happen slowly.

Unit continued on the next page

Erosion & Earth’s Surface (Work of Water) • Page 2 of 2

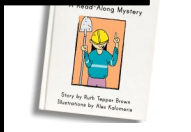
This unit is found under 2nd grade on our site, but we recommend teaching lessons in 1st grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 6 	Erosion & Engineering How can you stop a landslide?	Students compare multiple solutions for preventing erosion.	1.E.6.3 Recognize that some things in the world around us happen fast and some happen slowly.

Florida Specific Standard: **1.E.6.2** Describe the need for water and how to be safe around water.

Pushes & Pulls (Force Olympics)

This unit is found under Kindergarten on our site, but we recommend teaching lessons in 1st grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Pushes & Pulls What's the biggest excavator?	Students observe different machines and use those observations as evidence for why machines make work easier.	K.P.12.1 Investigate that things move in different ways, such as fast, slow, etc. K.P.13.1 Observe that a push or pull can change the way an object is moving.
We recommend teaching this in Kindergarten if following Florida Standards.			
Lesson 2 	Pushes, Pulls, & "Work Words" Read-Along Why do builders need so many big machines?	Students observe construction equipment being used in different ways to move objects.	K.P.12.1 Investigate that things move in different ways, such as fast, slow, etc. K.P.13.1 Observe that a push or pull can change the way an object is moving.
We recommend teaching this in Kindergarten if following Florida Standards.			
Lesson 3 	★ Strength of Pushes & Pulls How can you knock down a heavy wall?	Students carry out an investigation to determine the strength of a model wrecking ball's push needed to knock down a wall, but not the houses behind it.	1.P.13.1 Demonstrate that the way to change the motion of an object is by applying a push or a pull.
Lesson 4 	Speed & Direction of Force Read-Along How can you knock down the most bowling pins?	Students play a game of bumper bowling to observe the way that objects can move in straight lines, zigzags, and back and forth.	1.P.13.1 Demonstrate that the way to change the motion of an object is by applying a push or a pull.
Lesson 5 	Direction of Motion & Engineering How can we protect a mountain town from falling rocks?	Students conduct an investigation of how to protect a town from a falling boulder. They design a solution to safely guide the direction of the boulder away from the town.	1.P.12.1 Demonstrate and describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.
Lesson 6 	Forces & Engineering Read-Along How could you invent a trap?	Students define a problem they would like to solve and then design a solution using what they know about the locations of objects and how they can move.	1.P.13.1 Demonstrate that the way to change the motion of an object is by applying a push or a pull.

This concept is covered in Kindergarten and 2nd Grade

Florida Specific Standard: 1.P.8.1 Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light), texture, and whether objects sink or float.

Animal Biodiversity & Habitats (Animal Adventures)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Biodiversity & Classification How many different kinds of animals are there?	Students observe the traits of different animals and use that information to organize them into groups based on their characteristics.	3.L.11.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.
We recommend teaching this in 3rd grade if following Florida Standards.			
Lesson 2 	Habitat Diversity Why would a wild animal visit a playground?	Students observe animals, plants, and the physical characteristics of two different habitats. They collect and analyze data to compare the biodiversity between the two habitats.	2.L.17.2 Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs. 2.L.17.1 Compare and contrast the basic needs that all living things, including humans, have for survival.
Lesson 3 	Biodiversity, Habitats, & Species Why do frogs say "ribbit"?	Students identify frogs based on their unique calls and use that information to determine the level of frog species diversity within multiple habitats.	2.L.17.2 Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.
Lesson 4 	Biodiversity & Engineering How could you get more birds to visit a bird feeder?	Students investigate which kinds of birds are likely to visit a bird feeder based on what they eat and design and build a prototype bird feeder that attracts a specific type of bird.	2.L.17.2 Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.

Florida Specific Standard:

2.L.16.1 Observe and describe major stages in the life cycle of plants and animals, including beans and butterflies.
The following mini-lesson can be used to support Florida Specific Science Standards.

Mini-lesson


2.L.16.1
 Are butterflies the only animals that start out as caterpillars?

Florida Specific Standard:

2.L.14.1 Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.
The following mini-lesson can be used to support Florida Specific Science Standards.

Mini-lesson


2.L.14.1
 Why does our skeleton have so many bones?

Severe Weather (Wild Weather)

This unit is found under Kindergarten on our site, but we recommend teaching lessons in 2nd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Severe Weather & Preparation Read-Along How can you get ready for a big storm?	Students obtain information of different types of severe weather to observe and describe how the weather changes during these events and what students can do to prepare and stay safe.	2.E.7.5 State the importance of preparing for severe weather, lightning, and other weather related events.
Lesson 2 	Wind & Storms Have you ever watched a storm?	Students create a simple tool that allows them to observe how hard the wind is blowing. They use this tool to observe weather changes and describe the pattern of faster wind speeds right before a storm.	2.E.7.4 Investigate that air is all around us and that moving air is wind. 2.E.7.1 Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.
Lesson 3 	Weather Conditions How many different kinds of weather are there?	Students obtain information through observations of the weather. They communicate the information by acting as weather watchers and creating drawings of the weather conditions.	2.E.7.1 Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.

This concept is covered in 5th Grade

Florida Specific Standard: 2.P.8.5 Measure and compare temperatures taken every day at the same time.

Weather Patterns (Circle of Seasons)

This unit is found under Kindergarten on our site, but we recommend teaching lessons in 2nd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Daily Weather Patterns Read-Along How do you know what to wear for the weather?	Students track the weather daily and analyze the data by collecting, recording, and sharing their observations to observe patterns of weather changing throughout the day and from day-to-day.	2.E.7.1 Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.
Lesson 2 	Seasonal Weather Patterns What will the weather be like on your birthday?	Students evaluate information in a series of unnamed drawings of each season. They use these clues to identify characteristics of each season and describe the yearly cyclical pattern.	2.E.7.1 Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.
Lesson 3 	Animals Changing Their Environment Why do birds lay eggs in the spring?	Students identify the reasons why birds lay eggs in the spring. Then, they develop a bird nest model and use this model as evidence for how animals can change the environment to meet their needs.	2.E.7.1 Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.

Material Properties (Material Magic)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Material Properties & Engineering Why do we wear clothes?	Students investigate different material properties, such as flexibility and absorbency, and use those properties to design and build a hat that protects them from the sun.	2.P.9.1 Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration. 2.P.8.1 Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.
Lesson 2 	Classify Materials: Insulators & Conductors Can you really fry an egg on a hot sidewalk?	Students conduct an investigation of conductors and insulators in order to determine which are best suited for allowing people to handle hot items.	2.P.10.1 Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars.
Lesson 3 	Material Building Blocks & Engineering Could you build a house out of paper?	Students construct an evidence-based account of how a structure built of paper can be disassembled and rebuilt in new ways.	2.P.9.1 Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.
Lesson 4 	Soil & Properties How do you build a city out of mud?	Students conduct an investigation where they examine three different soil models. They use this information to determine which type of soil has the properties that will result in the best mud that can be used to build a house.	2.E.6.3 Classify soil types based on color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.

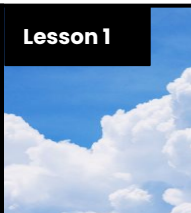
Erosion & Earth's Surface (Work of Water)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Rocks, Sand, & Erosion Why is there sand at the beach?	Students investigate the effects of rocks tumbling in a river. Based on their observations, they construct an explanation for why rocks on the top of mountains are much bigger than the sand at the beach.	2.E.6.1 Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes. 2.E.6.2 Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed.

States of Matter (States of Matter)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Liquid Water & Solid Ice Where do animals find the water they need?	Students obtain information about the liquid water and solid ice that different animals utilize for their survival in the Arctic.	2.P.8.4 Observe and describe water in its solid, liquid, and gaseous states. 2.P.8.3 Recognize that solids have definite shape and that liquids and gases take the shape of their container.
Lesson 2 	Reversible & Irreversible Changes How is an ice cube like a crayon?	Students observe the properties of different materials after being heated up and then cooled down. They use these observations to support the explanation that some changes are reversible and others are not.	2.P.8.3 Recognize that solids have definite shape and that liquids and gases take the shape of their container. 2.P.9.1 Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.
Lesson 3 	Heating, Cooling, & States of Matter Why are so many toys made out of plastic?	Student conduct an investigation of different materials in order to determine which are most and least easily melted.	2.P.8.2 Identify objects and materials as solid, liquid, or gas. 2.P.9.1 Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.

Weather & Climate (Stormy Skies)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Water Cycle & States of Matter Where do clouds come from?	Students obtain and combine information that water can change from liquid to gas, but that it is always made of tiny drops. Clouds are made of water that has evaporated.	2.P.8.4 Observe and describe water in its solid, liquid, and gaseous states. 2.E.7.3 Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).

Florida Specific Standard: 2.E.7.2 Investigate by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air.

Florida Specific Standard: 2.P.8.6 Measure and compare the volume of liquids using containers of various shapes and sizes.

Forces, Motion, & Magnets (Invisible Forces)

This unit is found under 3rd grade on our site, but we recommend teaching lessons in 2nd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Balanced & Unbalanced Forces How could you win a tug-of-war against a bunch of adults?	Students develop a mental model of the nature of forces and motion and use that model to explain the behavior of an elastic jumper.	2.P.13.1 Investigate the effect of applying various pushes and pulls on different objects. 2.P.13.4 Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.
Lesson 2 	Balanced Forces & Engineering What makes bridges so strong?	Students develop and design a bridge to be as strong as possible while working with limited materials.	2.P.13.3 Recognize that objects are pulled toward the ground unless something holds them up.
Lesson 3 	Pattern of Motion, Gravity, & Friction How high can you swing on a flying trapeze?	Students make observations and measurements of a trapeze model. Then, using that information they predict the motion of a real trapeze.	2.P.13.1 Investigate the effect of applying various pushes and pulls on different objects. 2.P.13.4 Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.
Lesson 4 	Magnets & Forces What can magnets do?	<i>Students investigate the properties of magnets and the fact that they exert forces that act at a distance.</i>	<i>4.P.8.4 Investigate and describe that magnets can attract materials and attract and repel other magnets.</i>
We recommend teaching this in 4th grade if following Florida Standards.			
Lesson 5 	Magnets & Engineering How can you unlock a door using a magnet?	<i>Students investigate magnetic attraction and repulsion, and design a magnetic lock in the hands-on activity.</i>	<i>4.P.8.4 Investigate and describe that magnets can attract materials and attract and repel other magnets.</i>
We recommend teaching this in 4th grade if following Florida Standards.			

This concept is covered in 4th Grade

Florida Specific Standard: 2.P.13.2 Demonstrate that magnets can be used to make some things move without touching them.

Fossils & Changing Environments (Animals Through Time)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Habitats, Fossils, & Environments Over Time Where can you find whales in a desert?	Students explore the idea that the rock under our feet sometimes contains fossils, and investigate how these fossils reveal changes in habitats through time.	3.L.11.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.
Lesson 2 	Fossil Evidence & Dinosaurs How do we know what dinosaurs looked like?	Students learn how we can infer what the outside of an animal looked like by using clues about their skeleton.	3.L.11.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.
Lesson 3 	Trace Fossil Evidence & Animal Movement Can you outrun a dinosaur?	Students learn how fossilized animal tracks can tell us a great deal about the animals that left them.	3.L.11.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.

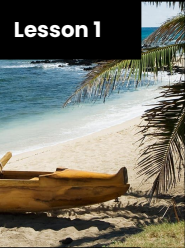
Animal Biodiversity & Habitats (Animal Adventures)

This unit is found under 2nd grade on our site, but we recommend teaching lessons in 3rd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Biodiversity & Classification How many different kinds of animals are there?	Students observe the traits of different animals and use that information to organize them into groups based on their characteristics.	3.L.15.1 Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.

Plant Growth & Interactions (Plant Adventures)

This unit is found under 2nd grade on our site, but we recommend teaching lessons in 3rd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Seed Dispersal How did a tree travel halfway around the world?	Students develop physical models of seed structures. They observe how structure affects the seed's function in dispersing away from the tree.	3.L.14.1 Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
Lesson 2 	Animal Seed Dispersal Why do seeds have so many different shapes?	Students develop a model of a furry animal and then use it to test how far seed models with different structures can travel.	3.L.14.1 Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
Lesson 3 	★ Pollination Why do you find flowers and bees together?	Students develop a model of a flower and a model of a fuzzy bee. They use these models to demonstrate how animals help pollinate plants.	3.L.14.1 Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
Lesson 4 	Water, Sunlight, & Plant Growth Could a plant survive without light?	Students conduct an investigation to determine that plants need water and light to grow.	3.L.14.2 Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity. 3.L.17.2 Recognize that plants use energy from the Sun, air, and water to make their own food.
Lesson 5 	Plant Needs & Habitats How much water should you give a plant?	Students plan and conduct a series of virtual experiments in order to determine how much water and sunlight a set of mystery plants need in order to stay healthy and survive.	3.L.14.2 Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity.

Florida Specific Standard:

3.L.15.2 Classify flowering and nonflowering plants into major groups such as those that produce seeds, or those like ferns and mosses that produce spores, according to their physical characteristics.

The following mini-lesson can be used to support Florida Specific Science Standards.

Mini-lesson



3.L.15.2

Why don't all trees lose their leaves in the fall?

Florida Specific Standard:

3.L.17.1 Describe how animals and plants respond to changing seasons.

The following mini-lessons can be used to support Florida Specific Science Standards.

Mini-lesson



3.L.17.1

Why do leaves change color in the fall?

Mini-lesson



3.L.17.1

Where do bugs go in winter?

Mini-lesson



3.L.17.1

Why do bears hibernate?

Mini-lesson



3.L.17.1

Why do animals come back after going to warm places in the winter?

Florida Specific Standard:

3.E.5.2 Identify the Sun as a star that emits energy; some of it in the form of light.

The following mini-lesson can be used to support Florida Specific Science Standards.

Mini-lesson



3.E.5.2

How close could an astronaut get to the Sun?

Florida Specific Standard:

3.E.5.5 Investigate that the number of stars that can be seen through telescope is dramatically greater than those seen by the unaided eye.

The following mini-lessons can be used to support Florida Specific Science Standards.

Mini-lesson



3.E.5.5

Who created the constellations?

These concepts are covered in 5th Grade

Florida Specific Standard: **3.E.5.1** Explain that stars can be different; some are smaller, some are larger, and some appear brighter than others; all except the Sun are so far away that they look like points of light.

Florida Specific Standard: **3.E.5.3** Recognize that the Sun appears large and bright because it is the closest star to Earth.

Florida Specific Standard: **3.E.5.4** Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome.

Light, Sound, & Communication (Lights & Sounds)

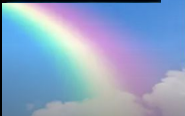
This unit is found under 1st grade on our site, but we recommend teaching lessons in 3rd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Light & Illumination Read-Along Can you see in the dark?	Students look inside a completely dark box to determine if they can see the shape of the object inside. They allow more light into the box to illuminate the object and allow them to see it. Students use their observations explain that objects need light to be seen.	3.P.10.1 Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical. 3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.
Lesson 2 	Light, Communication, & Engineering How could you send a secret message to someone far away?	Students are presented with the problem that they need to send a message at night, without using noise. They design a solution to create a color-coded message system and communicate with light signals.	3.P.10.1 Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical. 3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.

Human Body, Vision, & The Brain (Human Machine)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Light, Eyes, & Vision What do people who are blind see?	Students develop a working model of an eye. They use the model to reason about how light reflects off an object and into the eye, helping an organism process information from the environment.	3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another. Foundational for 3.P.10.4 Demonstrate that light can be reflected, refracted, and absorbed.
Lesson 2 	Structure & Function of Eyes How can some animals see in the dark?	Students use their eye model to discover that the pupil controls the amount of light let into the eye. In the dark, pupils get larger to let in more light.	3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.

Florida Specific Standard: 3.P.10.4 Demonstrate that light can be reflected, refracted, and absorbed.
The following mini-lessons can be used to support Florida Specific Science Standards.

Mini-lesson


3.P.10.4
 How is a rainbow made?

Mini-lesson


3.P.10.4
 Why is snow white?

Sunlight & Warmth (Sunny Skies)

This unit is found under Kindergarten on our site, but we recommend teaching lessons in 3rd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Sunlight, Heat, & Earth's Surface Read-Along How could you walk barefoot across hot pavement without burning your feet?	Students make observations of the pavement heating up after being warmed by the Sun. Then, they design a solution to build a shade structure that can reduce the warming effect of sunlight.	3.E.6.1 Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost.
Lesson 2 	Sunlight, Warming, & Engineering How could you warm up a frozen playground?	Students carry out an investigation to test which materials can redirect the light and heat of sunlight. (*This lesson has students increase the warming effect of sunlight on an area.)	3.E.6.1 Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost. 3.E.5.2 Identify the Sun as a star that emits energy; some of it in the form of light. 3.P.10.4 Demonstrate that light can be reflected, refracted, and absorbed.
Lesson 3 	Sunlight & Warmth Why does it get cold in winter?	Students construct an explanation for why marshmallows melt in one car and not in another car. Then, they conduct a virtual investigation to determine that the warmth of the Sun is the cause of the melted marshmallows.	3.E.6.1 Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost. 3.E.5.2 Identify the Sun as a star that emits energy; some of it in the form of light.

Florida Specific Standard: 3.P.9.1 Describe the changes water undergoes when it changes state through heating and cooling by using familiar scientific terms such as melting, freezing, boiling, evaporation, and condensation.

Florida Specific Standard: 3.P.8.1 Measure and compare temperatures of various samples of solids and liquids.

Florida Specific Standard: 3.P.8.2 Measure and compare the mass and volume of solids and liquids.

Florida Specific Standard: 3.P.8.3 Compare materials and objects according to properties such as size, shape, color, texture, and hardness.

Energy & Energy Transfer (Energizing Everything)

This unit is found under 4th grade on our site, but we recommend teaching lessons in 3rd grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Speed & Energy How is your body similar to a car?	Students learn about stored energy and about the relationship between motion and energy. Students build models of an amusement park ride and discover how energy can be stored in materials. Stored energy can be converted to speed.	3.P.10.2 Recognize that energy has the ability to cause motion or create change.
Lesson 2 	Gravitational Energy, Speed, & Collisions What makes roller coasters go so fast?	Students build a model of a roller coaster and carry out an investigation using marbles. Students learn that lifting an object up stores energy in the object. When the object falls, that stored energy is released. They realize that energy is transferred when objects collide.	3.P.10.2 Recognize that energy has the ability to cause motion or create change. 3.P.10.1 Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical.
Lesson 3 	Collisions & Energy Transfer How can marbles save the world?	Students investigate how energy transfers when objects collide. In the activity, Bumper Jumper, students ask questions and make predictions about how far a marble will launch over a jump after colliding with other objects.	3.P.10.2 Recognize that energy has the ability to cause motion or create change. 3.P.10.1 Identify some basic forms of energy such as light, heat, sound, electrical, and mechanical.
Lesson 4 	Energy Transfer & Engineering Could you knock down a building using only dominoes?	Students experiment with ways to store and release energy, creating the beginning of a chain reaction machine with a lever and a ramp. Students figure out that a domino standing on end is storing energy, only requiring a small amount of energy (a tiny push) to release the stored energy.	3.P.10.2 Recognize that energy has the ability to cause motion or create change.
Lesson 5 	Energy Transfer & Engineering Can you build a chain reaction machine?	Students continue to build a chain reaction machine – identifying a goal, brainstorming and testing multiple ideas, and determining an optimal solution. The chain reaction machine uses multiple components to transfer energy from one part to the next.	3.P.10.2 Recognize that energy has the ability to cause motion or create change.

Florida Specific Standard: 3.P.11.1 Investigate, observe, and explain that things that give off light often also give off heat.

Florida Specific Standard: 3.P.11.2 Investigate, observe, and explain that heat is produced when one object rubs against another, such as rubbing one's hands together.

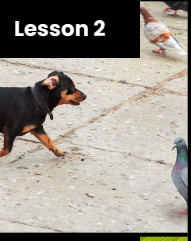
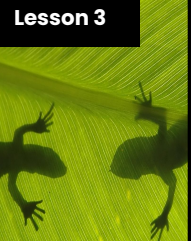
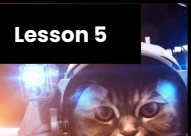
Life Cycles (Circle of Life)

This unit is found under 3rd grade on our site, but we recommend teaching lessons in 4th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Animal Life Cycles How is your life like an alligator's life?	Students create models of several different animal life cycles and compare them to one another. They use these models to discover the pattern that all animals are born, grow, can have babies, and eventually die.	4.L.16.4 Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants.
Lesson 2 	Environmental Change & Engineering What's the best way to get rid of mosquitoes?	Students obtain and evaluate information about mosquitoes from different sources. They analyze and interpret information about the mosquito life cycle to reduce the number of mosquitoes that live in a certain area.	4.L.17.4 Recognize ways plants and animals, including humans, can impact the environment.
Lesson 3 	Pollination & Plant Reproduction Why do plants grow flowers?	Students model the structure and function of flower parts that are responsible for creating seeds.	4.L.16.1 Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.
Lesson 4 	Fruit, Seeds, & Plant Reproduction Why do plants give us fruit?	Students explore the function of fruits in plants and practice classification.	4.L.16.1 Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.
Lesson 5 	Plant Life Cycles Why are there so many different kinds of flowers?	Students play a game that models the stages of the plant life cycle. After playing the game students use the model to show how changes to one part of the life cycle affect all other stages.	4.L.16.4 Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants. 4.L.16.1 Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.

Heredity, Survival, & Selection (Fates of Traits)

This unit is found under 3rd grade on our site, but we recommend teaching some lessons in 4th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Traits & Inheritance How do you identify a mysterious fruit?	Students examine plant traits and use that information as evidence to help them identify an unknown fruit. They look for similarities and differences in the leaves, flowers, and fruits of plants to sort them into groups and identify patterns of inheritance.	Foundational for 5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
We recommend teaching this in 5th grade if following Florida Standards.			
Lesson 2 	Trait Variation, Inheritance, & Artificial Selection What do dogs and pigeons have in common?	Students analyze trait similarities and differences among parent, offspring, and sibling pigeons. They interpret this data to discover that the variation and inheritance of traits creates a pattern that explains why we see such extreme traits in artificially selected animal breeds.	Foundational for 5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
We recommend teaching this in 5th grade if following Florida Standards.			
Lesson 3 	Trait Variation, Survival, & Natural Selection How could a lizard's toes help it survive?	Students compare the structures of lizards that live on an island. They simulate multiple generations of these lizards, and analyze and interpret the data to understand how these structures aid in their survival.	5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations. 5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.
We recommend teaching this in 5th grade if following Florida Standards.			
Lesson 4 	★ Animal Groups & Survival Why do some animals live in groups?	Students observe animals that live in groups in order to obtain, evaluate, and communicate information about animal social behavior. Students use these observations as evidence that animals form groups to help them survive.	4.L.16.3 Recognize that animal behaviors may be shaped by heredity and learning.
Lesson 5 	Traits & Environmental Variation How long can people (and animals) survive in outer space?	Students measure and compare their own physical traits (arm strength, balance, and height) and analyze the information to construct an explanation for how the environment can influence traits.	4.L.16.2 Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.

Ecosystems & The Food Web (Web of Life) • Page 1 of 2

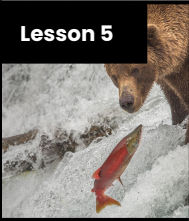
This unit is found under 5th grade on our site, but we recommend teaching lessons in 4th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Food Chains & Matter Flow What if all the ants disappeared?	Students construct models of food chains by linking cards discovering that different interrelationships exist between organisms.	4L.17.2 Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.
Lesson 2 	Plant Growth & Matter How does a tiny seed become one of the heaviest trees on Earth?	Students gather evidence through a series of virtual experiments to construct an argument that plants use mostly air and water as the materials for their growth.	4L.17.2 Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.
Lesson 3 	Decomposers & Matter Flow Where do fallen leaves go?	Students conduct an investigation to gain an understanding of the important role that decomposers play in recycling matter from dead leaves back into the environment.	4L.17.2 Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them. 4.P.9.1 Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting, and cooking
Lesson 4 	Decomposers & Soil Nutrients Do worms really eat dirt?	Students make observations of worms to realize that worms act as decomposers to eat dead matter in an ecosystem and cycle nutrients into the soil.	4L.17.2 Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them. 4.P.9.1 Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting, and cooking.

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Ecosystems & The Food Web (Web of Life) • Page 2 of 2

This unit is found under 5th grade on our site, but we recommend teaching lessons in 4th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 5 	★ Ecosystems & Matter Cycle How could a fish feed a forest?	Students develop a model of a forest ecosystem with producers, consumers, and decomposers. They trace the journey of matter through this ecosystem to discover that matter continuously cycles between non-living and living parts of the environment.	4.L.17.2 Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them. 4.L.17.4 Recognize ways plants and animals, including humans, can impact the environment.
Lesson 6 	Protecting Environments How can we protect Earth's environments?	In this lesson, students learn about what happens in unbalanced ecosystems and how that can lead to an overabundance of algae and harmful algal blooms. In the activity, Bloom Busters, students play a game in which they obtain and combine science ideas in order to help a community respond to and prevent harmful algal blooms.	4.L.17.4 Recognize ways plants and animals, including humans, can impact the environment.
Lesson 7 	Food Webs & Flow of Energy Why did the dinosaurs go extinct?	Students develop a model of a dinosaur food web. Students realize that blocking the sun's energy would have disastrous effects on the organisms that rely on this energy in the food web and cause the extinction of some entire species.	4.L.17.3 Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.

Florida Specific Standard: 4.L.17.1 Compare the seasonal changes in Florida plants and animals to those in other regions of the country.

Earth & Space Patterns (Spaceship Earth)

This unit is found under 5th grade on our site, but we recommend teaching lessons in 4th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Day, Night, & Earth's Rotation How fast does the Earth spin?	Students model the rotation of the Earth and investigate why the Sun looks like it's moving across the sky. Using evidence they gathered in the investigation, students build a model that explains how the Earth's rotation around its own axis causes the Sun to appear to rise and set.	4.E.5.3 Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day. 4.E.5.4 Relate that the rotation of Earth (day and night) and apparent movements of the Sun, moon, and stars are connected.
Lesson 2 	Earth's Rotation & Daily Shadow Patterns Who set the first clock?	Students make a shadow clock (sundial) and investigate how the direction and length of shadows change with the position of the light shining on the sundial. Students realize that the Sun's position in the sky can be used to tell the time of day.	4.E.5.3 Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day.
Lesson 3 	Seasonal Changes & Shadow Length How can the Sun tell you the season?	Students examine photos taken at different times of year and figure out the time of year that each photo was taken. Students discover that the Sun's path changes with the seasons, as does the time of sunrise and sunset. The Sun is always highest in the sky at noon, but that height changes with the season.	4.E.5.4 Relate that the rotation of Earth (day and night) and apparent movements of the Sun, moon, and stars are connected.
Lesson 4 	Seasonal Patterns & Earth's Orbit Why do the stars change with the seasons?	Students build a model of the universe and use it to explain why different stars are visible at different times of year. Using evidence from this model, students make an argument that supports the claim that the Earth orbits the Sun.	4.E.5.3 Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day. 4.E.5.1 Observe the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons.
Lesson 5 	Moon Phases, Lunar Cycle Why does the Moon change shape?	Students use a physical model of the Sun and Moon to investigate how the Moon's phase relates to its position relative to the Sun. Students notice that the Moon's phases repeat in a predictable pattern.	4.E.5.2 Describe the changes in the observable shape of the moon over the course of about a month. 4.E.5.4 Relate that the rotation of Earth (day and night) and apparent movements of the Sun, moon, and stars are connected.

Florida Specific Standard: 4.E.5.5 Investigate and report the effects of space research and exploration on the economy and culture of Florida.

Earth's Features & Processes (The Birth of Rocks)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Volcanoes & Patterns of Earth's Features Could a volcano pop up where you live?	Students use coordinates to develop a map of volcanoes to discover a pattern of where volcanoes exist on Earth. Students identify the pattern of volcanoes in the "Ring of Fire."	4.E.6.1 Identify three categories of rocks: igneous, (formed from molten); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure).
Lesson 2 	Volcanoes & Rock Cycle Why do some volcanoes explode?	Students investigate the properties of thin and thick lava by attempting to create air bubbles. Students realize that thick lava will cause a volcano to explode, while thin lava will not.	4.E.6.1 Identify three categories of rocks: igneous, (formed from molten); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure).
Lesson 3 	Weathering & Erosion Will a mountain last forever?	Students make observations of the effects of weathering to discover that rocks will become rounded and break into small pieces when they tumble down a mountain.	4.E.6.4 Describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice).
Lesson 4 	Sedimentary Rock & Fossils What did your town look like 100 million years ago?	Students create a model canyon and use the pattern of fossils found in each rock layer to support the explanation that the landscape has changed many times over millions of years.	4.E.6.1 Identify three categories of rocks: igneous, (formed from molten); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure). 4.E.6.3 Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.
Lesson 5 	★ Earthquakes & Engineering Can you design a building that survives an earthquake?	Students generate multiple possible solutions to protect model buildings from earthquake damage. They compare their designs and evaluate their effectiveness given specified criteria for success and constraints of available materials.	4.N.1.8 Recognize that science involves creativity in designing experiments. 4.N.3.1 Explain that models can be three dimensional, two dimensional, an explanation in your mind, or a computer model.

Florida Specific Standard: **4.E.6.2** Identify the physical properties of common earth-forming minerals, including hardness, color, luster, cleavage, and streak color, and recognize the role of minerals in the formation of rocks.

Forces, Motion, & Magnets (Invisible Forces)

This unit is found under 3rd grade on our site, but we recommend teaching lessons in 4th grade if you are following Florida Standards.

Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Balanced & Unbalanced Forces How could you win a tug-of-war against a bunch of adults? Students develop a mental model of the nature of forces and motion and use that model to explain the behavior of an elastic jumper.	2.P.13.1 Investigate the effect of applying various pushes and pulls on different objects. 2.P.13.4 Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.
We recommend teaching this in 2nd grade if following Florida Standards.		
Lesson 2 	Balanced Forces & Engineering What makes bridges so strong? Students develop and design a bridge to be as strong as possible while working with limited materials.	2.P.13.3 Recognize that objects are pulled toward the ground unless something holds them up.
We recommend teaching this in 2nd grade if following Florida Standards.		
Lesson 3 	Pattern of Motion, Gravity, & Friction How high can you swing on a flying trapeze? Students make observations and measurements of a trapeze model. Then, using that information they predict the motion of a real trapeze.	2.P.13.1 Investigate the effect of applying various pushes and pulls on different objects. 2.P.13.4 Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.
We recommend teaching this in 2nd grade if following Florida Standards.		
Lesson 4 	Magnets & Forces What can magnets do? Students investigate the properties of magnets and the fact that they exert forces that act at a distance.	4.P.8.4 Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets. 4.P.8.1 Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets .
Lesson 5 	Magnets & Engineering How can you unlock a door using a magnet? Students investigate magnetic attraction and repulsion, and design a magnetic lock in the hands-on activity.	4.P.8.4 Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets.

Florida Specific Standard: 4.P.8.2 Identify properties and common uses of water in each of its states.

Florida Specific Standard: 4.P.8.3 Explore the Law of Conservation of Mass by demonstrating that the mass of a whole object is always the same as the sum of the masses of its parts.

Sound, Waves, & Communication (Waves of Sound)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Pattern Transfer & Technology How do you send a secret code?	Students explore how digital devices encode complex information. Students generate their own codes in order to transfer information across the classroom. Then, they compare their codes and evaluate which worked best given the criteria and constraints.	4.E.6.5 Investigate how technology and tools help to extend the ability of humans to observe very small things and very large things.
Lesson 2 	Sound, Vibration, & Engineering How far can a whisper travel?	Students investigate sound energy using paper cup telephones. Students figure out that sound is a vibration that can travel through a medium.	4.P.10.1 Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion.
Lesson 3 	Sound & Vibrations What would happen if you screamed in outer space?	Students construct a model of sound vibrations to explain how air is a medium that sound vibrations travel through.	4.P.10.4 Describe how moving water and air are sources of energy and can be used to move things. 4.P.10.3 Investigate and explain that sound is produced by vibrating objects and that pitch depends on how fast or slow the object vibrates.
Lesson 4 	Sound Waves & Wavelength Why are some sounds high and some sounds low?	Students make observations of vibrations and sound waves to discover that high pitch sounds vibrate faster and have short wavelengths and low pitch sounds vibrate slower and have long wavelengths.	4.P.10.3 Investigate and explain that sound is produced by vibrating objects and that pitch depends on how fast or slow the object vibrates. 4.E.6.5 Investigate how technology and tools help to extend the ability of humans to observe very small things and very large things.

Florida Specific Standard: 4.P.10.2 Investigate and describe that energy has the ability to cause motion or create change.

Electricity, Light, & Heat (Electricity, Light, & Heat)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Renewable Energy & Natural Resources What's the best way to light up a city?	Students evaluate the advantages and disadvantages of wind, water, and solar energy to power a town. Students obtain and evaluate information about the needs of each source of energy and analyze and interpret data about the town's resources.	4.E.6.3 Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable. 4.P.10.4 Describe how moving water and air are sources of energy and can be used to move things. 4.E.6.6 Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).
Lesson 2 	Electrical Energy What if there were no electricity?	<i>Students design a flashlight with an on/off switch, using batteries, flights, and tin foil. Students figure out that electricity can be transformed to other forms of energy, such as movement, light, and heat.</i>	5.P.11.1 Investigate and illustrate the fact that the flow of electricity requires a closed circuit (a complete loop). 5.P.11.2 Identify and classify materials that conduct electricity and materials that do not. 5.P.10.4 Investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.
Lesson 3 	Heat Energy & Energy Transfer How long did it take to travel across the country before cars and planes?	<i>Students build a paper spinner and conduct an investigation to explain how heat makes things move. Students realize that heat energy can be transformed into motion energy using a turbine.</i>	5.P.10.1 Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical. 5.P.10.2 Investigate and explain that energy has the ability to cause motion or create change.

These concepts are covered in 2nd Grade

Florida Specific Standard: **4.P.11.1** Recognize that heat flows from a hot object to a cold object and that heat flow may cause materials to change temperature.

Florida Specific Standard: **4.P.11.2** Identify common materials that conduct heat well or poorly.

These concepts are covered in 3rd Grade

Florida Specific Standard: **4.P.12.1** Recognize that an object in motion always changes its position and may change its direction.

Florida Specific Standard: **4.P.12.2** Investigate and describe that the speed of an object is determined by the distance it travels in a unit of time and that objects can move at different speeds.

Human Body, Vision, & The Brain (Human Machine)

This unit is found under 4th grade on our site, but we recommend teaching lessons in 5th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Muscles & Skeleton Why do your biceps bulge?	Students construct a model of the human hand to explain how muscles pull on bones to create movement.	5.L.14.1 Identify the organs in the human body and describe their functions, including the skin, brain, heart, lungs, stomach, liver, intestines, pancreas, muscles and skeleton, reproductive organs, kidneys, bladder, and sensory organs. 5.L.14.2 Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support—some with internal skeletons others with exoskeletons—while some plants have stems for support.
Lesson 2 	Light, Eyes, & Vision What do people who are blind see?	Students develop a working model of an eye. They use the model to reason about how light reflects off an object and into the eye, helping an organism process information from the environment.	3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another. Foundational for 3.P.10.4 Demonstrate that light can be reflected, refracted, and absorbed.
We recommend teaching this in 3rd grade if following Florida Standards.			
Lesson 3 	Structure & Function of Eyes How can some animals see in the dark?	Students use their eye model to discover that the pupil controls the amount of light let into the eye. In the dark, pupils get larger to let in more light.	3.P.10.3 Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.
We recommend teaching this in 3rd grade if following Florida Standards.			
Lesson 4 	Brain, Nerves, & Information Processing How does your brain control your body?	Students investigate how their own brain works by testing their reflexes. They discover that the brain receives information from the senses, processes the information, and sends signals to the muscles to enable movement.	5.L.14.1 Identify the organs in the human body and describe their functions, including the skin, brain, heart, lungs, stomach, liver, intestines, pancreas, muscles and skeleton, reproductive organs, kidneys, bladder, and sensory organs.

The following mini-lessons can be used to support Florida Science Standards.

Mini-lesson 	5.L.1.4.1 Why does our skeleton have so many bones?	Mini-lesson 	5.L.1.4.1 What would happen if you didn't have a skull?	Mini-lesson 	5.L.1.4.1 Why does the heart pump blood?
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Heredity, Survival, & Selection (Fates of Traits)

This unit is found under 3rd grade on our site, but we recommend teaching some lessons in 5th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Traits & Inheritance How do you identify a mysterious fruit?	Students examine plant traits and use that information as evidence to help them identify an unknown fruit. They look for similarities and differences in the leaves, flowers, and fruits of plants to sort them into groups and identify patterns of inheritance.	Foundational for 5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
Lesson 2 	Trait Variation, Inheritance, & Artificial Selection What do dogs and pigeons have in common?	Students analyze trait similarities and differences among parent, offspring, and sibling pigeons. They interpret this data to discover that the variation and inheritance of traits creates a pattern that explains why we see such extreme traits in artificially selected animal breeds.	Foundational for 5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
Lesson 3 	Trait Variation, Survival, & Natural Selection How could a lizard's toes help it survive?	Students compare the structures of lizards that live on an island. They simulate multiple generations of these lizards, and analyze and interpret the data to understand how these structures aid in their survival.	5.L.15.1 Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations. 5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.
Lesson 4 	★ Animal Groups & Survival Why do some animals live in groups?	<i>Students observe animals that live in groups in order to obtain, evaluate, and communicate information about animal social behavior. Students use these observations as evidence that animals form groups to help them survive.</i>	4.L.16.3 Recognize that animal behaviors may be shaped by heredity and learning.
We recommend teaching this in 4th grade if following Florida Standards.			
Lesson 5 	Traits & Environmental Variation How long can people (and animals) survive in outer space?	<i>Students measure and compare their own physical traits (arm strength, balance, and height) and analyze the information to construct an explanation for how the environment can influence traits.</i>	4.L.16.2 Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.
We recommend teaching this in 4th grade if following Florida Standards.			

Animal & Plant Adaptations (Animal & Plant Adaptations)

This unit is found under 4th grade on our site, but we recommend teaching lessons in 5th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Animal Adaptations Why do some sea creatures look so strange?	Students make observations of underwater animals in order to collect evidence that external structures serve specific functions. They use their observations to construct an argument that an animal's structures work together as part of a system to support their growth and survival.	5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.
Lesson 2 	Learned Behavior & Instinct Why would a sea turtle eat a plastic bag?	Students use models to understand how an animal's senses, brain, and memories all work together as a system to influence their behavior and support their survival.	5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.
Lesson 3 	Plant Adaptations Why don't the same trees grow everywhere?	Students use models of roots and branches to explore their functions and then construct an argument about how these structures must work together in order to support the survival of trees in the unique environment of the frozen taiga.	5.L.17.1 Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

Weather & Climate (Stormy Skies)

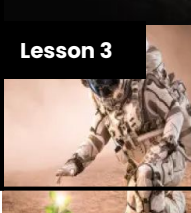
This unit is found under 3rd grade on our site, but we recommend teaching lessons in 5th grade if you are following Florida Standards.

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Water Cycle & Phases of Matter Where do clouds come from?	Students obtain and combine information that water can change from liquid to gas, but that it is always made of tiny drops. Clouds are made of water that has evaporated.	2.P.8.4 Observe and describe water in its solid, liquid, and gaseous states. 2.E.7.3 Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).
We recommend teaching this in 2nd grade if following Florida Standards.			
Lesson 2 	Local Weather Patterns & Weather Prediction How can we predict when it's going to storm?	Students make observations of clouds and develop a tool to make predictions about what kind of weather might happen next.	5.E.7.3 Recognize how air temperature, barometric pressure, humidity, wind speed and direction, and precipitation determine the weather in a particular place and time.
Lesson 3 	Seasonal Weather Patterns Where's the best place to build a snow fort?	Students gather winter temperature data from three different towns. They represent the data in a table to compare the weather and decide which town is the best candidate to host a snow fort festival in future years.	5.E.7.4 Distinguish among the various forms of precipitation (rain, snow, sleet, and hail), making connections to the weather in a particular place and time. 5.E.7.5 Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts, and mountains.
Lesson 4 	Climate & Global Weather Patterns Why are some places always hot?	Students obtain and combine information to describe the different climate regions of the world.	5.E.7.5 Recognize that some of the weather-related differences, such as temperature and humidity, are found among different environments, such as swamps, deserts, and mountains. 5.E.7.6 Describe characteristics (temperature and precipitation) of different climate zones as they relate to latitude, elevation, and proximity to bodies of water.
Lesson 5 	Natural Hazards & Engineering How can you keep a house from blowing away in a windstorm?	Students design and build solutions that reduce the hazards associated with strong winds that could damage buildings.	5.E.7.7 Design a family preparedness plan for natural disasters and identify the reasons for having such a plan. ***This lesson focuses on natural disasters, but does not create a family preparedness plan.

Water Cycle & Earth's Systems (Watery Planet)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Hydrosphere & Water Distribution How much water is in the world?	Students analyze and interpret data from world maps to determine the relative amounts of fresh, salt, and frozen water. Students figure out that while the Earth has a lot of water, most of Earth's water is not fresh or accessible.	5.E.7.2 Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth's water reservoirs via evaporation and precipitation processes.
Lesson 2 	Mixtures & Solutions How much salt is in the ocean?	Students create a model ocean to observe how salt seems to completely vanish when dissolved in water. Students measure and graph quantities to provide evidence that the salt is still in the solution, even though we can't see it.	5.P.8.2 Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process.
Lesson 3 	Groundwater as a Natural Resource When you turn on the faucet, where does the water come from?	Students learn most people get fresh water from underground sources. Students determine the best place to settle a town by considering features of the landscape & the characteristics of the plants that thrive there.	5.E.7.2 Recognize that the ocean is an integral part of the water cycle and is connected to all of Earth's water reservoirs via evaporation and precipitation processes.
Lesson 4 	Water Cycle Can we make it rain?	Students create a model of the ocean and sky to investigate how temperature influences evaporation and condensation. Students figure out that higher ocean temperatures lead to more evaporation, thus leading to more rain.	5.E.7.1 Create a model to explain the parts of the water cycle. Water can be a gas, a liquid, or a solid and can go back and forth from one state to the other.
Lesson 5 	Natural Disasters & Engineering How can you save a town from a hurricane?	Students define the problem that a town needs protection from flooding. They design solutions using different types of flood protection. They realize flooding is caused by severe rainfall generated by hurricanes. Hurricanes are created where ocean temperatures are warm.	5.E.7.7 Design a family preparedness plan for natural disasters and identify the reasons for having such a plan.*** ***This lesson focuses on natural disasters and designing solutions to protect a town from negative effects, but does not create a family preparedness plan.

Stars & Planets (Stars & Planets)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Solar System & Sun Brightness How can the Sun help us explore other planets?	Students gather evidence to support an argument that the apparent brightness of the Sun is dependent upon an observer's distance from the Sun. They construct a model of the solar system and gather observations of the Sun's apparent brightness from each planet within their model.	5.E.5.3 Distinguish among the following objects of the Solar System -- Sun, planets, moons, asteroids, comets -- and identify Earth's position in it. 5.E.5.2 Recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets.
Lesson 2 	Gravity Why is gravity different on other planets?	Using mathematics and computational thinking, students calculate how high they could jump on planets and moons that have stronger or weaker gravity than Earth. Students analyze and interpret this data to construct an explanation for why the amount of gravity is different on other planets.	5.P.13.1 Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects. 5.P.13.2 Investigate and describe that the greater the force applied to it, the greater the change in motion of a given object. 5.P.13.3 Investigate and describe that the more mass an object has, the less effect a given force will have on the object's motion.
Lesson 3 	Star Brightness & Habitable Planets Could there be life on other planets?	Sun with the right amount of light and heat for life to exist. Students evaluate other solar systems, comparing their stars to our Sun. Based on their analysis, students plan a space mission to a planet with conditions similar to those on Earth.	Foundational for 5.E.5.1 Recognize that a galaxy consists of gas, dust, and many stars, including any objects orbiting the stars. Identify our home galaxy as the Milky Way.

Florida Specific Standard: 5.P.13.4 Investigate and explain that when a force is applied to an object but it does not move, it is because another opposing force is being applied by something in the environment so that the forces are balanced.

★ **Chemical Reactions & Properties of Matter** (Chemical Magic)

	Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	★ Properties of Matter Can you identify a mysterious ingredient?	Students conduct a series of tests on four unknown ingredients. Based on their observations, students identify each ingredient based on its unique properties.	Foundational for 5.P.8.2 Investigate and identify materials that will dissolve in water and those that will not and identify the conditions that will speed up or slow down the dissolving process. 5.P.8.1 Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.
Lesson 2 	★ Particle Models Why can you smell things you can't see?	Students investigate the phenomenon of a mysterious sweet smell. They develop and use particle model to understand how particles too small to be seen explain why we smell things we can't see.	Foundational for 5.P.8.4 Explore the scientific theory of atoms (also called atomic theory) by recognizing that all matter is composed of parts that are too small to be seen without magnification.
Lesson 3 	★ Properties of Matter: Acids How can you tell if acids are hiding in your fridge?	Students explore acidity as a property of matter. They conduct an investigation using baking soda as an acid indicator to identify if any household ingredients are actually acidic.	5.P.8.1 Compare and contrast the basic properties of solids, liquids, and gases, such as mass, volume, color, texture, and temperature.
Lesson 4 	★ Chemical Reactions & Fair Tests Why do some things explode?	Students investigate explosions and chemical reactions. They conduct a fair test to determine which two substances combine to form a new substance. The new substance formed is a gas, which causes a small explosion!	Foundational for 5.P.9.1 Investigate and describe that many physical and chemical changes are affected by temperature.
Lesson 5 	Chemical Reactions What do fireworks, rubber, and Silly Putty have in common?	Students investigate chemical reactions. They conduct an investigation to determine which two substances results in a new substance—goo!	Foundational for 5.P.9.1 Investigate and describe that many physical and chemical changes are affected by temperature.

Florida Specific Standard: 5.P.8.3 Demonstrate and explain that mixtures of solids can be separated based on observable properties of their parts such as particle size, shape, color, and magnetic attraction.

Electricity, Light, & Heat (Electricity, Light, & Heat)

This unit is found under 4th grade on our site, but we recommend teaching lessons in 5th grade if you are following Florida Standards.

Topic & Guiding Question	Student Objectives	Florida Next Generation Sunshine State Standards
Lesson 1 	Renewable Energy & Natural Resources What's the best way to light up a city?	<i>Students evaluate the advantages and disadvantages of wind, water, and solar energy to power a town. Students obtain and evaluate information about the needs of each source of energy and analyze and interpret data about the town's resources.</i> 4.E.6.3 Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable. 4.P.10.4 Describe how moving water and air are sources of energy and can be used to move things. 4.E.6.6 Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).
<i>We recommend teaching this in 4th grade if following Florida Standards.</i>		
Lesson 2 	Electrical Energy What if there were no electricity?	5.P.11.1 Investigate and illustrate the fact that the flow of electricity requires a closed circuit (a complete loop). 5.P.11.2 Identify and classify materials that conduct electricity and materials that do not. 5.P.10.4 Investigate and explain that electrical energy can be transformed into heat, light, and sound energy, as well as the energy of motion.
Lesson 3 	Heat Energy & Energy Transfer How long did it take to travel across the country before cars and planes?	5.P.10.1 Investigate and describe some basic forms of energy, including light, heat, sound, electrical, chemical, and mechanical. 5.P.10.2 Investigate and explain that energy has the ability to cause motion or create change.

Florida Specific Standard: 5.P.10.3 Investigate and explain that an electrically-charged object can attract an uncharged object and can either attract or repel another charged object without any contact between the objects.