Mystery Science Alignment with Texas Essential Knowledge and Skills

Mystery Science aligns to the Texas Essential Knowledge and Skills (TEKS) for Science.

Mystery Science's full units of study contain:

- Hands-on, easy-prep labs 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 mini-lessons; 5-minute videos that answer K-5 student questions and can be used as a jumping off point to engage learners for a full lesson planned by the teacher.

Each TEKS statement is color-coded to indicate the following:

- Identified by TEA as a Readiness Standard of the assessed curriculum
- Identified by TEA as a Supporting Standard of the assessed curriculum
- Not identified by TEA as part of the assessed curriculum

mystery science

Updated 06/07/2023

Texas Standards Alignment
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Kindergarten

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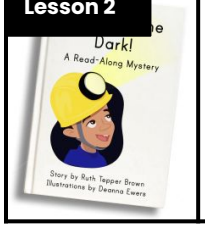
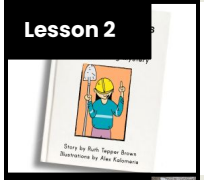
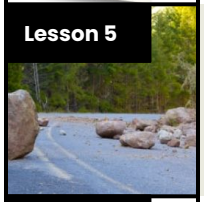
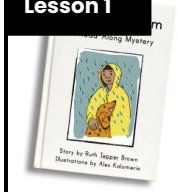
Light & Material Properties Unit (Light & Dark)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**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.2D** Record and organize data and observations using pictures, numbers, and words.	**K.5A** Observe and record properties of objects, including bigger or smaller, heavier or lighter, shape, color, and texture **K.6A** Use the senses to explore different forms of energy such as light, thermal, and sound.
Lesson 2 	**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.	**K.2B** Plan and conduct simple descriptive investigations.	**K.6A** Use the senses to explore different forms of energy such as light, thermal, and sound.

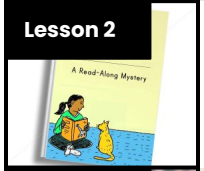
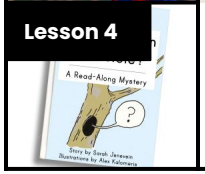
Pushes & Pulls Unit (Force Olympics)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.2C** Collect data and make observations using simple tools.	**K.6C** Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside. **K.6D** Observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.
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.2C** Collect data and make observations using simple tools.	**K.6C** Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside. **K.6D** Observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.
Lesson 3 	**Motion, Speed, & Strength** How can you knock down a wall made of concrete?	Students carry out an investigation to determine how far back they should pull a model wrecking ball to knock down a wall, but not the houses behind it.	**K.2B** Plan and conduct simple descriptive investigations.	**K.6C** Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside. **K.6D** Observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.
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.	**K.4B** Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	**K.6C** Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside. **K.6D** Observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.
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.	**K.3A** Identify and explain a problem such as the impact of littering and propose a solution.	**K.6C** Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside. **K.6D** Observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and 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.	**K.3A** Identify and explain a problem such as the impact of littering and propose a solution.	**K.6C** Observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside. **K.6D** Observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.

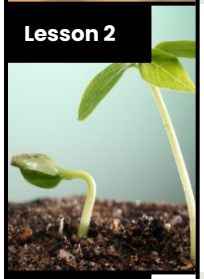
Severe Weather Unit (Wild Weather)

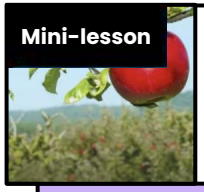
	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Severe Weather & Preparation Read-Along** How can you get ready for a big storm?	Students obtain information of different types of severe weather to observe and describe how the weather changes during these events and what students can do to prepare and stay safe.	**K.2A** Ask questions about organisms, objects, and events observed in the natural world.	**K.8A** Observe and describe weather changes from day to day and over seasons. **K.8C** Observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.
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.	**K.2C** Collect data and make observations using simple tools. **K.3C** Explore that scientists investigate different things in the natural world and use tools to help in their investigations.	**K.8A** Observe and describe weather changes from day to day and over seasons **K.8C** Observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.
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.	**K.2D** Record and organize data and observations using pictures, numbers, and words.	**K.8A** Observe and describe weather changes from day to day and over seasons **K.8C** Observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.

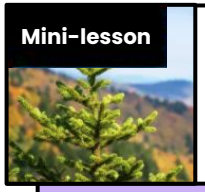
Animal Needs Unit (Animal Secrets)

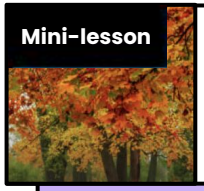
	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Animal Needs: Food** Why do woodpeckers peck wood?	Students obtain information through virtual observations of different animal behaviors. They use this evidence to explain that one of the basic needs of animals is food.	**K.4B** Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	**K.9B** Examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.
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.4B** Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	**K.9B** Examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.
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.4B** Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	**K.9B** Examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.
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.4B** Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	**K.9B** Examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.

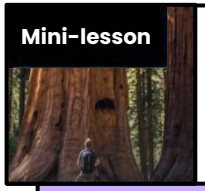
Plant Needs & Growth Unit (Plant Secrets)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.4B** Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	**K.9A** Differentiate between living and nonliving things based upon whether they have basic needs and produce offspring.
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.2B** Plan and conduct simple descriptive investigations. **K.2C** Collect data and make observations using simple tools.	**K.9B** Examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants. **K.10C** Identify ways that young plants resemble the parent plant. **K.10D** Observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit.
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.4B** Use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.	**K.9B** Examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.

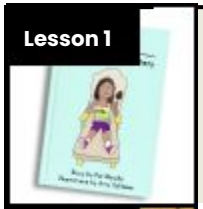
Mini-lesson 
TEKS K.10B
What's the biggest apple in the world?

Mini-lesson 
TEKS K.10A
Why don't all trees lose their leaves in the fall?

Mini-lesson 
TEKS K.10A
Why do leaves change color in the fall?

Mini-lesson 
TEKS K.10B
What's the biggest tree in the world?

Sunlight & Warmth Unit (Sunny Skies)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**1.3A** Identify and explain a problem and propose a solution.	**1.5B** Predict and identify changes in materials caused by heating and cooling. **1.6A** Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.
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.)	**1.2C** Collect data and make observations using simple tools.	**1.5B** Predict and identify changes in materials caused by heating and cooling. **1.6A** Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.
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.	**1.2A** Ask questions about organisms, objects, and events observed in the natural world.	**1.5B** Predict and identify changes in materials caused by heating and cooling. **1.6A** Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.

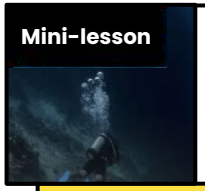
Sound & Communication Unit (Sounds All Around)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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 as well.	**1.2C** Collect data and make observations using simple tools.	**1.6A** Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.
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.	**1.2C** Collect data and make observations using simple tools.	**1.6A** Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.
Lesson 3 	**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.	**1.3A I**dentify and explain a problem and propose a solution.	**1.6A** Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.
Lesson 4 	**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 their eyes closed to determine which type of sound they hear.	**1.2A** Ask questions about organisms, objects, and events observed in the natural world.	**1.6A** Identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life.

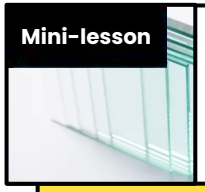
Water & Soil Unit (Land & Sea)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Mapping & Earth's Surface Features** 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.	**1.2B** Plan and conduct simple descriptive investigations. **1.3B** Make predictions based on observable patterns.	**1.7B** Identify and describe a variety of natural sources of water, including streams, lakes, and oceans.
Lesson 2 	**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.	**1.1B** Identify and learn how to use natural resources and materials **1.2B** Plan and conduct simple descriptive investigations.	**1.7A** Observe, compare, describe, and sort components of soil by size, texture, and color. **1.7C** Identify how rocks, soil, and water are used to make products.

Mini-lesson 
TEKS 1.7B
How deep does the ocean go?

Mini-lesson 
TEKS 1.7B
What's at the bottom of the ocean?

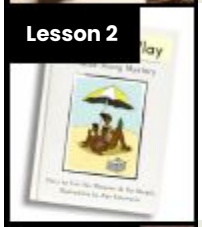
Mini-lesson 
TEKS 1.7C
Where does salt come from?

Mini-lesson 
TEKS 1.7C
How is glass made?

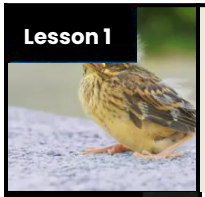
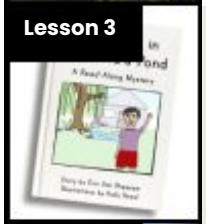
Weather Patterns Unit (Circle of Seasons)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**1.2D** Record and organize data using pictures, numbers, and words. **1.2C** Collect data and make observations using simple tools.	**1.8A** Record weather information, including relative temperature such as hot or cold, clear or cloudy, calm or windy, and rainy or icy.
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.	**1.2D** Record and organize data using pictures, numbers, and words. **1.3B** Make predictions based on observable patterns.	**1.8C** Identify characteristics of the seasons of the year and day and night.
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.	**1.2E** Communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations	**1.8C** Identify characteristics of the seasons of the year and day and night. **1.9C** Gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter.

Day Patterns Unit (Sun & Shadows)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**1.2E** Communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations	**1.8B** Observe and record changes in the appearance of objects in the sky such as the Moon and stars, including the Sun.
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.	**1.3B** Make predictions based on observable patterns.	**1.8B** Observe and record changes in the appearance of objects in the sky such as the Moon and stars, including the Sun.
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.	**1.2C** Collect data and make observations using simple tools.	**1.8B** Observe and record changes in the appearance of objects in the sky such as the Moon and stars, including the Sun. **1.8C** Identify characteristics of the seasons of the year and day and night.
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.	**1.3B** Make predictions based on observable patterns.	**1.8B** Observe and record changes in the appearance of objects in the sky such as the Moon and stars, including the Sun. **1.8C** Identify characteristics of the seasons of the year and day and night.

Animal Traits & Survival Unit (Animal Superpowers)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**1.2C** Collect data and make observations using simple tools	**1.10C** Compare ways that young animals resemble their parents.
Lesson 2 	**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.	**1.2B** Plan and conduct simple descriptive investigations. **1.2C** Collect data and make observations using simple tools	**1.10A** Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats. **1.9C** Gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter.
Lesson 3 	**Animal Behavior & Offspring Survival Read-Along** Why do baby ducks follow their mother?	Students obtain information about the behaviors of animal parents that help their offspring survive.	**1.4B** Measure and compare organisms and objects using non-standard units.	**1.10C** Compare ways that young animals resemble their parents.
Lesson 4 	**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.	**1.2E** Communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.	**1.10A** Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats.
Lesson 5 	**Inheritance & Variation of Traits Read-Along** Why do family members look alike?	Students identify parts of plants such as roots, branches, and leaves. They evaluate these plant parts and apply that information to design an umbrella that won't blow down in the wind.	**1.4B** Measure and compare organisms and objects using non-standard units.	**1.10C** Compare ways that young animals resemble their parents.

Plant Traits & Survival Unit (Plant Superpowers)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**1.2C** Collect data and make observations using simple tools	**1.10B** Identify and compare the parts of plants.
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.	**1.3A** Identify and explain a problem and propose a solution.	**1.10B** Identify and compare the parts of plants. **1.8D** Demonstrate that air is all around us and observe that wind is moving air.
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.	**1.2C** Collect data and make observations using simple tools.	**1.10B** Identify and compare the parts of plants.

Mini-lesson 

TEKS 1.10B

How do flowers bloom in the spring?

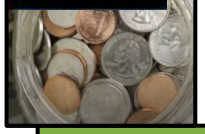
Material Properties Unit (Material Magic)

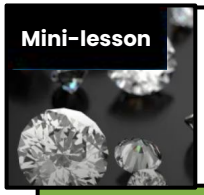
	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Material Properties & Engineering** Why do we wear clothes?	Students investigate different material properties, such as flexibility and absorbency, and use those properties to design and build a hat that protects them from the sun.	**2.2A** Ask questions about organisms, objects, and events during observations and investigations. **2.3A I**dentify and explain a problem and propose a task and solution for the problem.	**2.5A** Classify matter by physical properties, including relative temperature, texture, flexibility, and whether material is a solid or liquid. **2.8B** Identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation.
Lesson 2 	**Classify Materials: Insulators** 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.	**2.2B** Plan and conduct descriptive investigations. **2.2D** Record and organize data using pictures, numbers, and words.	**2.5B** Compare changes in materials caused by heating and cooling. **2.6A** Investigate the effects on objects by increasing or decreasing the amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter.
Lesson 3 	**Heating, Cooling, & Phases 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.	**2.2B** Plan and conduct descriptive investigations. **2.2D** Record and organize data using pictures, numbers, and words.	**2.5B** Compare changes in materials caused by heating and cooling. **2.5C** Demonstrate that things can be done to materials such as cutting, folding, sanding, and melting to change their physical properties.
Lesson 4 	**Inventions & Engineering** What materials might be invented in the future?	Students design a new invention that takes advantage of the unique properties of a futuristic material.	**2.2E** Communicate observations and justify explanations using student-generated data from simple descriptive investigations.	**2.5D** Combine materials that when put together can do things that they cannot do by themselves, such as building a tower or a bridge, and justify the selection of those materials based on their physical properties.
Lesson 5 	**Materials, Properties, & 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.	**2.2C** Collect data from observations using scientific tools. **2.3A** Identify and explain a problem and propose a task and solution for the problem.	**2.5C** Demonstrate that things can be done to materials such as cutting, folding, sanding, and melting to change their physical properties. **2.5D** Combine materials that when put together can do things that they cannot do by themselves, such as building a tower or a bridge, and justify the selection of those materials based on their physical properties.

Earth Materials Unit (Rocks & Minerals)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**2.2B** Plan and conduct descriptive investigations. **2.2E** Communicate observations and justify explanations using student-generated data from simple descriptive investigations.	**2.7A** Observe, describe, and compare rocks by size, texture, and color.

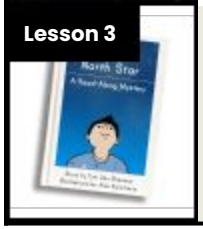
Mini-lesson 
TEKS 2.7B
Why is the ocean salty?

Mini-lesson 
TEKS 2.7C
Where does metal come from?

Mini-lesson 
TEKS 2.7C
How are diamonds made?

Mini-lesson 
TEKS 2.7C
How is gold made?

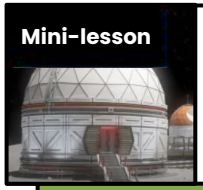
Night Patterns Unit (Moon & Stars)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**2.2D** Record and organize data using pictures, numbers, and words. **2.3B** Make predictions based on observable patterns.	**2.8C** Observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.
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.	**2.2E** Communicate observations and justify explanations using student-generated data from simple descriptive investigations. **2.3B** Make predictions based on observable patterns.	**2.8C** Observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.
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.	**2.2A** Ask questions about organisms, objects, and events during observations and investigations.	**2.8C** Observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.

Mini-lesson 

TEKS 2.8C

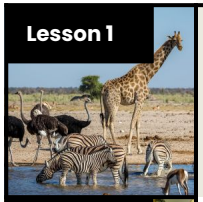
Who created the constellations?

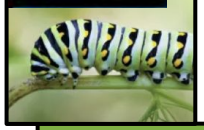
Mini-lesson 

TEKS 2.8C

What would it be like to live on the Moon?

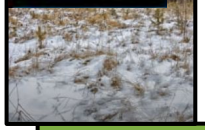
Animal Biodiversity Unit (Animal Adventures)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**2.2F** Compare results of investigations with what students and scientists know about the world. **2.4B** Measure and compare organisms and objects.	**2.10A** Observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs.
Lesson 2 	**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.	**2.2F** Compare results of investigations with what students and scientists know about the world. **2.4B** Measure and compare organisms and objects.	**2.10A** Observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs..
Lesson 3 	**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.	**2.3A** Identify and explain a problem and propose a task and solution for the problem.	**2.9C** Compare the ways living organisms depend on each other and on their environments such as through food chains. **2.10A** Observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs.

Mini-lesson 

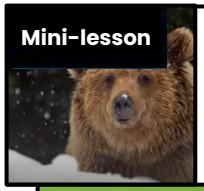
TEKS 2.10C

Are butterflies the only animals that start out as caterpillars?

Mini-lesson 

TEKS 2.9B

Where do bugs go in winter?

Mini-lesson 

TEKS 2.9B

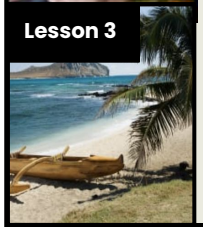
Why do bears hibernate?

Mini-lesson 

TEKS 2.9B

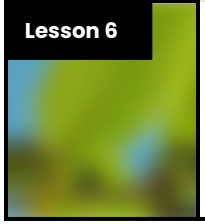
Why do animals come back after going to warm places in the winter?

Plant Adaptations Unit (Plant Adventures) • Page 1 of 2

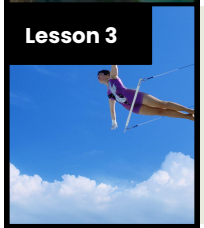
	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Pollination & Plant Reproduction** Why do plants grow flowers?	Students model the structure and function of flower parts that are responsible for creating seeds.	**2.2B** Plan and conduct descriptive investigations.	**2.10B** Observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant.
Lesson 2 	**Seed Dispersal & Plant Life Cycle** Why do plants give us fruit?	Students explore the function of fruits in plants and practice classification.	**2.2A** Ask questions about organisms, objects, and events during observations and investigations.	**2.10B** Observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant.
Lesson 3 	✨New!✨ **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.	**2.2A** Ask questions about organisms, objects, and events during observations and investigations.	**2.9A** Identify the basic needs of plants and animals. **2.10B** Observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant.

Continued on the next page

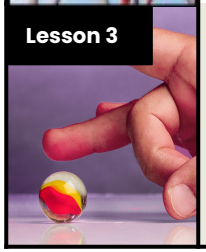
Plant Adaptations Unit (Plant Adventures) • Page 2 of 2

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 4 	**Coming Soon:** A new lesson on Animal Seed Dispersal			
Lesson 5 	**Water, Sunlight, & Plant Growth** Could a plant survive without light?	Students conduct an investigation to determine that plants need water and light to grow.	**2.2B** Plan and conduct descriptive investigations. **2.2E** Communicate observations and justify explanations using student-generated data from simple descriptive investigations.	**2.9A** Identify the basic needs of plants and animals. **2.10B** Observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant.
Lesson 6 	**Coming Soon:** A new lesson on Plant Needs & Habitats			

Forces, Motion, & Magnets Unit (Invisible Forces)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**3.2A** Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world.	**3.6B** Demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.
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.	**3.3B** Represent the natural world using models and identify their limitations, including size, properties, and materials.	**3.6B** Demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.
Lesson 3 	✨New!✨ **Patterns of Motion, Gravity, & Friction** How high can you swing on a flying trapeze?	Students explore the patterns of motion of a trapeze. They build their own model of a trapeze, observe patterns of how it moves, and make predictions.	**3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations. **3.2E** Demonstrate that repeated investigations may increase the reliability of results.	**3.6B** Demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.
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.	**3.2A** Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world.	**3.5A** Measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float. **3.6C** Observe forces such as magnetism and gravity acting on objects.
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.	**3.3B** Represent the natural world using models and identify their limitations, including size, properties, and materials.	**3.6C** Observe forces such as magnetism and gravity acting on objects.

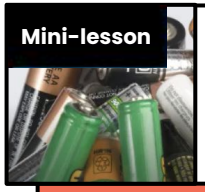
Everyday Energy Unit (Energizing Everything)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**3.3B** Represent the natural world using models and identify their limitations, including size, properties, and materials. **3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations.	**3.6A** Explore different forms of energy, including mechanical, light, sound, and thermal in everyday life.
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.	**3.3B** Represent the natural world using models and identify their limitations, including size, properties, and materials. **3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations.	**3.6A** Explore different forms of energy, including mechanical, light, sound, and thermal in everyday life.
Lesson 3 	✨New!✨ **Collisions & Energy Transfer** How can marbles save the world?	Students explore collisions and energy transfer with marbles. They build a collision game and make predictions about the distance marbles will travel after multiple collisions occur.	**3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations.	**3.6A** Explore different forms of energy, including mechanical, light, sound, and thermal in everyday life.

Mini-lesson 

TEKS 3.6A

How do phones work?

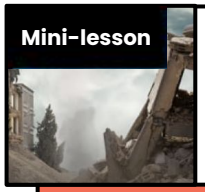
Mini-lesson 

TEKS 3.6A

How do batteries work?

Rapid Changes to Earth's Surface Unit (Volcanoes & Landslides)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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."	**3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations. **3.2C** Construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data.	**3.7B** Investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.
 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.	**3.2A** Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world.	**3.7B** Investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.
 Lesson 3	**Erosion, Natural Hazards, & Engineering** How could you survive a landslide?	Students generate multiple possible solutions to protect homes from a landslide. Students realize that there are many causes for the erosion that causes rocks to fall in landslides.	**3.2F** Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.	**3.7B** Investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.

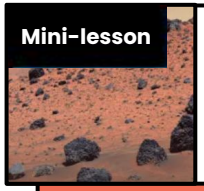


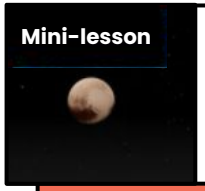
TEKS 3.7B

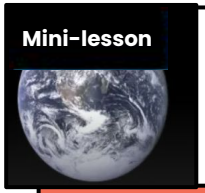
How do earthquakes happen?

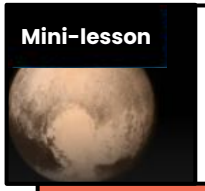
Stars & The Solar System Unit (Our Solar System)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	✨New!✨ **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.	**3.3B** Represent the natural world using models such as volcanoes or the Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials.	**3.8D** Identify the planets in Earth's solar system and their position in relation to the Sun.
Lesson 2 	**Star Brightness & Habitable Planets** Could there be life on other planets?	Students discover that the Earth is in the "Goldilocks Zone" — a distance from the 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.	**3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations.	**3.8B** Describe and illustrate the Sun as a star composed of gases that provides light and thermal energy.

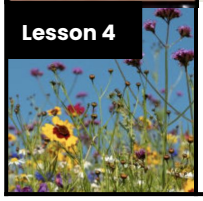
Mini-lesson 
TEKS 3.8D
Why is Mars red?

Mini-lesson 
TEKS 3.8D
Is Pluto a planet?

Mini-lesson 
TEKS 3.8D
Is Earth the only planet with life?

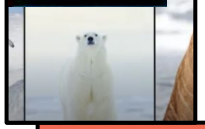
Mini-lesson 
TEKS 3.8D
Why isn't Pluto a major planet anymore?

Food Chains & Life Cycles Unit (Circle of Life)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Food Chains, Producers, & Consumers** Why would a hawk move to New York City?	Students construct models of food chains by linking cards discovering that different interrelationships exist between organisms.	**3.3B** Represent the natural world using models such as volcanoes or the Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials. **3.2F** Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.	**3.9B** Identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field.
Lesson 2 	**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.	**3.2C** Construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data.	**3.10B** Investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles.
Lesson 3 	**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.	**3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations. **3.2F** Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.	**3.9C** Describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.
Lesson 4 	**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.	**3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations.	**3.10B** Investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles.

Animals & Their Environments Unit (Weather & Animals)

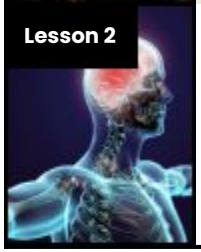
	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Habitat Diversity** Why would a wild animal visit a playground?	Students observe animals, plants, and the physical characteristics of two different habitats. They collect and analyze data to compare the biodiversity between the two habitats.	**3.4A** Collect, record, and analyze information using tools and materials to support observation of habitats of organisms.	**3.9A** Observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem.
Lesson 2 	**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.	**3.2C** Construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data. **3.2D** Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations.	**3.8A** Observe, measure, record, and compare day-to-day weather changes in different locations at the same time that include air temperature, wind direction, and precipitation.

Mini-lesson 

TEKS 3.10A

How do polar animals survive the cold?

Human Body Unit (Human Machine)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**3.3B** Represent the natural world using models such as volcanoes or the Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials.	**3.10A** Explore how structures and functions of plants and animals allow them to survive in a particular environment.
Lesson 2 	**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.	**3.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**3.10A** Explore how structures and functions of plants and animals allow them to survive in a particular environment.

Mini-lesson 

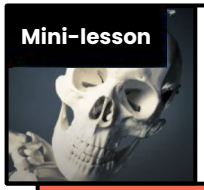
TEKS 3.10A

Why does our skeleton have so many bones?

Mini-lesson 

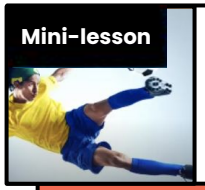
TEKS 3.10A

Why does the heart pump blood?

Mini-lesson 

TEKS 3.10A

What would happen if you didn't have a skull?

Mini-lesson 

TEKS 3.10A

Why do we sweat when we play sports?

Sounds & Energy Transfer Unit (Waves of Sound) • Page 1 of 2

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	✨New!✨ **Pattern Transfer & Technology** How do you send a secret code?	Students explore how digital devices encode complex information. They generate their own visual and sound codes and evaluate which work best given certain criteria and constraints.	**4.2D** Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.	**4.6A** Differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal.
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.	**4.2B** Plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.	**4.6A** Differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal.
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.	**4.3B** Represent the natural world using models and identify their limitations, including accuracy and size.	**4.6A** Differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal.
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.	**4.2D** Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.	**4.6A** Differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal.
Lesson 5 	**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.	**4.2A** Plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.	**4.6A** Differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal. **4.6D** Design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

Sounds & Energy Transfer Unit (Waves of Sound) • Page 2 of 2

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 6 	**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.	**4.2A** Plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.	**4.6A** Differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal. **4.6D** Design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

Earth's Natural Resources Unit (Water & Weathering)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**4.2C** Construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data.	**4.7C** Identify and classify Earth's renewable resources, including air, plants, water, and animals, and nonrenewable resources, including coal, oil, and natural gas, and the importance of conservation.
Lesson 2 	**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.	**4.2B** Collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps.	**4.7C** Identify and classify Earth's renewable resources, including air, plants, water, and animals, and nonrenewable resources, including coal, oil, and natural gas, and the importance of conservation.
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.	**4.2A** Plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.	**4.7B** Observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice.
Lesson 4 	**Renewable Energy & Natural Resources** Where does energy come from?	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.	**4.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**4.7C** Identify and classify Earth's renewable resources, including air, plants, water, and animals, and nonrenewable resources, including coal, oil, and natural gas, and the importance of conservation.

Weather & Storms Unit (Stormy Skies)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**4.2A** Plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.	**4.8B** Describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process.
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.	**4.2D** Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.	**4.8A** Measure, record, and predict changes in weather.
Lesson 3 	**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.	**4.2C** Construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data.	**4.8A** Measure, record, and predict changes in weather.
Lesson 4 	**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.	**4.2E** Perform repeated investigations to increase the reliability of results.	**4.8A** Measure, record, and predict changes in weather.

Mini-lesson 

TEKS 4.8A

Why are tornadoes so hard to predict?

Mini-lesson 

TEKS 4.8A

What makes hurricanes so dangerous?

Patterns in Space Unit (Space Patterns)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
 Lesson 1	**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.	**4.2D** Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured.	**4.8C** Collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time.
 Lesson 2	**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.	**4.3B** Represent the natural world using models and identify their limitations, including accuracy and size.	**4.8C** Collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time.
 Lesson 3	**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.	**4.3B** Represent the natural world using models and identify their limitations, including accuracy and size.	**4.8C** Collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time.
 Lesson 4	**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.	**4.2A** Plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions. **4.2B** Collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps.	**4.6D** Design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

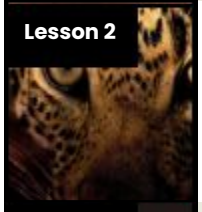
Plant Traits & Needs Unit (Power of Plants)

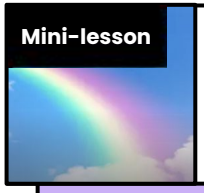
	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Matter & Plant Growth** What do plants eat?	Students conduct an investigation and interpret data and figure out that water and air account for a plant's weight.	**4.2A** Plan and implement descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.	**4.9A** Investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food.
Lesson 2 	**Trait Variation, Inheritance, & Artificial Selection** How could you make the biggest fruit in the world?	Students investigate how human beings have modified plants based on our knowledge of how plants change from generation to generation.	**4.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**4.10B** Explore and describe examples of traits that are inherited from parents to offspring such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively.

Matter & Mixtures Unit (Chemical Magic)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Conservation of Matter** Are magic potions real?	Students observe that a salt and vinegar solution will turn a dull penny shiny again indicating that substances can change other substances.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable.	**5.5C** Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.
Lesson 2 	**Dissolving & Particulate Nature of Matter** Could you transform something worthless into gold?	Students coat a steel nail in copper by placing it into the solution that dissolved bits of the penny. Students realize that substances can change to become particles too small to be seen, but they still exist.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable.	**5.5C** Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.
Lesson 3 	**Properties of Matter: Acids** What would happen if you drank a glass of acid?	Students figure out that acids are very reactive substances. Students investigate reactions between different substances to determine how known acids react with other materials.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**5.5A** Classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy.
Lesson 4 	**Chemical Reactions** What do fireworks, rubber, and Silly Putty have in common?	Students combine different substances together to discover that chemical reactions can create new substances.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable. **5.2D** Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.	**5.5A** Classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy.
Lesson 5 	**Gases & Particle Models** Why do some things explode?	Students investigate and model the reaction between baking soda and vinegar. They figure out that gases are made of particles too small to be seen.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable. **5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.5A** Classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy.

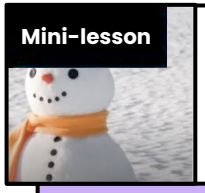
Light, Heat, & Electricity Unit (Light & Heat)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing. **5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.6C** Demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and is refracted.
 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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing. **5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.6C** Demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and is refracted.
 Lesson 3	**Electrical Energy** What if there were no electricity?	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.	**5.2E** Demonstrate that repeated investigations may increase the reliability of results. **5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**5.6B** Demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound.
 Lesson 4	**Heat Energy & Energy Transfer** How long did it take to travel across the country before cars and planes?	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.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable. **5.2E** Demonstrate that repeated investigations may increase the reliability of results.	**5.6A** Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy. **5.6D** Design a simple experimental investigation that tests the effect of force on an object.


Mini-lesson

TEKS 5.6C

How is a rainbow made?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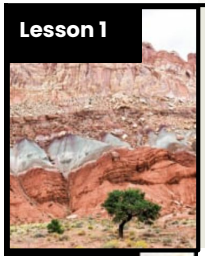
TEKS 5.6C

Why is snow white?

Erosion & Land Formation Unit (Layers of Land)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing. **5.3B** Draw or develop a model that represents how something that cannot be seen such as formation of sedimentary rock works or looks.	**5.7A** Explore the processes that led to the formation of sedimentary rocks and fossil fuels. **5.9D** Identify fossils as evidence of past living organisms and the nature of the environments at the time using models.
Lesson 2 	**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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing. **5.3B** Draw or develop a model that represents how something that cannot be seen such as formation of sedimentary rock works or looks.	**5.7B** Recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, or ice.
Lesson 3 	**Erosion & Engineering** How can you stop a landslide?	Students compare multiple solutions for preventing erosion.	**5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.7B** Recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, or ice.

Mini-lesson 

TEKS 5.7A

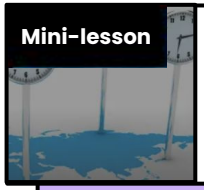
What's the best place to look for dinosaur fossils?

Climate & The Water Cycle Unit (Watery Planet)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Climate & Global Weather Patterns** Why are some places always hot?	Students obtain and combine information to describe the different climate regions of the world.	**5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.8A** Differentiate between weather and climate.
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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**5.5B** Demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand and sand and water. **5.5C** Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.
Lesson 3 	**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.	**5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.8B** Explain how the Sun and the ocean interact in the water cycle.
Lesson 4 	**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.	**5.2D** Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.	**5.8B** Explain how the Sun and the ocean interact in the water cycle.

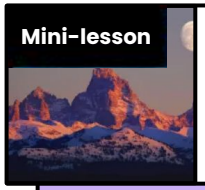
Earth's Rotation Unit (Spinning Earth)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.8C** Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky.
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.	**5.2D** Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.	**5.8C** Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky.

Mini-lesson 

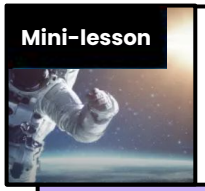
TEKS 5.8C

Why do places have different times?

Mini-lesson 

TEKS 5.8D

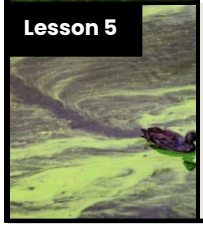
What is the Moon made of?

Mini-lesson 

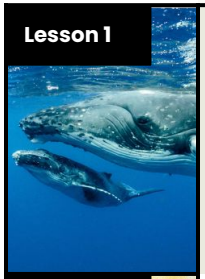
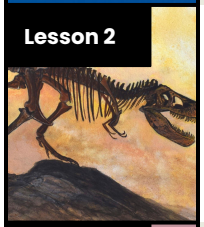
TEKS 5.8D

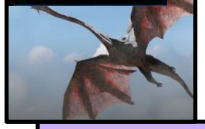
How close could an astronaut get to the Sun?

Ecosystems & The Food Web Unit (Web of Life)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing. **5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.9B** Describe the flow of energy within a food web, including the roles of the Sun, producers, consumers, and decomposers.
Lesson 2 	**Decomposers & Matter Cycle** Where do fallen leaves go?	Students conduct an investigation to test how mold grows under different conditions to decompose food. Students realize that decomposers, like mold, break down and consume dead plant material.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable. **5.2E** Demonstrate that repeated investigations may increase the reliability of results.	**5.9A** Observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components.
Lesson 3 	**Decomposers, Nutrients, & Matter Cycle** 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.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable. **5.2E** Demonstrate that repeated investigations may increase the reliability of results.	**5.9A** Observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components.
Lesson 4 	**Ecosystems & Matter Cycle** Why do you have to clean a fish tank but not a pond?	Students develop a model of a pond ecosystem and realize that interrelationships exist between decomposers, plants, and animals. Students discover that each organism must be in balance for the pond ecosystem to function.	**5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.9A** Observe the way organisms live and survive in their ecosystem by interacting with the living and nonliving components. **5.9C** Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.
Lesson 5 	✨New ✨ **Protecting Environments** How can we protect Earth's environments?	Students learn about what happens in unbalanced ecosystems and how that can lead to an overabundance of algae and harmful algal blooms. Students obtain and combine science ideas in order to help respond to and prevent harmful algal blooms.	**5.2D** Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.	**5.9C** Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.

Fossils Unit (Animals Through Time)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting 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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing. **5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.9D** Identify fossils as evidence of past living organisms and the nature of the environments at the time using models. **5.10A** Compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals.
Lesson 2 	✨New!✨ **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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**5.9D** Identify fossils as evidence of past living organisms and the nature of the environments at the time using models.
Lesson 3 	**Fossil Evidence, Trace Fossils, & Animal Behavior** Can you outrun a dinosaur?	Students learn how fossilized animal tracks can tell us a great deal about the animals that left them.	**5.2A** Describe, plan, and implement simple experimental investigations testing one variable.	**5.9D** Identify fossils as evidence of past living organisms and the nature of the environments at the time using models.

Mini-lesson 

TEKS 5.9D

Were dragons ever real?

Inherited Traits Unit (Fates of Traits)

	Topic & Guiding Question	Student Objectives	TEKS Process Standards	TEKS Readiness & Supporting Standards
Lesson 1 	**Trait Variation, Inheritance, & Artificial Selection** What kinds of animals might there be in the future?	Students analyze the traits of parent dogs and their offspring, constructing an explanation about which traits a puppy gets from each parent.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**5.10B** Differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle.
Lesson 2 	**Trait Variation, Natural Selection, & Survival** Can selection happen without people?	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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing. **5.3B** Draw or develop a model that represents how something that cannot be seen works or looks.	**5.10A** Compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals. **5.10B** Differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle.
Lesson 3 	**Animal Groups & Survival** Why do dogs wag their tails?	Students observe animals that live in groups in order to obtain, evaluate, and communicate information about animal social behavior. Students use evidence to show how animals form groups to help them survive.	**5.2F** Communicate valid conclusions in both written and verbal forms.	**5.10B** Differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle.
Lesson 4 	**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.	**5.3A** Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.	**5.10A** Compare the structures and functions of different species that help them live and survive in a specific environment such as hooves on prairie animals or webbed feet in aquatic animals.