Park Hill School District

Building Successful Futures • Each Student • Every Day

Kindergarten Science Curriculum

Course Description: In kindergarten, instructional time will focus on three disciplinary core ideas: physical science, earth and space science, and life science. In the physical science unit, students will explore pushes and pulls, speed and direction, and learn about the sun's energy. For the earth and space unit, students will study weather conditions, learn about the measurement of weather, and learn how living things impact the environment. Students will learn how plants and animals can change the environment to meet their needs. Students will also be able to communicate how humans can reduce their impact on the land, water, and air in our local environment. Learning about the relationship between plants' and animals' needs and their environment will also be explored. Within the life science unit, students will describe what plants and animals need to survive.

Scope and Sequence:

Quarter	Unit	Timeframe
1	Unit 1: Dealing With the Weather ● Topic 1: Energy From the Sun ● Topic 2: Weather Conditions ● Topic 3: Weather Patterns	19-30 Days
2	Unit 2: Using Force to Change Motion ● Topic 1: Pushes and Pull ● Topic 2: Speed And Direction	15-19 Days
3/4	Unit 3: Humans and the Needs of Organisms ● Topic 1: Animal Need ● Topic 2: Plant Needs ● Topic 3: Reducing Human Impact	18-27 Days
4	Unit 4: Living Things and Their Habitats ● Topic 1: Habitats ● Topic 2: Organisms Impact on Environment ● Topic 3: Uses of Natural Resources	18-27 Days

Curriculum Revision Tracking

Spring 2018

- Emphasized and added Cross Cutting Concepts, Reordered some scopes, Prioritized lessons

Summer 2020

- Updated to math STEMscope 3D

Spring 2023

- Moved Energy from the Sun to the first scope to help with sunshine availability

Spring 2024

- None

Unit 1: Dealing With the Weather

Subject:Science
Grade: Kindergarten
Name of Unit: Dealing With the Weather
Length of Unit: 21-32 days
Overview of Unit: During this unit, students will be exploring many phenomena while learning the following concepts:
● Weather is a combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time.
● People measure these conditions to describe and record the weather and to notice patterns over time.
● Sunlight warms Earth's surface.

Anchoring Phenomena Event- (to start the unit)
Students interact with a time-lapse video of the seasons.

Anchoring Phenomena Driving Question
How can we respond to different weather conditions and the effects of the sun?

Mission Performance Task/Engaging Scenario (to end the unit)
Students apply knowledge of weather conditions and the effects of the Sun in order to build a playground cover that protects against different types of weather.

The scopes included in this bundle include the following:

- Weather Conditions
- Weather Patterns
- Energy from the Sun

The Verbs: What should students be doing?
- Use and share observations: Talk about what you see with others.
- Describe patterns over time: What has changed over the years?
- Measure: Find out the size or amount of something
- Record: Write down
- Notice patterns over time: Be aware of things that happen again and again.

The Nouns: What key terms are found in the standard?
- Weather: How it is outside
- Sunlight: The energy from the Sun that plants need to make food
- Wind: Moving air
- Snow: Frozen water falling from the sky
- Rain: Water falling from the sky
- Temperature: How hot or cold something is
- Combination: Two or more things put together

- Particular region: One named area
- Particular time: One named time
- Weather: How it is outside
- Patterns: Something that repeats
- Local: In and around where you live
- Condition: What something is like

Topic 1: Energy From the Sun

Suggested Length of Time: 6-11 Days

Essential Questions (Student Wondering):

- How does sunlight affect different types of surfaces on Earth?

Enduring Understanding (Learning Objectives/Performance Expectations):

- The student is expected to make observations to determine the effect of sunlight on Earth's surface.
- The student is expected to use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
- The student is expected to ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.PS3.A.1 Make observations to determine the effect of sunlight on Earth's surface.
- 1.PS3.A.1 Identify the source of energy that causes an increase in the temperature of an object.
- K.PS3.B.1 With prompting and support, use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

Disciplinary Core Ideas:

- PS3.B: Conservation of Energy and Energy Transfer Sunlight warms Earth's surface. (K-PS3-1),(K-PS3-2)
- ETS1.A: Defining and Delimiting Engineering Problems Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)

Supporting:

Crosscutting Concepts & Science and Engineering Practices:

- Planning and Carrying Out Investigations:Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1)
- Constructing Explanations and Designing Solutions: Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3-2)
- Connections to Nature of Science:Scientific Investigations Use a Variety of Methods-Scientists use different ways to study the world. (K-PS3-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE Investigative Phenomena- Beach Umbrella Picture *Why do we use umbrellas at the beach?* APK: *Students look at a picture and determine where a person would feel warm and where they would feel less warm* Graphic Organizer: *Draw pictures to show how sunny, partly sunny, and cloudy days affect the sun's surface*. Hook:. *Design a structure that would protect toys from the sun.*	1-2	Materials ● Copy related files. ● Heat lamp ● box (optional) ● rocks (optional)
EXPLORE **Explore 1**: Scientific Investigation: Hanging Out in the Shade *Students conduct an investigation comparing the ground's surface in sunny location to a shady location.*	1	Materials ● Copy related files ● 2 large ice blocks
EXPLORE **Explore 2**:Activity-Sammy the Snake *Students examine pictures to help Sammy the Snake find a place to warm his belly.*	1	Materials ● Copy related files
EXPLORE **Explore 3**:Engineering Solutions- Save the Chocolate! *Students find a solution to keep chocolate from melting*.	1	Materials ● Lamp (75/100 watt bulb), straws, wax paper, chocolate squares, tape, light colored paper, rubber bands, paper plates, index cards

EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1-2	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Topic 2: Weather Conditions

Suggested Length of Time: 7-10 Days

Essential Questions (Student Wondering):

- What causes the weather to change each day?

Enduring Understanding (Learning Objectives/Performance Expectation):

- The student is expected to use and share observations of local weather conditions to describe patterns over time.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.ESS2.D.1 Use and share observations of local weather conditions to describe patterns over time.
- 1.ESS2.D.1 Identify patterns indicating relationships between observed weather data and weather phenomena

Disciplinary Core Ideas:

- ESS2.D: Weather and Climate Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1)

Supporting: Crosscutting Concepts & Science and Engineering Practices:

- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)
- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE: **Investigative Phenomena**- Video *If it's raining where I live, is it raining everywhere?* **APK**- Wall posters with questions **Graphic Organizer**- What is Weather? *What can we see and measure? Weather Words* *Weather is…* **Hook**: What types of clothes would you need for each season? *Students sort **clothes** based on weather*	1-2	Materials • Copy related files. • Collect a variety of clothes for different weather (windy, rain, cold, warm/sunny) • Chart paper • Set up thermometer and wind sock

EXPLORE Explore 1 Activity:What is the Weather Like *Students collect weather data and compare to another city*	1	Materials ● Copy related files ● Sunscreen, rain coat, boots, scarf, sandals, winter jacket, mittens, baseball cap, paper bags, tape By the end of this lesson students should: Understand that different types of weather require different types of clothing and cause us to participate in different kinds of activities/hobbies. **CCC Question: How does weather change over time?**
EXPLORE Explore 2 Activity: Meteorologist for a Day *Students give a weather report based on a picture*	1	Materials ● Copy related files ● Hat or a bowl ● 9 bingo counters per student By the end of this lesson students should: Identify and practice weather words/weather pictures.
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Topic 3: Weather Patterns

Suggested Length of Time: 8-11 days

Essential Questions (Student Wondering):

- How can we predict the weather?

Enduring Understanding (Learning Objectives/Performance Expectation):

- The student is expected to use and share observations of local weather conditions to describe patterns over time.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.ESS2.D.1 Use and share observations of local weather conditions to describe patterns over time.
- 1.ESS2.D.1 Identify patterns indicating relationships between observed weather data and weather phenomena

Disciplinary Core Ideas:

- ESS2.D: Weather and Climate Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record

Supporting: Crosscutting Concepts & Science and Engineering Practices:

- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)
- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE **Investigative Phenomena**: Video *How can we predict the weather?* **APK**: Predicting Weather *Students listen to statements about predicting weather and discuss whether or not they think weather can change from day to day.* **Graphic Organizer:** Weather Patterns *Daily Weather, Yearly Weather Patterns*	1-2	Materials ● Copy related files

EXPLORE **Explore 1** Scientific Investigation: Weather Pattern Chart *Students will measure and record temperature changes for 3 days.*	1	Materials ● Copy related files ● Thermometer ● Chart paper ● Cups ● Ice ● Water
EXPLORE **Explore 2** Activity:Weather Caterpillar *Students will create a weather caterpillar to show weather over time. (observing weather across months)*	1	Materials ● Copy related files ● Paper Plates
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Engaging Scenario/Action Plan

Engaging Scenario/Action Plan

After all the scopes are complete, students will use the information gathered on the class Anchor Chart to help them complete their Action Plan. Briefly review the Anchor Chart. Students should complete the Action Plan as a group.

Action Plan:

Design a cover that reacts to different types of weather to protect the playground.

- It should do different things depending on the type of weather condition (rainy, snowy, sunny, etc)
- It should protect the playground and students.

Unit 2: Using Force to Change Motion

Subject: Science
Grade: Kindergarten
Name of Unit: Physical Science
Length of Unit: 15-19 days
Overview of Unit: During this unit. students will be exploring many phenomena while learning the following concepts:
● Different amounts of strength and different directions can change the motion of an object.
● A push or pull can change the speed or direction of an object's motion.

Anchoring Phenomena Event (To start the unit)
Students interact with a video of a girl with a soccer ball.

Anchoring Phenomena Driving Question
How can we change an object's motion?

Mission Performance Task/Engaging Scenario (To end of the unit)
Students will create a game using pushes and pulls.

The scopes included in this unit include the following:

- Pushes and Pulls
- Speed and Direction

The Verbs: What should students be doing?

- Plan and conduct investigations: Think and do a project to answer questions.
- Compare effects: What is the same? What is different?
- Analyze data: Find patterns.
- Touch: To be in contact with something, to feel something
    - Collide: To come together, to hit or crash together
    - Solve: Find an answer to a problem
    - Design: Draw or write a plan for something

The Nouns: What key terms are found in the standard?

- Push: Use force to move away
- Pull: Use force to move towards
- Speed: How fast something is moving
- Direction: The path of the object
    - Motion: How an object moves from one place to another
    - Engineering: Using science to solve a problem for people
    - Problem: Something people want changed
    - Solution: An answer to a problem
    - Situation: What something is like
- Strength: How strong something is

Topic 1: Pushes and Pulls

Suggested Length of Time: 7-9 Days

Essential Questions (Student Wondering):

- How can you move something heavy?

Enduring Understanding (Learning Objectives/Performance Expectations):

- The student is expected to plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- The student is expected to analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

Standards Addressed

Priority*:*

Missouri Learning Standards:

- K.PS2.A.1 Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- K.PS2.A.2 Describe ways to change the motion of an object.

Disciplinary Core Ideas:

- PS2.A: Forces and Motion Pushes and pulls can have different strengths and directions. (K-PS2-1),(K-PS2-2)

Supporting*:*

Crosscutting Concepts & Science and Engineering Practices:

- Planning and Carrying Out Investigations: With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1)
- Analyzing and Interpreting Data: Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2)
- Connections to Nature of Science Scientific Investigations Use a Variety of Methods Scientists use different ways to study the world. (K-PS2-1)
- Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1),(K-PS2-2)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE I**nvestigative Phenomena**-Video *How can you move something heavy?* **APK:** *Students classify pictures as either a push or a pull.*	2	**Materials:** ● Copy related files ● timer ● spoon ● straw

Graphic Organizer: Push/Pull Venn Diagram **Hook**:.Let's Play Ball *Students crumple a piece of paper into a ball and attempt to move the paper using different types of pushes and pulls.*		
EXPLORE **Explore 1** Scientific Investigation:Cross the Finish Line *Students determine which object requires more force to be pushed and moved across a finish line.*	1	Materials: ● Copy related files ● string, paper clips, ping pong ball, golf ball, wooden block, tory car
EXPLORE **Explore 2**:Activity-Push! Pull! *Students determine which boxes are easy to pull and which are harder to pull.*	1	Materials: ● Copy related files ● Per group: 6 shoe boxes with lids, string, 3 light objects (coin, feather, cotton), 3 heavy objects (book, brick, bag of rocks), tape. *plastic shoe size boxes will work or any box with lid that you CAN'T see through.
ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Topic 2: Speed and Direction

Suggested Length of Time: 8-10 Days

Essential Questions (Student Wondering):

- What happens when objects collide?

Enduring Understanding (Learning Objectives/Performance Expectations):

- The student is expected to plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- The student is expected to analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.
- The student is expected to develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Standards Addressed

Priority*:*

Missouri Learning Standards:

- 2.PS2.A.1 Analyze data to determine how the motion of an object changed by an applied force or the mass of an object

Disciplinary Core Ideas:

- PS2.A: Forces and Motion Pushes and pulls can have different strengths and directions. (K-PS2-1),(K-PS2-2) Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1),(K-PS2-2)
- PS2.B: Types of Interactions When objects touch or collide, they push on one another and can change motion. (K-PS2-1)
- PS3.C: Relationship Between Energy and Forces A bigger push or pull makes things speed up or slow down more quickly. (secondary to K-PS2-1)
- ETS1.A: Defining Engineering Problems A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (secondary to K-PS2-2)

Supporting*:*

Crosscutting Concepts & Science and Engineering Practices:

- Planning and Carrying Out Investigations: With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1)
- Analyzing and Interpreting Data: Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2)
- Connections to Nature of Science Scientific Investigations Use a Variety of Methods Scientists use different ways to study the world. (K-PS2-1)
- Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1),(K-PS2-2)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE **Investigative Phenomena**: Video *What happens when two cars collide?* **APK**:Speed/Direction Statements- Agree or Disagree **Graphic Organizer**:How did That Object Move? **Hook**:Little Kicks, Big Kicks *Students explore speed and force by kicking a ball toward a target.*	2	Materials: ● Copy related files ● beach ball ● masking tape
EXPLORE **Explore 1**:Scientific Investigation- Collision *Students discover what happens when a moving ball collides with balls that are stationary.*	1	Materials ● Copy related files. ● baseballs ● aluminum cans ● toy cards ● tennis balls ● golf balls
EXPLORE **Explore 2**:Engineering Solutions- Park the Car *Students problem-solve to determine how to move a toy car to the garage without pushing it.*	1	Materials ● Copy related files. ● rulers ● blocks ● toy cars ● masking tape
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	2	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Engaging Scenario/Action Plan

Engaging Scenario/Action Plan

After the scopes are complete, students will use the information they gathered on the class Anchor Chart to help them complete their Action Plan. Briefly review the Anchor Chart. Students shouel complete the Action Plan as a group.

Action Plan:

Create a game for you and your friends.

- You can use the following:
    - Two tennis balls
    - Five water bottles
    - A stack of books

Briefly review the Anchor Chart. Students should complete the Action Plan as a group by drawing how to set up the game. They should play it together.

Unit 3: Humans and the Needs of Organisms

Subject:Science
Grade: Kindergarten
Name of Unit:Humans and the Needs of Organisms
Length of Unit: 18-27 days
Overview of Unit: During this unit, students will be exploring many phenomena while learning the following concepts:
● Plants and animals (including humans) have basic needs to survive.
● An organism's surroundings must provide all the basic needs necessary for the organism to survive.
● Humans can make choices to reduce their impacts on the land, water, and air.

Anchoring Phenomena Event (To Start the Unit)
Students interact with a video of a sea lion trying to eat a piece of trash.

Anchoring Phenomena Driving Question
What effect would humans building a hotel have on the plants and animals in the rainforest?

Mission Performance Task/Engaging Scenario (To End the Unit)
Students create a poster to protect the plants and animals in the rainforest from being affected by a hotel being developed.

The scopes included in this unit include the following:

- Animal Needs
- Plant Needs
- Reducing Human Impact

The Verbs: What should students be doing?

- Use observations to describe: Write down what you see.
    - Survive: Stay alive
    - Grow: Get larger or taller
    - Obtain: Get something

The Nouns: What key terms are found in the standard?

- Animals: A living thing that can move
- Food: What plants and animals use for energy
- Plant: A type of living thing that cannot move.

Topic 1: Animal Needs

Suggested Length of Time: 6-9 Days

Essential Questions (Student Wondering):

- Do animals have the same needs?

Enduring Understanding (Learning Objectives/Performance Expectations):

- The student is expected to use observations to describe patterns of what plants and animals (including humans) need to survive.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.LS1.C.1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

Disciplinary Core Ideas:

- K-LS1.C.1 Organization for Matter and Energy Flow in Organisms: All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

Supporting: Crosscutting Concepts & Science and Engineering Practices:

- Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)
- Connections to Nature of Science: Scientific Knowledge is Based on Empirical Evidence-Scientists look for patterns and order when making observations about the world. (K-LS1-1)
- Patterns Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE Investigative Phenomena- Video *How do zookeepers know how to care for so many different animals?* APK *What do we need to live and grow?* Graphic Organizer: Animal Needs *Animals drink and eat so they can…* Hook:Growing Up *Students will make observations of a human as*	1-2	Materials ● Copy related files. ● Sticky notes ● pictures of teacher growing up

they grow and develop.		
EXPLORE **Explore 1**:Scientific Investigation- Picky Eaters *Students learn that animals are "picky eaters."*	1	Materials ● Copy related files ● Clear tape
EXPLORE **Explore 2**:Activity- Animal Needs *Students match animals with the foods they eat.*	1	Materials ● Copy related files
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Topic 2: Plant Needs

Suggested Length of Time: 6-9 Days

Essential Questions (Student Wondering):

- Do all plants need the same things to survive?

Enduring Understanding (Learning Objectives/Performance Expectations):

- The student is expected to use observations to describe patterns of what plants and animals (including humans) need to survive.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.LS1.C.1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

Disciplinary Core Ideas:

- LS1.C: Organization for Matter and Energy Flow in Organisms All animals need food in order to live and grow. They obtain their food from plants or from other animals.

Supporting: Crosscutting Concepts & Science and Engineering Practices:

- Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)
- Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (K-LS1-1)
- Patterns Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE Investigative Phenomena- Video *Can a plant live without a light?* APK:Plant Needs *Is a Venus flytrap a plant? What does it need to grow?* Graphic Organizer:What Does a Plant Need to Grow? *Thinking map of plant needs*.	1-2	Materials ● Copy related files.

Hook:Simon Says *Students play a game to help them understand that plants use their parts to meet their needs.*		
EXPLORE **Explore 1**:Scientific Investigation- Water Me *Students observe how taking away the basic news of water will affect plant growth and survival.*	10 (journal once a week)	Materials ● Copy related files ● Potting soil, cups, linking cubes, graduated cylinder, lima beans ● *Note: Green bean seeds or grass seed have worked well in the past.
EXPLORE **Explore 2**:Scientific Investigation-Shine a Light On Me *Students observe how taking away the basic need of light will affect plant growth and survival.*	10 (journal once a week)	Materials ● Copy related files ● Desk lamp, graduated cylinder, linking cubes, lima beans, potting soil
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Topic 3: Reducing Human Impact

Suggested Length of Time: 6-9 Days

Essential Questions (Student Wondering):

- How do my choices impact the environment?

Enduring Understanding (Learning Objectives):

- The student is expected to construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
- The student is expected to communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.
- **K-2-ETS1-2** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.ESS3.C.1 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Disciplinary Core Ideas:

- ESS3.C: Human Impacts on Earth Systems Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2)
- ETS1.B: Developing Possible Solutions Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (secondary to K-ESS3-3)

Supporting: Crosscutting Concepts & Science and Engineering Practices:

- Engaging in Argument from Evidence: Construct an argument with evidence to support a claim. (K-ESS2-2)
- Obtaining, Evaluating, and Communicating Information: Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)
- Cause and Effect Events have causes that generate observable patterns. (K-ESS3-2),(K-ESS3-3)
- Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS3-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE Investigative Phenomena-Video	1-2	Materials ● Copy related files.

How do my choices impact the environment? APK: *Students observe the picture to figure out what does not belong in that environment and share their thinking with partners.* Graphic Organizer:Protecting Earth *Draw pictures of ways humans have changed the land, air, water and other organisms in their environment.* Hook: *Students communicate a solution to reduce the impact of water bottles and other trash in the classroom.*		● 5 boxes, video clip of recycling center, recyclable items per student
EXPLORE Explore 1:Scientific Investigation- Pollution Sort *Students identify how different types of pollution affects different parts of our environment.*	1	Materials ● Copy/cut/laminate related files
EXPLORE **Explore 2:**Engineering Solutions- New Home *Students design a road to get to their new homes.*	1-2	Materials ● Copy related files ● Tray, toothpicks (green, orange, blue), soil
EXPLORE **Explore 3**:Activity- Human Impact Memory Game *Students play a memory game to match human impacts on the environment with the reasons why those impacts occur.*		Materials ● copy related files
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class. Performance Expectation Assessment Task

		(Storyline) Materials: ● White paper, chart paper
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Engaging Scenario/Action Plan

Engaging Scenario/ Action Plan

After all of the scopes are complete, students will use the information they gathered on the class Anchor Chart to help them complete their Action Plan. Briefly review the Anchor Chart. Students should complete the Action Plan as a group.

Action Plan:
Create a poster to help the plants and animals in the rainforest. Your poster should tell others the following:

- Why they should protect the rainforest.
- How the needs of your plant and animal are met.

Unit 4: Living Things and Their Habitats

Subject: Science
Grade: Kindergarten
Name of Unit: Living Things and Their Habitats
Length of Unit: 18-27 days
Overview of Unit: During this unit, students will be exploring many phenomena while learning the following concepts:
● Plants and animals (including humans) have basic needs to survive.
● Animals use natural resources from their environment to meet their needs.
● Animals change their environment to meet their needs of food, water, and shelter.
● An organism's surroundings must provide all the basic needs necessary for the organism to survive.

Anchoring Phenomena Event (To start the unit)
Students interact with a video of a family cooking.

Anchoring Phenomena Driving Question
How can an animal meet its needs in a human-made habitat?

Mission Performance Task/Engaging Scenario (To end the unit)
Students will write a story from the perspective of an animal moving into a new exhibit at the zoo.

The scopes included in this bundle include the following:

- Habitats
- Organisms' Impact on Environments
- Uses of Natural Resources

The Verbs: What should students be doing?

- Use a model: Look at a copy.
- Construct an argument supported by evidence: Say what you think and why.

The Nouns: What key terms are found in the standard?

- Water: The liquid that living things need to survive
- Air: The stuff we breathe
- Resources: Something that is valuable that we can use
- Land: The part of Earth you can stand on
- Humans: People
- Relationship: How one thing is linked to another thing
- Plant: A living thing that cannot move
- Animal: A living things that cannot produce it own food
- Environment: Everything that is around a living thing

- People: A group of humans
- Needs: What a living thing must have to stay alive

Topic 1: Habitats

Suggested Length of Time: 6-9 Days

REDEEM COUPONS FOR LIVE MATERIALS 2-3 WEEKS PRIOR TO BEGINNING THIS TOPIC.

Essential Questions (Student Wondering):

- Why do animals live in different places?

Enduring Understanding (Learning Objectives/Performance Expectation):

- The student is expected to use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.ESS3.A.1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Disciplinary Core Ideas:

- ESS3.A: Natural Resources Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

Supporting: Crosscutting Concepts & Science and Engineering Practices:

- Developing and Using Models: Use a model to represent relationships in the natural world. (K-ESS3-1) Obtaining, Evaluating,
- Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS3-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE **Investigative Phenomena-** Video *Why do fish live in water and dogs live on land?* *Similar to old Graphic Organizer* **APK**: Where Do You Live? *Students identify their habitat. They draw a turtle and bird home.* **Graphic Organizer:** Habitats *Draw characters of different habitats.*	1-2	Materials ● Copy related files. ● Chart paper

Hook:Why Do You Live There? *Students are introduced to habitats. Sorting animals with habitats*		
EXPLORE **Explore 1**: Activity- Home Sweet Home *Students draw a plant/animal habitat and label how it is meeting its survival needs.*	1	Materials ● Copy related files ● Manila construction paper ● books of animals in their natural habitats
EXPLORE **Explore 2**: Activity- Build My Habitat! *The class builds either a terrarium for an insect. (pill bugs or mealworms)*	2-3	Materials depending of if teacher chooses to build a terrarium or aquarium ● Copy related files ● Redeem coupon for pill bugs/mealworms, clear containers with lid, potting soil, sand gravel, lima beans, radish seeds, leaves, sticks, rocks, bugs or worms.
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class..
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Topic 2: Organisms Impact on Environments

Suggested Length of Time: 6-9 Days

Essential Questions (Student Wondering):

- Why would a plant or animal change its environment?

Enduring Understanding (Learning Objectives/Performance Expectations):

- **K-ESS2-2**The student is expected to construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
- **K-2-ETS1-1** The student is expected to ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- **K-2-ETS1-2** The student is expected to develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem
- **K-2-ETS1-3** The student is expected to analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.ESS2.E.1 With prompting and support, construct an argument using evidence for how plants and animals (including but not limited to humans) can change the environment to meet their needs.

Disciplinary Core Ideas:

- SS2.E: Biogeology Plants and animals can change their environment. (K-ESS2-2)
- ESS3.C: Human Impacts on Earth Systems Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2)

Supporting:

Crosscutting Concepts & Science and Engineering Practices:

- Engaging in Argument from Evidence: Construct an argument with evidence to support a claim. (K-ESS2-2)
- Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS2-2)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE **Investigative Phenomena**-Video *Why does a beaver change its local environment?* **APK:**An Organism Changing the Environment *Look at pictures. Describe how organisms changed the environment* **Graphic Organizer**:Changes Made by Plants and Animals *Draw examples of good and bad changes that plant/animals make to Earth.* **Hook:** I'm Home! *Students observe how animals change their environments to build their shelter.*	1-2	Materials ● Copy related files.
EXPLORE **Explore 1**:Activity- Things Change *Students organize a set of pictures to show how animals change their environment.*	1	Materials ● Copy/cut related files
EXPLORE **Explore 2**:Engineering Solution- Beaver Dam *Students design a solution that will block a river, creating a pond that will provide a place for a family of beavers to build a home.*	1-2	Materials ● Copy related files ● Bucket, sand, red clay, aluminum container, rocks, modeling clay, craft sticks, green construction paper
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for

		students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Topic 3: Uses of Natural Resources

Suggested Length of Time: 6-9 Days

Essential Questions (Student Wondering):

- Where do the resources come from that I use every day?

Enduring Understanding (Learning Objectives/Performance Expectation):

- The student is expected to use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Standards Addressed

Priority:

Missouri Learning Standard:

- K.ESS3.A.1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Disciplinary Core Ideas:

- ESS3.A: Natural Resources Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

Supporting: Crosscutting Concepts & Science and Engineering Practices:

- Developing and Using Models: Use a model to represent relationships in the natural world. (K-ESS3-1)
- Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS3-1)

Detailed Description/Instructions:

5E	Suggested # of Days	Notes
ENGAGE **Investigative Phenomena**- Video *I buy my shirt from the store but where does the shirt come from? Similar to 2.0 Graphic Organizer* **APK**:Building A House *Many different materials are used to build a house. Where did the materials in the picture originally come from?* **Graphic Organizer:**What Humans Use *Draw products humans use. Draw resources that these products come from.* **Hook**:Where Did it Come From? *Students learn the criteria for natural resources versus man-made resources.*	1-2	Materials ● Copy related files.

EXPLORE **Explore 1**:Scientific Investigation- Natural Resources Chains *Students learn about the different ways that humans use natural resources in their everyday lives to meet their needs.*	1	Materials ● Copy related files. ● Green/yellow construction paper, masking tape,
EXPLORE **Explore 2**:Activity-What Is It Made Of? *Students sort different objects based on what they are made from.*	1	Materials ● Copy/cut/laminate related files. ● Clear tape
EXPLAIN & ELABORATE	2-4	Pick 2-3 activities to extend concepts, consider adding voice and choice for students. **Must do STEMscopedia and Picture Vocabulary.**
EVALUATE	1	Under the Assess tab choose an assessment that meets the needs of your class.
Mission Anchor Chart Readdress the mission and display the anchor chart	1	See Anchoring Phenomena Event Teacher Guide for anchor chart suggestions

Engaging Scenario/Action Plan

Engaging Scenario/ Action Plan

After all of the scopes are complete, students will use the information they gathered on the class Anchor Chart to help them complete their Action Plan. Briefly review the Anchor Chart. Students should complete the Action Plan as a group.

Action Plan:
Write a story about an animal at the zoo trying to live in a new habit.

- You should be writing as if you were an animal.
- Include how the animal meets its needs of food, water, and shelter.
- Include how the animal changes the environment.
- Include pictures to go along with the story.