Unit 1 - Sunlight's Energy	Grade K	Days - 16

Standards:
Students who demonstrate understanding can:
K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface. [Clarification Statement: Examples of Earth's surface could include sand, soil, rocks, and water] [Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.]

K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.* [Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.]

Anchoring Question:

- How does the sunlight affect the earth's surfaces?

Essential Questions:

1. How does sunlight affect our lives?
2. How does sunlight affect our planet?

Enduring Understandings:

- Sunlight warms the earth's surface.
- Sunlight affects various surfaces (rock, sand, water, soil).
- Scientists use different ways to study the world

Storyline Narrative / Big Ideas:
This unit will focus on weather and climate, particularly on sunlight and how it impacts different surfaces on Earth - sand, soil, rock, and water. Ultimately, students will use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.

Vocabulary Words: cold, hot, sun, ice, light, soil, rock, water, Earth, surface, warmer, cooler, shade, sunlight

Science and Engineering Practices	Disciplinary Core Ideas	Cross Cutting Concepts
<u>Asking Questions and Defining Problems</u> Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions. Ask questions based on observations to find more information about the	**PS3.B: Conservation of Energy and Energy Transfer:** Sunlight warms Earth's surface. (K-PS3-1), (K-PS3-2)	**Cause and Effect -** Events have causes that generate observable patterns. (K-PS3-1),(K-PS3-2)

designed world. (K-ESS3-2) **<u>Planning and Carrying Out Investigations</u>** Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.		

Consolidated Supply List:

- Science journals
- Aluminum foil
- Plastic page protectors
- Popsicles sticks for stem challenge
- Scotch tape
- Post-its
- Chart paper
- Envelopes
- Index cards
- Mystery Science subscription

Episode 1
Engage/Elicit Ideas
Days: 2 days

Lessons	Resources
Lesson 1: Phenomena/Wonderings **<u>Gather</u> -** Show Phenomena Pictures and short video clip, Block of Ice Melting in Sun. Allow free discussion to happen between the students while they are looking at each picture and video. Encourage discussion by asking questions such as: • What do the pictures and video show the sun doing to the Earth's surface - ice, ground, sand etc., • What is happening in each picture? • What are you noticing or wondering about the sun's effects?. **<u>Reason</u> -** Model creating a picture of what the sun can do to the Earth's surface. Model using arrows and labels. Students then create their own models/pictures of the sun and what it can do to a block of ice, sand, ground, soil etc.	**Lesson 1:** • Phenomena Pictures • Video Link: Block of Ice Melting in Sun • Chart Paper • Wonder Journal Template

Students should draw a detailed picture using labels, pictures, and arrows. **<u>Communicate</u> -** Class Discussion - Share their noticings about the sun's effects using the pictures they drew.. Jot down in their wonder journal something they are wondering. *Teacher Note: You may want to use the student-made wonders to fill in the "Want to Know" Section of the KWL chart prior to Lesson 2 to save time. **Lesson 2: Engage and Elicit Ideas** **<u>Gather</u>** - Refer to the phenomena pictures from the last lesson. Have them displayed while you discuss. Tell the class you are going to create a chart about what you know about sunlight, what you want to know about sunlight, and eventually what you learned about sunlight. **<u>Reason</u>** - As a class, create a KWL Chart of **how the sunlight affects our lives and world.** Have students give you examples of what they know about sunlight and fill that in together as a class. Use small pictures and symbols in addition to words to help students connect and understand. **<u>Communicate</u>** - Review what is on the KWL chart of what they know and what to know about how sunlight affects our lives and the world. Tell students next time they will be going outside to explore and investigate. *Keep the KWL chart for the end of the unit.	**Lesson 2:** • Phenomena Pictures • KWL Chart
Episode 2 **Explore** **Days: 4 days**	
Lessons	**Resources**
Lesson 3: Exploring Temperatures Outside **<u>Gather</u> -** Refer back to the phenomena pictures and video clip and discuss as a class what it means to feel warmth versus cold. Create an anchor chart titled: "**I wonder how sunlight affects things outside**…" Explain to the class that you will go outside to make observations to help answer our wonder. **<u>Reason</u> -** Students will go outside and observe how the weather makes them feel; is it warm or cold? Depending on what you have available, have them touch things around them (playground material, rocks, grass, leaves,	**Lesson 3:** • Phenomena pictures • 1 Post-it for each student • Anchor Chart (Wonder chart) • Clipboards (optional) • Pencils/Crayons

bench, water pan, sand in sun, etc.). Are some things cooler or warmer? This will lead to more discussion during Lesson 2. Students will record observations through a detailed drawing on a post-it. **Communicate -** When you go back inside, have students put the post-its on your anchor chart. Have the class share and explain some of the pictures/drawings/labels that they came up with. Encourage all student responses so that they can develop their ideas and awareness of the heat/sun relationship. **Lesson 4: Sun's Effects on Water** **Gather -** Day 1 - Watch video of Melting Popsicle: Time Lapse Tuesdays Ask - Why is it important to know the best location for your plants, animals and food? Today we will explore why. The class will fill 3 small jars with the same amount of water. Label with the level of the water and location in the room or school. Place around the room or school with different levels of warmth from the sun. Let sit for a day. **Reason** - Day 2 - Collect jars and record measurements (using non-standard units to measure - ex. Unifix cube) on a class data chart. Discussion questions: ● Who has an idea on why some jars have less water than others?" ● Why would this make a difference? *That's why we need to really pay attention to the locations of all living things to make sure that the environment will provide them what they need to be successful*." **Communicate** - Students draw a picture of what a jar with water in the sun would look like and a jar with water in the shade. **Lesson 5: How could you warm up a frozen playground?** **Please preview mystery science activity prep to understand how to prepare for this lesson** **Gather** - Mystery Science Lesson:**How could you warm up a frozen playground?** In this lesson, students think about their experiences with hot and cold weather, and learn about a real city where the sun never shines in winter. **Reason** - In the activity, Chill City, students experiment with different types of materials (opaque, transparent, and	**Lesson 4:** ● Melting Popsicle: Time Lapse Tuesdays ● 3 small jars ● Unifix cubes **Lesson 5:** ● Mystery Science: *How could you warm up a frozen playground?* ● Chill City Activity Sheet 1 per student ● Draw Chill City Activity Sheet 1 per student ● Rulers (used for paper folding, optional) ● Aluminum Foil (at least 2 feet) ● Black Construction Paper to cut up

reflective) to figure out how to reflect light. They use this to bring light and warmth to an imaginary paper town. Students can work in pairs or independently. Start the Mystery Science Lesson, and follow along with instructions. **<u>Communicate</u> -** Ask the class what they did to make the playground warmer? How did they make sure the skating rink stayed cold? Afterwards, Use the Draw chill city to show what you would build to keep the playground warm in the winter as a closing activity.	• 2 Plastic Report Covers to cut up • 2 Colored Construction Papers • Tape or Dot Stickers • Envelopes to hold material packs • Index Cards
Episode 3 **Explain** **Days: 5 days**	
Lessons	**Resources**
Lesson 6: Vocabulary Splash **<u>Gather</u> -** Display all the unit's vocabulary words. Read each word to the class with a brief explanation of the words. **<u>Reason</u> -** As a class (can be an interactive writing type activity) sort these words in a closed sort using their prior knowledge. Label each group of words. Categories suggestions: temperatures, earth's surfaces, energy, other **<u>Communicate</u> -** Discuss as a group the final label headers of each group of words. Remind students that we will be using these vocabulary words throughout the unit. Additionally, we will be exploring them in our science journals. **Lesson 7: Effects of the Sun** **Vocab. Focus** - choose a few vocabulary words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **<u>Gather</u>** - Read aloud or Listen aloud to - <u>Sun Bread</u> Discussion Questions - What happened to the snow? How else does the sun touch all the characters in the story? **<u>Reason</u>** - What is a Cause and Effect? Work on <u>activity</u> together as a class.	**Lesson 6:** • Vocabulary Words: **cold, hot, sun, ice, light, soil, rock, water, Earth, surface, warmer, cooler, shade, sunlight** • Sentence Strips of vocab words or display digitally **Lesson 7:** • <u>Sun Bread</u> by Elisa Kleven • Cause and Effect <u>activity</u> • <u>CauseandEffectGraphicOrganizer</u>

Communicate - Students make a cause and effect picture - Cause - Draw a picture of the sun. CauseandEffectGraphicOrganizer
Effect - students choose an object to draw that would be affected by the sun. (example - sun and dripping ice cream cone)
Share pictures with the class.

Lesson 8: Playground Map

Vocab. Focus - choose a few vocabulary words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals.

Gather - Look at this picture: Playground Picture with Shade

Ask students if they think that all parts of this playground will be the same temperature? Will some parts be cooler or warmer? Why? Allow them time to discuss. After your discussion, take a walk outside to the playground on a sunny day and challenge students to find the warmest and coldest spots they can. Encourage them to feel different kinds of surfaces—blacktop, brick, rocks, metal, soil, sand—in sun and in shade. Remind them that the sun is always moving, so the middle of a shadow will be cooler than its outer edges.

Reason - Discuss what parts of the playground were hotter and what parts were cooler? As a class, design a map of the school's playground. The map can include different components, structures, or areas of the

Lesson 8:

- A sunny day outside
- Playground Picture with Shade
- Different Surfaces: (blacktop, brick, rocks, metal, soil, sand)
- Poster paper for map
- Post-its

playground. Create a key to denote the different surface areas (ex. green lines = grass, red swirl = slide) You can make your map on poster paper. Focus on what parts of the playground you would want to go to if you wanted to take a break from the sun or warm up in the sun, etc. **Communicate -** Have students record on post-its of what they know/learned about the shade vs sun at the playground on a post-it. This can be used as an exit ticket to the lesson. **Lesson 9: Intro to Shade Structure (for cows)** **Vocab. Focus -** choose a few vocabulary words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** In the activity, Cool Cows, students notice that cows (like people) use shade to stay cool. Then, they think through how they would design a shade structure for cows. **Reason -** The Cool Cows activity gets the students thinking about how they could build something to make shade. Take the activity further by having students draw the shade structure they'd like to build. **Communicate -** Have students share their drawings with a small group. Tell students they will be using these drawings for their next lesson in which they will bring their designs to life!	**Lesson 9:** • Mystery Science Cool Cows Activity • Paper for each student to draw their shade design.
Episode 4 **Elaborate/Build New Content/Apply new Content** **Days: 3 days**	
Activity	**Resources**
Lesson 10: Introduce STEM challenge/Shade Structure **Gather -** Students will be introduced to the idea of creating a STEM challenge project. **Reason -** Tell students that they are going to become engineers. They will use all that they have learned this far and design a shade structure. Before they start building, they need to do a lot of thinking and a lot of planning. You will tell the students what type of materials they will be given to work from. Show students the materials so they can have a realistic idea of what they are working with.	**Lesson 10 and 11:** Materials for Shade Structure • Popsicle sticks • Plain white paper to plan out picture • Paper (White and Black) • Tape • Link: Shade Structure Lesson

Tell students that their goal is to keep the ice from melting outside. What can they design to help? Give students time to look at, feel, play around with the building materials. Have them go back to their tables to begin drawing their design. Encourage them to use labels.

Communicate - Allow students to share with their classmates.

Lesson 11: STEM Challenge

Reason - Today students will
Step 1: Students will design and build a shade structure. Refer to the link A Place in the Shade-An Engineering Challenge First have a discussion of what shade is/ means. Gather a list of examples of shade (trees, umbrella, hats, buildings, etc) Discuss as a class that shade is there to protect and keep us cool from the sun.

Step 2: Tell students that they will be making a shade structure for an ice cube. The goal is to provide shade for the ice cube. You do not want your ice cube to melt. The icecube needs a surface that hides from the sun.

Step 3: Show students the shade structure materials.

Step 4: Students will first plan their shade structure by drawing a detailed picture. Students can share their illustrations with their tablemates or as a whole class.

Step 5: After students plan out their shade structure they can build their shade structure. This may take a couple of days.

Step 6: Once students are finished with their structures, students will check to see if their shade structure provides shade for the icecube by testing it on a sunny day. Have a class discussion about other structures.

Step 7: As a class, have a discussion on what they notice, about their shade structures. What worked for their shade structure what didn't work for their shade structure. Did the materials make a difference (ex. Using black paper instead of white paper)

Step 8: Reflection- As a class, have a discussion of What did you notice and learned about your design? How would you improve your shade structure?

Episode 5
Evaluate

Days: 2 days	
Assessment	**Resources**
Lesson 12: Reflection Day 1 **Gather -** Students will begin to reflect on their shade structure and detail the effects that the sun had on their structure and ice cube. **Reason -** Students will draw a picture with details of their shade structure. They should include the source of the energy (heat) and where it was coming from (sun). They should include how their structure helped keep the sunlight off of the icecube, and if it helped it to melt slower. **Communication** - Students can share with their classmates to discuss the effects of sunlight. **Lesson 13: Reflection Day 2 (KWL chart)** **Gather -** Display the KWL chart that you used at the beginning of the unit. Review some of the things the students wanted to know before you started your lessons. **Reason -** Work together as a group to fill in what they now know about sunlight and its effects on our Earth. Make sure to highlight the effects it has on different surfaces that the students use/walk on/touch daily. **Communicate** - Show students the phenomena pictures and clip one last time. Have them explain what the effect of sunlight is on each picture/clip as a wrap up of the unit.	**Lesson 12:** ● Shade structure ● Plain Paper and pencil **Lesson 13:** ● KWL chart ● Phenomena Pictures/Clip
Common Core Curriculum Connections	
ELA/Literacy – ● W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-PS3-1),(K-PS3-2) **Mathematics** – ● K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. (K-PS3-1),(KPS3-2)	
Instructional Strategies: Supports for English Language Learners	

Sensory Supports	Graphic Supports	Interactive Supports
Real-life objects (realia) Manipulatives Pictures & photographs Illustrations, diagrams, & drawings Magazines & newspapers Physical activities Videos & films Broadcasts Models & figures	Charts Graphic organizers Tables Graphs Timelines Number lines	In pairs or partners In triads or small groups In a whole group Using cooperative group structures With the Internet (websites) or software programs In the home language With mentors

Differentiation Strategies:

Accommodations	Interventions	Modifications
Allow for verbal responses	Multi-sensory techniques	Modified tasks/ expectations
Repeat/confirm directions	Increase task structure (e.g., directions, checks for understanding, feedback)	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding (e.g., writing, reading aloud, answering questions in class)	Individualized assessment tools based on student need
Audio Books	Utilize prereading strategies and activities: previews, anticipatory guides, and semantic mapping	Modified assessment grading

Unit 2 - Pushes and Pulls	Grade K	Days - 18

Standards:
Students who demonstrate understanding can:
K-PS2-1. 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. [Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.] [Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets.]

K-PS2-2. 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.* [Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] [Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]

Anchoring Question:

- How do objects move by force?

Essential Questions:

1. How do different strengths or directions of pushes and pulls affect the motion of an object?
2. How can a design solution work to determine the speed or direction of an object with a push or a pull?
3. How does pushing and pulling affect how an object moves?
4. How can we create an object that can push or pull?

Enduring Understandings:

- Pushes and pulls can have different strengths and directions.
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.
- When objects touch or collide, they push on one another and can change motion.
- A bigger push or pull makes things speed up or slow down more quickly.
- A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems can have many acceptable solutions.

Storyline Narrative / Big Ideas:
This unit will focus on students' ability to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. Students will design a pulley system, construct their design, test its efficacy, and revise to improve it.

Vocabulary Words: push, pull, ball, ramp, motion, gravity, friction, force, height, texture, surface, resistance

Science and Engineering Practices	Disciplinary Core Ideas	Cross Cutting Concepts
<u>Planning and Carrying Out Investigations</u> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. - With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1 **<u>Analyzing and Interpreting Data</u>** Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. - Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2) **<u>Connections to Nature of Science</u>** Scientific Investigations Use a Variety of Methods - Scientists use different ways to study the world. (K-PS2-1	**PS2.A: Forces and Motion:** Pushes and pulls can have different strengths and directions. (KPS2-1),(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: **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 KPS2-2)	**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)

Consolidated Supply List:

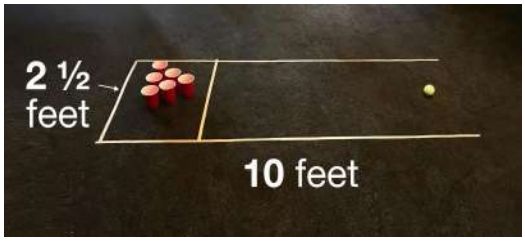
- Solo cups/plastic cups
- Plastic Spoons
- Pom Poms
- Popsicle sticks
- Rubber bands
- Tennis balls
- Rope/String/yarn for pulley
- Science journals
- Chart paper
- Marbles
- Toy cars
- Basket
- Brainpop Jr - subscription

Episode 1
Engage/Elicit Ideas
Days: 1 day

Lessons	Resources
Lesson 1: Phenomena **Gather -** Show video of student teaching how to swing on a swing set. How to swing on the swing set! **Reason -** Have students draw a model using labels and arrows showing how the student is able to swing on a swing set. Students can record a "wonder"statement in their Wonder journal using the template provided. **Communicate -** Discuss as a class what everyone wonders about. Jot down wonder statements to refer to during this unit. Let students know that throughout this unit we will try to find answers to each question as we learn, explore, and become engineers.	**Lesson 1:** • Phenomena video- How to swing on the swing set! • Chart Paper • Wonder Journal Template

Episode 2
Explore
Days: 5-7 days

Lessons	Resources
Lesson 2: Objects Can Move **Gather -** Hang up Push Pull Scoot pictures around your classroom (gallery walk) to allow for movement during the lesson. Allow students to walk around and look at the pictures of items they may see around their classroom or school. **Reason -** Have them make predictions on the Push Pull	**Lesson 2:** • Push/Pull Scoot • Clipboards • Pencils

Record Sheet(push/pull) of how this object or item would move (let them come up with their own words such as **pull, push, shove, kick, roll, bounce, throw, hit,** etc.) You can discuss more about these words as the lessons go on. **Communicate -** Discuss what the students have recorded based on the student's observations. **Lesson 3: Explore Objects and Record** **Gather -** Using the anchor chart and objects that you used to create predictions in the last lesson, students will be able to physically explore and test out objects within the classroom and around the school. Tell them their goal is to collect "data" with their classmates to determine and explain how each object can move. **Reason -** Have students work in small groups and circulate through each object. As a group, they should come up with words to describe each movement they can see or do. **Communicate -** On your anchor chart, record words that describe how each object moves and record on your chart. Focus on words like push/pull. At the end of the lesson, ask students to think of things at home that they might push/pull to gauge understanding of vocab words. **Lesson 4: Mystery Science: How Can You Knock Down the Most Bowling Pins** **Please preview mystery science activity prep to understand how to prepare for this lesson, how much of each material depending on your grouping** **Gather -** To move an object farther or faster, a bigger push or pull is needed. When objects collide they push on one another causing a change in direction and speed. By changing the force acting on an object, you can change the motion of the object. In this Read-Along lesson, Daniel worries he won't do well at a friend's Bumper Bowling party…until he figures out an unexpected way to win. Students will explore speed and direction of force in this lesson. **Reason -** Students carry out an investigation by 'bowling' with solo cups (pins), a tennis ball (bowling ball), and Books (bumpers). They explore the forces at work when one thing hits another, and how changing the size of the force affects the motion of an object.	**Lesson 3:** ● Objects: Some suggestions: ball, chair, swing, seesaw and any other ones you wanted to explore as a class. ● chart paper **Lesson 4:** ● Hardcover Books/Pool Noodles/blocks (choose your bumper for bowling alley based on what you have available) ● Tape Measure or yardstick to measure out alley ● Masking tape ● Solo Cups/Cups ● Tennis Balls *You can make a few of these and rotate groups through 

Communicate - Students analyze the cause and effect relationship between the size of the force on an object and the direction or speed it goes. Students can record what happened in their science journal. **Lesson 5: Ramp Exploration** (1-2 days) **Gather -** Plan an investigation on how objects move on inclined surfaces, and explain the difference between push and a pull. Use different scenarios in the classroom as examples of pushing and pulling. (ex. Push the door closed, push a ball, push down a lid, pull a chair, pull a lid off, pull up socks or a zipper, etc.) When exploring with these materials ask questions to the class "What would happen if…" and "What would happen when…" Have students explain the difference between pushes and pulls. **Reason -** Students will spend time planning and investigating the motion of objects using a ramp. They will explore push and pull. The students will be introduced to different objects (balls, cars, marbles) to explore on the ramp. An object on an incline will roll downward; the height of a ramp impacts the speed at which it travels. **Communicate -** Have students record their observation (cause and effects) of the motion of the objects at different heights using the Ramp Investigation Worksheet. Ramp Investigation Worksheet **Lesson 6: Ramp Race** (1-2 days) **Gather -** Based on students' findings from the Ramp Exploration lesson students will create their own ramps using materials in the classroom or brought from home (cardboard tubes, blocks/legos etc.) to race with a partner. Students will first design what their ramp will look like on a piece of paper with pictures and labels. **Reason -** Students will build their ramps using classroom/ home materials. The students will investigate how the height of a ramp can change how fast and far their Matchbox car can go. They will also compare the distance and speed of the car on the ramp to using no ramp. **Communicate -** Students can then record their observation of the motion of the objects using the Ramp Investigation Worksheet. (Same one from the previous day) As a class, discuss what worked well and what didn't work well with their ramp. How would they improve their ramp? What did they notice/ wonder about their	**Lesson 5:** ● Ramps (if you have at your school) or materials that can act as a ramp. ● Balls/Cars/Marbles/Objects of different sizes to explore and experiment with ● Cause and Effect Recording SheetRamp Investigation Worksheet **Lesson 6:** ● Ramp materials: cardboard, paper towels, tubes, blocks/legos, tape ● Toy car ● Blank paper and chart paper ● Cause and Effect Recording Sheet Ramp Investigation Worksheet ● Chart paper

ramps? How would they improve to make their ramp even better. Teachers can record their responses on chart paper.	
Episode 3 **Explain** **Days: 4 days**	
Lessons	**Resources**
Lesson 7: Vocabulary Splash **Gather -** Display all the unit's vocabulary words on the board. Read each word to the class with a brief explanation of the words. **Reason -** As a class (can be an interactive writing type activity) sort these words in a closed sort using their prior knowledge. Label each group of words. Suggested Categories: moves, does not move, motion, no motion **Communicate -** Discuss as a group the final label headers of each group of words. Remind students that we will be using these vocabulary words throughout the unit. Additionally, we will be exploring them in our science journals. **Lesson 8: Read Aloud: *And Everyone Shouted, Pull!*** **Vocab. Focus** - choose a few vocabulary words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** Before reading the story, show students the cover of the book. In their science journals, have students make a prediction about what they think will happen when the cart goes down the hill. They should draw/write/label. **You can use the printable in the science journal and have kids glue/tape in the notebook** **Reason -** Allow students to listen and watch the book. And Everyone Shouted, Pull! By: Claire Llewellyn, Illustrated By: Simone Abel - Stop at moments in the text to ask and answer questions about key details **Communicate -** Have students draw a picture of a force that was demonstrated in the book using the printable pages and record if it is a pull or push.	**Lesson 7:** ● Vocabulary Words: **push, pull, ball, ramp, motion, gravity, friction, force, height, texture, surface, resistance** ● Sentence Strips of vocab words or display digitally **Lesson 8:** ● Read Aloud: And Everyone Shouted, Pull! By Claire Llewellyn ● Printables And Everyone Shouted Pull Printables or Push or pull worksheets ● Science Journals

Lesson 9: Pushes and Pulls **Gather -** Students watch Pushes and Pulls on Brainpopjr https://jr.brainpop.com/science/forces/pushesandpulls/ **Reason** - Print out the activity page on Brainpop Jr Push and Pull. In groups students sort the pictures by either push or pull. **Communicate** - Share the sorts with the class. **Lesson 10: Shared Writing Piece on Pushes and Pulls** **Gather** - Show a picture of children playing on the playground - picture. Review the vocabulary words from the unit that were sorted in a previous lesson. **Reason** - As a class, do an interactive or shared writing story about the picture using as many vocabulary words as you can. **Communicate** - Cut apart the story and have groups of students illustrate the parts of the story written. Put together as a class book.	**Lesson 9:** ● Science Journal ● Brain Pop Jr. Pushes & Pulls **Lesson 10:** ● Picture ● chart paper
Episode 4 **Elaborate/Build New Content/Apply new Content** **Days: 4 days**	
Activity	**Resources**
Lesson 11: Pulley STEM challenge PHYSICS EXPERIMENT #2: CHAIR PULLEY (2 days) **Gather** - Provide students with a rope, two chairs, a basket, and a small portable object, (to be pulled in the basket). Students will sketch a pulley design, construct their design, test its efficacy, and revise to improve it. Students will work in groups or pairs to design this challenge. **Reason** - Plan an investigation on how objects move, explore motion and direction by using a pulley, and explain the difference between a push and a Pull. Students test out their pulley design to see if objects can be moved by pulling. Have students observe others' designs. Students go back and create a plan/revise their current model. **Communicate** - Reflection- As a class, have a	**Lesson 11:** ● Rope ● Two chairs ● Basket ● Small object to be placed in the basket

discussion of What did you notice and learned about your design? How would you improve your pulley structure? Students can then record/ illustrate their observation about their design on a piece of paper. **Lesson 12: Catapult Project** (2 days) *Note* There are many websites with the same type of easy project. Choose which works best for your class, depending on what materials you have. **Gather** - To celebrate the unit, students will take part in a fun project, building a catapult. **Reason** - Students will experiment creating a catapult to see how far they can launch pom poms. As you build the catapult, have students experiment if it makes a difference how many sticks you use, where you place the rubber bands, etc. What makes the pom pom poms go the furthest? **Communicate** - Have students record what they find in their science journals. Have them draw a model and write short sentences to explain.	**Lesson 12:** • Catapult Project instructions • Popsicle sticks/craft sticks • Rubber bands • Plastic spoons • Pom poms (any other things to catapult)
Episode 5 **Evaluate** **Days: 1-2 days**	
Assessment	**Resources**
Lesson 12: Pushes & Pulls Class Book **Gather -** To demonstrate their understanding of the unit, students will create a class book depicting an example of a push and a pull. Have students brainstorm before going off to their seats. **Reason** - Students will be given a template to draw a picture and write about a push and a pull. **Communicate** - When student's finish. Compile the pages together to create a book. Share the class book to present each child's ideas!	**Lesson 12:** • Class Book template • Crayons • Pencil
Common Core Curriculum Connections	

ELA/Literacy -

- RI.K.1 With prompting and support, ask and answer questions about key details in a text. (K-PS2-2)
- W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-PS2-1)
- SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-PS2-2)

Mathematics -

- K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-PS2-1)
- K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. (K-PS2-1)

Instructional Strategies: Supports for English Language Learners

Sensory Supports	Graphic Supports	Interactive Supports
Real-life objects (realia)	Charts	In pairs or partners
Manipulatives	Graphic organizers	In triads or small groups
Pictures & photographs	Tables	In a whole group
Illustrations, diagrams, & drawings	Graphs	Using cooperative group
Magazines & newspapers	Timelines	structures
Physical activities	Number lines	With the Internet (websites) or software programs
Videos & films		In the home language
Broadcasts		With mentors
Models & figures		

Differentiation Strategies:

Accommodations	Interventions	Modifications
Allow for verbal responses	Multi-sensory techniques	Modified tasks/ expectations
Repeat/confirm directions	Increase task structure (e.g., directions, checks for understanding, feedback)	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding (e.g., writing, reading aloud, answering questions in class)	Individualized assessment tools based on student need
Audio Books	Utilize prereading strategies and activities: previews, anticipatory guides, and semantic mapping	Modified assessment grading

Unit 3 - Weather and Climate (Earth's Systems)	Grade K	Days - 16

Standards:
Students who demonstrate understanding can:
K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. [Clarification Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.]

K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]

Anchoring Question:

- How do living things adapt to and interact with their environment (particularly weather)?

Essential Questions:

1. What is the weather?
2. How do the seasonal weather patterns influence our lives?
3. How do the seasons impact living things (plants and animals)?
4. Why is understanding weather patterns important?

Enduring Understandings:

- Weather is the combination of sunlight, wind, snow, or rain, and temperature in a particular region at a particular time.
- Weather conditions can be observed and described as sunny, cloudy, rainy, foggy, snowy, stormy, windy, hot or cold. Weather observations can be made based on how we feel, what we see or hear, or by using weather measurement instruments such as thermometers.
- Changes in seasonal weather conditions can be recorded. Repeated observations can show patterns that can be used to predict general weather conditions.
- Weather affects decisions we make about clothing and activities.
- Some kinds of severe weather are more likely to occur during certain seasons.
- Plants and animals can change their environment in responses to weather changes (particularly seasonal changes).

Storyline Narrative / Big Ideas:
This unit will focus on the four seasons, and how plants and animals--including humans--adapt and change their environment in response to seasonal weather. In this unit, young scientists will collect, record, and share observations (either firsthand or in media) about weather patterns in order to describe seasonal characteristics (i.e., winter is cold, summer is hot, and the spring and fall are

transitional seasons) and make predictions about future weather events. Also, daily and seasonal weather conditions affect what we do, what we wear, and how we feel. Ultimately, students will use what they have learned about seasonal weather patterns to construct an argument supported by evidence for how plants and animals can change their environment to meet their needs.

Vocabulary Words: land, rain, snow, sun, ice, season, sunlight, warm, wind, cloudy, soil, food, tree, life

Science and Engineering Practices	Disciplinary Core Ideas	Cross Cutting Concepts
Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1) **Engaging in Argument from Evidence** Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s). Construct an argument with evidence to support a claim. (K-ESS2-2)	**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) **ESS2.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)	**Patterns -** Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1) **Systems and System Models -** Systems in the natural and designed world have parts that work together. (K-ESS2-2)

Consolidated Supply List:

- clay
- Square piece of cardboard
- Straws

- Construction paper
- Compass
- Paper lunch bags
- Pompoms
- Tissue paper
- Book - Who Likes the Rain by Wong Yee
- Cotton balls
- Book - Tap the Magic Tree by Christie Matheson
- Book - Rosie Revere, Engineer by Andrea Beaty
- student notebooks
- Mystery Science subscription

Episode 1
Engage/Elicit Ideas
Days: 2 days

Lessons	**Resources**
Lesson 1: Phenomena **Gather -** Watch this video about a blizzard. **Reason -** Ask students what they noticed or wondered about what was happening & changing in the video. **Communicate -** Students split their page in half and draw a before and after picture of the blizzard video. Watch it one more time if needed. Have students share their noticings and wonders.	**Lesson 1:** ● Phenomena: Blizzard ● Student notebooks ● Chart paper
Lesson 2: Write Around **Gather -** Place pictures of different types of weather (snow, rain, fog, thunderstorm, etc) on a piece of chart paper and place it around the room. **Reason -** Students rotate around the room and draw or write what they are noticing or what type of weather it is. Place the charts around the room and have students stand by the one that they are most interested in. Have some students share what they noticed and were intrigued about. **Communicate -** After, as a class, create a KWL chart about weather. What do you already know about the different types of weather? What do you want to know? Explain that the L will be filled in throughout the unit, as we learn more about weather.	**Lesson 2:** ● Weather Pictures ● KWL Chart (can be a large chart for the class or individual as well)

Episode 2

Explore **Days: 5 days**	
Lessons	**Resources**
Lesson 3: How Do You Know What to Wear for the Weather? Mystery Lesson: How do you know what to wear for the weather? **Gather -** Shared reading of a weather book. Tell students that you will be making a weather book for the next 4 days. **Reason -** Students will start a weather book. Watch video on how to make this book on Mystery Science. Students should complete the first day of the weather book. **Communicate** - Have students share and predict tomorrow's weather. **Lesson 4: What Does the Wind Move?** **Gather -** ● Complete day 2 of the weather book, then make predictions of the weather tomorrow. ● Read What Does the Wind Move? After reading, review all of the different things that the wind moves in the book but then also come up with new ideas. Share out or keep track on chart paper. Example of a chart: The Wind **Reason -** ● Option 1: Make a wind vane and observe wind direction on a windy day. ● Option 2: Go on a "Windy Walk" outside and have students circle what is moving in the wind. They can also draw other things they see moving in the wind on the back of their paper. **Communicate -** Draw a picture of what happened outside (for either option A or B) and try to add labels. Discuss as a group what they noticed when they were outside. **Can also go back to the KWL chart and add what we learned about wind if wind was on the KWL chart. **Extra:** A fun extra activity to learn about the wind and what it can move: Be the wind!	**Lesson 3:** ● Lesson - How do you know what to wear for the weather? ● Weather book on lesson website **Lesson 4:** ● Book - What Does the Wind Move ● Chart Paper ● Wind Vane ○ A piece of clay ○ Square piece of cardboard ○ Pencil with eraser ○ Pin ○ Straw ○ Scissors ○ Construction paper ○ Crayons ○ Compass ● "Windy Walk"

Lesson 5: What will the weather be on your birthday?

Mystery Lesson: What will the weather be like on your birthday?

Gather -

- Complete day 3 of weather book
- Look at the local NJ weather forecast - https://newjersey.news12.com/weather, what patterns do you notice? (colder or hotter as the day goes on depending on the sun)
- As a class, watch the exploration video in this lesson about seasons.

Reason - Students will complete the hands-on activity. Students will use observations of the four classic seasons to spot patterns and thereby determine the seasons' order, snowy winter, warm spring, hot summer, and cool autumn with colorful leaves. Students spot patterns and determine the order of the seasons.

Communicate - Share their sort. Students complete this matching sheet to check for understanding - The 4 seasons worksheets | K5 Learning

Lesson 5:

- Circle of Seasons
- Season sorting cards
- Lesson - What will the weather be like on your birthday?

Lesson 6: Why do birds lay eggs in the spring?

Mystery Lesson: Why do birds lay eggs in the spring?

Gather -

- Complete day 4 of weather book, find patterns in the completed book - Ask Questions:
  - How many sunny days, cloudy days etc.
  - How many hot days, mild days etc.
  - How many rainy days, dry days etc.
  - What would our book like if this was the spring?
- Speaking of spring - Students will watch a video about birds building a nest and learn why spring is the best time for babies to be born.

Reason - In the activity, the students will build A Bird Nest. Students make a model of a bird nest and notice how birds can change their environment to meet their needs when they build their nests.

Lesson 6:

- Paper lunch bag
- Soft materials -ex. tissue paper
- Crayons
- Pompoms (eggs)

Communicate - Share their nests with the class. What other plants or animals use the environment for their needs? Additional Resources • PoemsaboutWeatherandSeason…	
Episode 3 **Explain** **Days: 5 days**	
Lessons	**Resources**
*******Have each student bring in a leaf and shoebox for lessons in the next few days.** **Lesson 7: Vocabulary Splash** **Gather -** Display all the unit's Vocabulary Words on the board. Read each word to the class with a brief explanation of the words. **Reason -** As a class (can be an interactive writing type activity) sort these words in an open sort using their prior knowledge. Label each group of words. An example could be weather (rain, snow, wind, cloudy) and earth (tree, soil, land) **Communicate -** Discuss as a group the final label headers of each group of words. Remind students that we will be using these vocabulary words throughout the unit. Additionally, we will be exploring them in our science journals.	**Lesson 7:** • Vocabulary Words • Sentence Strips/Notecards to display vocab words
Lesson 8: Who Likes the Rain? **Gather -** Read aloud Reading of Who Likes Rain? Stopping and making predictions. Make observations of what the animals do to protect themselves in the rain. What do they all do? **Reason** - What do you like to do when it rains? Chart their ideas. Students draw a picture of what they like to do when it rains. Students write a sentence to match the picture. When it rains I like to ……..	**Lesson 8:** • Book - Who Likes the Rain by Wong Yee • Writing paper • Construction paper • Chart paper

Communicate - Students share and read their sentences and pictures. **Lesson 9: Clouds Can Tell Us the Weather** **Vocabulary -** Choose a Vocabulary Words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** Watch video - Weather 101, Discuss that weathermen study the clouds to predict weather. Learners will be shown pictures of basic types of clouds. Learners will observe and discuss what they notice about each type of cloud. Teachers discuss what kind of weather each type of cloud may bring. **Reason -** Using cotton balls, students will make a 3D model of the types of clouds. cotton ball clouds **Communicate -** Go back to our KWL chart and add what we learned about clouds. Go outside and have students look at the clouds. **Lesson 10: How Animals Use their Environment** **Vocabulary -** Choose a few Vocabulary Words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** Discuss the different ways students use the environment during extreme cold weather conditions. Listen or read "Why do Animals Hibernate?" During reading, stop at each animal and ask - How did this animal use the environment for their own needs? **Reason -** Students will complete as a class the hibernation sort. Which animals hibernate and which animals do not hibernate? **Communicate -** Have students pick an animal from the sort that hibernates and share how it uses the Earth to hibernate? **Extras:** Hibernation Activities, Hibernation mini book	**Lesson 9:** • Vocabulary Words • Types of Clouds • Cotton ball clouds • Cardstock • Cotton balls **Lesson 10:** • Vocabulary Words • Why do Animals Hibernate • hibernation sort

Lesson 11: Trees Adaptation **Vocabulary -** Choose a few Vocabulary Words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** Read "Tap the Magic Tree" and have a class discussion. Go back to each page and have a discussion about what is happening and which season they think this tree is in. **Reason -** Watch Why do leaves change color in the fall? Students will start to discover how and why some tree leaves change color when the weather starts to get colder. ● Examine the leaves brought in by the students. Sort them, describe them by color, shape and size. ● Then complete the activities from the Mystery Lesson - Crayon rubbings. **Communicate -** Go on a gallery walk on the student's crayon rubbings and/or have a discussion about the types of leaves they saw. You can also end the lesson by having them draw 4 different trees and have them show what they would look like in each season.	**Lesson 11:** ● Vocabulary Words ● Tap the Magic Tree by Christie Matheson Tap The Magic Tree - Read Aloud with Language Supports ● White paper ● Crayons or colored pencils ● Leaves
Episode 4 **Elaborate/Build New Content/Apply new Content** **Days: 3 days**	
Activity	**Resources**
Lesson 12: STEM challenge (introduction) **Gather -** Watch or read "Rosie Revere, Engineer " and have a class discussion after about celebrating mistakes/failure but also never giving up. After the book, introduce what a STEM challenge is. **Reason -** Tell students that they are going to become engineers. They can work independently or with a partner/group. They will use all that they have learned this far and build a diorama based on one of the four seasons or a specific type of weather. Before they start building, they need to do a lot of thinking and a lot of planning. You will tell the students what type of materials they will be given to work from. This will depend on each classroom and supplies available. Show students the materials so they can have a realistic idea of what they are working	**Lesson 12:** ● Rosie Revere, Engineer by Andrea Beaty - 💪Rosie Revere, Engineer (Read Aloud ● Science journals/notebooks ● Cardboard boxes/shoeboxes (parents usually send these in) ● Materials for the project, which will be different for each teacher. Some

with. Tell students that their goal is to create a diorama that not only shows the season/weather but also people (specific clothing) and animals (depends on hibernation, etc). Give students time to look at, feel, play around with the building materials. Have them go back to their tables to begin drawing their design. Encourage them to use labels. **Students may also need time to research a bit more about their season/weather. Non fiction books, epic, raz kids are all great resources. **Communicate** - Allow students to share with their classmates. Students can also give constructive criticism and help their peers add to their designs. **Lesson 13: STEM challenge (completion)** **Goal:** Students will design and build their diorama for their season or weather. **Step 1:** Have students take out their plan from yesterday. Do they want to change/add anything? **Step 2:** Students can begin building their diorama. **Step 3:** Stop at a good halfway point and have the students pause to reflect. What do they still need to do? Have they shown the season/weather? Do they have people/animals that relate to that specific season/weather? Go on a gallery walk so students can give each other advice/ideas. **Step 4:** Taking the feedback and ideas into mind, students should work to complete their diorama. **Step 5:** When all of the projects are completed, host a museum! Invite other classes, teachers, staff members to come take a look. Students can stand by their dioramas and be available to answer questions about their season/weather. **Step 6:** Reflection time. As a class, discuss the whole process of a STEM challenge. Did you enjoy it? Was it difficult? Was your end product different from your plan? Do you think you successfully showed your season/weather?	examples are: pipe cleaners, pom poms, tape, straws, construction paper, cardboard, etc **Lesson 13:** ● Cardboard boxes/shoeboxes (parents usually send these in) ● Materials for the project, which will be different for each teacher. Some examples are: pipe cleaners, pom poms, tape, straws, construction paper, cardboard, etc
Episode 5	

Evaluate
Days: 1 days

Assessment	Resources
Lesson 14: Reflection **Gather** - Display the KWL chart from the beginning of the unit (lesson 1). Review a handful of things/questions the students wanted to know before starting the unit. **Reason** - As a team, work together to fill in and complete what they have learned about how plants/animals and people adapt and change their environment in response to different weather conditions. Review and describe different seasonal characteristics, daily weather observations, and different clothing options based on weather/seasons. **Communicate** - Students will observe the weather outside. Direct students to look outside and record the weather they see. Make sure to remind students to think about the current season- is it hot/cold? After students record they are to make a journal entry describing their picture and what they added.	

Common Core Curriculum Connections

ELA/Literacy –

- RI.K.1 With prompting and support, ask and answer questions about key details in a text. (K-ESS2-2)
- W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2)
- W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2-2)
- W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1)

Mathematics –

- K.CC.A Know number names and the count sequence. (K-ESS2-1)
- K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1)
- K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1)

Instructional Strategies: Supports for English Language Learners

Sensory Supports	Graphic Supports	Interactive Supports
Real-life objects (realia) Manipulatives Pictures & photographs Illustrations, diagrams, & drawings Magazines & newspapers Physical activities Videos & films Broadcasts Models & figures	Charts Graphic organizers Tables Graphs Timelines Number lines	In pairs or partners In triads or small groups In a whole group Using cooperative group structures With the Internet (websites) or software programs In the home language With mentors

Differentiation Strategies:

Accommodations	Interventions	Modifications
Allow for verbal responses	Multi-sensory techniques	Modified tasks/ expectations
Repeat/confirm directions	Increase task structure (e.g., directions, checks for understanding, feedback)	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding (e.g., writing, reading aloud, answering questions in class)	Individualized assessment tools based on student need
Audio Books	Utilize prereading strategies and activities: previews, anticipatory guides, and semantic mapping	Modified assessment grading

Unit 4: Earth and Human Activity	Grade K	Days - 14

Standards:
Students who demonstrate understanding can:
K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]

K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.* [Clarification Statement: Emphasis is on local forms of severe weather.]

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.* [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]

Anchoring Question:

- Why is it important to understand the needs that plants and animals need to survive in their habitats?

Essential Questions:

1. What is a natural resource?
2. What do the habitats in which plants and animals live provide them to survive?
3. What is severe weather and how does it impact human activity?
4. How can we reduce negative impacts on land, water and air?
5. What are some good choices we can make for the environment?

Enduring Understandings:

- Natural resources
- Habitats provide plants and animals food, shelter and space to survive.
- Forecasting severe weather will help us prepare and respond.
- We can be aware of the natural resources we use and throw away so as not to negatively impact the land, water and air.
- We can make choices like recycling, reuse and reduce.

Storyline Narrative / Big Ideas:
In this unit of study, students will develop an understanding of the impact that humans have on the land, water, air, and other living things in the local environment and engage in a portion of the engineering design process in order to communicate solutions that can reduce these impacts.

Vocabulary Words: life, wind, land, soil, human, recycle, reuse, food, land, design, teamwork, shelter

Science and Engineering Practices	Disciplinary Core Ideas	Cross Cutting Concepts

<u>Asking Questions and Defining Problems</u> Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested. Ask questions based on observations to find more information about the designed world. (K-ESS3-2) **<u>Developing and Using Models</u>** Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions. Use a model to represent relationships in the natural world. (K-ESS3-1) **<u>Obtaining, Evaluating, and Communicating Information</u>** Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. ● Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2) ● Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)	**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) **ESS3.B: Natural Hazards:** Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2) **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. (K-ESS3- 3) **ETS1.A: Defining and Delimiting an Engineering Problem:** Asking questions, making observations, and gathering information are helpful in thinking about problems. (secondary to K-ESS3-2)	**Cause and Effect -** Events have causes that generate observable patterns. (K-ESS3-2),(KESS3-3) **Systems and System Models** - Systems in the natural and designed world have parts that work together. (K-ESS3-1)

	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)	

Consolidated Supply List:

- Chart paper
- Mystery Science subscription
- Markers,
- Label stickers
- Crepe paper
- Index cards
- Pipe cleaners
- Cardboard boxes or plastic bins
- Construction paper
- Poster boards
- Mystery Science subscription
- Common Ground by Molly Bang

Episode 1
Engage/Elicit Ideas
Days: 1 day

Lessons	Resources
Lesson 1: Phenomena **Gather** - Gather students and take a look at this picture. Deforestation | National Geographic Society **Reason** - Students write down what they notice and wonder about the picture. Notice and Wonder Link - Notice and Wonder **Communicate** - Share their noticings and wonder on a class chart to reflect on throughout this unit.	**Lesson 1:** • Deforestation | National Geographic Society • Notice and Wonder • Chart paper

Episode 2
Explore
Days: 5 days

Lessons	Resources

Lesson 2: Why Do Pecker's Peck Wood? Mystery Lesson - Why do woodpeckers peck wood? **Gather** - Ask students - Why do think woodpecker's peck wood? **Reason** - Then Play lesson - students will act like animals. They will try to figure out what each of these animals are doing. **Communicate** - Ask students to choose any animal and draw that animal with the food it eats to survive. (Teachers hold on to these pictures to add to throughout the unit. They are building a system model)	**Lesson 2: :** • Mystery Lesson - Why do woodpeckers peck wood? • KindergartenStoryPaperPrintable.pdf
Lesson 3: Animals Need a Home **Gather**- We learned that animals need food. What else do you think they need? Watch video video • What animals did you see in the video? • Where do the animals live? How do you know? **Reason** - With a partner, match the animals to their homes. Copy all three - Animal homes worksheets | K5 Learning **Communicate** - Share the matches with the class. Students go back to their animal picture from yesterday and draw its home. (Teachers hold on to these pictures to add to throughout the unit. They are building a system model)	**Lesson 3:** • Video • Animal homes worksheets | K5 Learning
Lesson 4: How do Polar Animals Survive the Cold? Mystery Lesson - How do polar animals survive the cold? **Gather -** Ask - How do animals stay warm during the cold months? **Reason-** Watch Mystery Science video How Do Polar Bears Survive in the Winter? Students use ideas from the mini-lesson to design a house that will keep them warm in a very cold climate. **Communicate -** Come back together and students share their winter house designs.	**Lesson 4:** • Mystery Lesson - How do polar animals survive the cold? • Paper • Crayons • pencils

Lesson 5: Severe Weather Write Around **Gather -** Place pictures of different types of Severe weather (tornados, hurricanes, flooding, blizzards, lightning) on a piece of chart paper and place it around the room. **Reason -** Students rotate around the room and draw or write what they are noticing or what type of severe weather it is. Place the charts around the room and have students stand by the one that they are most interested in. Have some students share what they noticed and were intrigued about. **Communicate -** After, as a class, Two Column Chart - Type of Weather and How can we protect ourselves? Students share their answers and chart. **Lesson 6 - Have you ever watched a storm?** Mystery Lesson - Have you ever watched a storm? **Gather** - Ask students to draw a quick picture of a really bad storm? Share what they drew in their pictures. **Reason** - Play Mystery Science video - In this activity students make a simple tool that lets them see how windy it is. **Communicate** - Ask students to add to their pictures what a strong wind would look like during a thunderstorm.	**Lesson 5:** • Severe weather pictures • Chart paper **Lesson 6:** • Mystery Lesson - Have you ever watched a storm? • Markers, • Label stickers • Crepe paper • Index cards • Pipe cleaners
Episode 3 **Explain** **Days: 4 days**	
Lessons	**Resources**
Lesson 6: Vocabulary Splash **Gather -** Display all the unit's Vocabulary Words on the board. Read each word to the class with a brief explanation of the words. **Reason -** As a class (can be an interactive writing type activity) sort these words in an open sort using their prior knowledge. Label each group of words. **Communicate -** Discuss as a group the final label headers of each group of words. Remind students that we will be using these vocabulary words throughout the unit. Additionally, we will be exploring them in our science	**Lesson 6:** • Vocabulary Words - life, wind, land, soil, human, recycle, reuse, food, land, design, teamwork, shelter • Science journals

journals. **Lesson 7: What is a Habitat?** **Vocabulary** - Choose a few Vocabulary Words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather** - Watch the first 5 minutes of Habitats for Kids and then click through to each of the types of habitats and have a quick discussion about them. (Polar: very cold, ice, snow, polar bears, seals. penguins) **Reason** - After reviewing all of the habitats, have students try this Habitat Sort based on what they know and what they learned from the video. Depending on how the class does, complete the sort as a class to make sure the animals are in the correct habitats. **Communicate** - Add the animal's habitat to their pictures teachers hel on to from Lessons 1 and 2 to complete their system model.	**Lesson 7:** • Habitat Sort • Habitats for Kids • Student pictures from lesson 1
Lesson 8: How Can You Get Ready for a Big Storm? Mystery Lesson - How can you get ready for a big storm? **Gather** - Students listen to an illustrated digital storybook with student participation. If you would prefer to read it aloud yourself, you can switch to the non-narrated version. In the story, JJ and his grandfather get ready for a big thunderstorm. **Reason** - In the activity, Get Ready for a Storm, students learn about other kinds of storms and act out ways to prepare for storms. **Communicate** - Turn and talk about one way to protect yourself from a lightning storm.	**Lesson 8:** Mystery Lesson - How can you get ready for a big storm?
Lesson 9: Water **Vocabulary** - Choose a few Vocabulary Words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather** - Read Aloud - Common Ground by Molly Bang - Common Ground by Molly Bang. Discuss causes and	**Lesson 9:** • Book - Common Ground by Molly Bang • Chart paper • Worksheet #1 Worksheet #2

effects of each scenario - too much fishing causes …., cutting down trees causes… etc.

Reason - Students fill out the activity sheets (Worksheet #1 and Worksheet #2) to show how they personally use water in the morning, afternoon, and night on a typical day.

Communicate - Come together as a class and share how they use water in the morning, afternoon, and night. Chart the list of ways they use water (brushing teeth, bathing..)Then discuss how we can use less water in the morning, afternoon and night?

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Lesson 9: Deforestation

Vocabulary - Choose a few Vocabulary Words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals.

Gather - Students draw a picture of a forest with the animals that live there. Ask students what they believe deforestation is.

Reason - Students watch a video explaining the effects of deforestation. Effects of Deforestation.
Students will draw a photo of deforestation on the other side of their forest picture. In the photo there are no trees, when it rains it floods. This causes animals' homes to be destroyed.

Communicate - Students share with their tables what they created.

Lesson 10: Reduce, Reuse and Recycle

Vocabulary - Choose a few Vocabulary Words to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals.

Gather - Think back to the last two lessons about water and trees. Remember how they are both super important to us? Sometimes people waste both water and trees and it's a problem because we only have limited natural resources. Watch: Reduce, Reuse, and Recycle. As a class, create a chart to show different ways we can do the 3 r's in our daily life. Example of a chart: The 3 R's

Lesson 9:

- Effects of Deforestation

Lesson 10:

- Vocabulary Words
- Reduce, Reuse, and Recycle
- **Reduce, Reuse, Recycle Slides**
- The 3 R's
- Worksheet #1
- Pledge

Reason - Students complete the last page in their journal worksheet #1 to show different ways they will reduce, reuse, and recycle in their daily life. **Communicate** - Come together and create a class Pledge to try our best to reduce, reuse, and recycle.	
Episode 4 **Elaborate/Build New Content/Apply new Content** **Days: 3 days**	
Activity	**Resources**
Lesson 11: PBL/STEM challenge **Goal:** Students design a system for reducing waste in our classroom and school. This can also be for their home. **Step 1:** Today, we are going to think of ways that we could reduce and recycle what we throw away in our classroom and school. Then, you're going to work to spread the idea of recycling throughout our school. **Step 2:** Discuss as a class: what do we throw away in our classroom/school? (paper, extra snack, plastic bottles, markers, lunch, glue sticks, broken crayons, scrap paper, etc) Which of these items do you think can be thrown out and which items should be recycled? If you think it can be recycled, how should we do this? (Example: save boxes/glue sticks etc and reuse them for our STEM challenges) **Step 3:** Working independently or with a group, students will decide on what they want to convince the class/school to recycle. Some students can be working on recycling markers and their caps while others can be working on recycling paper. **Step 4:** For 1-2 class periods, students will create their recycling plan. This includes some sort of container to collect their items and a poster to explain why people should do this. **Examples with pictures here **Lesson 23: PBL/STEM challenge Presentations/Museum** When all of the recycling projects are completed, host a museum! Invite other classes, teachers, staff members to come take a look. Students can stand by their bins/boxes	**Lesson 11:** ● Cardboard boxes or plastic bins ● Construction paper and makers ● Poster boards

and try to convince others to use them around their classroom/school. If you'd rather not do a museum, each student/group can present their project to the class and just convince their peers to use it in the classroom.	

Episode 5
Evaluate
Days: 1 day

Assessment	**Resources**
Rubric: Stem Rubric	

Common Core Curriculum Connections

ELA/Literacy –

- RI.K.1 With prompting and support, ask and answer questions about key details in a text. (K-ESS3-2)
- W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS3-3)
- SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-ESS3-2)
- SL.K.5 Add drawings or other visual displays to descriptions as desired to provide additional detail. (K-ESS3-1)

Mathematics –

- K.CC Counting and Cardinality (K-ESS3-1),(K-ESS3-2)

Instructional Strategies: Support for English Language Learners

Sensory Supports	Graphic Supports	Interactive Supports
Real-life objects (realia)	Charts	In pairs or partners
Manipulatives	Graphic organizers	In triads or small groups
Pictures & photographs	Tables	In a whole group
Illustrations, diagrams, & drawings	Graphs	Using cooperative group
Magazines & newspapers	Timelines	structures
Physical activities	Number lines	With the Internet (websites) or software programs
Videos & films		In the home language
Broadcasts		With mentors
Models & figures		

Differentiation Strategies

Accommodations	Interventions	Modifications
Allow for verbal responses	Multi-sensory techniques	Modified tasks/ expectations
Repeat/confirm directions	Increase task structure (e.g., directions, checks for understanding, feedback)	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding (e.g., writing, reading aloud, answering questions in class)	Individualized assessment tools based on student need
Audio Books	Utilize prereading strategies and activities: previews, anticipatory guides, and semantic mapping	Modified assessment grading

Unit 5: Plants and Animal Needs	**Grade K**	**Days - 11**

Standards:
Students who demonstrate understanding can:
K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]

Anchoring Question:

- What do plants and animals need to survive?

Essential Questions:

1. What do plants need to live, grow, and survive?
2. What do animals need to live, grow, and survive?
3. How are plant and animal needs alike and different?
4. How can plants and animals change their habitats?

Enduring Understandings:

- All animals need food in order to live and grow.
- Animals obtain their food from plants or other animals.
- Differentiate between the needs of animals and plants.
- Recognize the basic needs of organisms.
- Different kinds of food are needed by different types of animals.
- Plants need light and water to live and grow.
- All living things need water.

Storyline Narrative / Big Ideas:
In this unit of study, students develop an understanding of what plants and animals need to survive and the relationship between their needs and where they live. Students compare and contrast what plants and animals need to survive and the relationship between the needs of living things and where they live. The crosscutting concepts of patterns and systems and system models are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in developing and using models, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Vocabulary Words: food, sun, light, plant, soil, bone, sunlight, body, grow

Science and Engineering Practices	Disciplinary Core Ideas	Cross Cutting Concepts
<u>Analyzing and Interpreting Data</u> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)	**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. Plants need water and light to live and grow. (K-LS1-1)	**Patterns -** Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

Consolidated Supply List:

- Science Journals
- Chart paper
- Cups
- soil/peat pellets
- Labels
- Radish seeds
- Plastic spoons
- Paper plates
- Baking soda
- Spray bottle
- Ziplock bags

- Book -Animals Should Definitely Not Wear Clothing by Judi Barrett
- Book - "Plant a Tiny Seed"
- Mystery Science subscription
- Epic Books subscription

Episode 1
Engage/Elicit Ideas
Days: 1 day

Lessons	Resources
Lesson 1: Phenomena **Gather -** Watch this plant video to see two different sets of seeds grow with and without water. **Reason -** Have students take out their science journal and split it into two boxes. Students can draw a picture to show a seed or plant with and without water. **Communicate -** Discuss as a class what everyone wonders about after watching this video. Jot down wonder statements to refer to during this unit. Let students know that throughout this unit we will try to find answers to each question as we learn, explore, and become scientists.	**Lesson 1:** • plant video • Wonder Journal Template • Science journals

Episode 2
Explore
Days: 2 days

Lessons	Resources
Lesson 2: Plants and Trees Mystery Lesson - How do plants and trees grow? **Gather -** Think back to our last few science lessons. We discussed different things that plants, animals, and humans need to survive. At your tables, think back and talk about the different things needed for plants to survive. After students discuss in groups, the teacher invites the class back to share as a whole. **Reason -** Watch Mystery Science video How do plants and trees grow? . Students will be able to plant their own radish seeds. Step 1: Write your name on a label and stick it on your dixie cup. Step 2: Each student gets three radish seeds. Step 3: With a spoon make a small hole in your dirt, plant your seeds, and cover the seeds with dirt again. Step 4: Gently water the seeds. Put your cup in the	**Lesson 2:** • Lesson - How do plants and trees grow? • Cups • soil/peat pellets • Labels • Radish seeds • Plastic spoons • Paper plates • Baking soda • Spray bottle • Ziplock bags

classroom where it can get direct sunlight. It takes about 5 days for a seed to sprout. **Communicate** - Each day, students will observe their plant and record what they see in their science journal by writing or drawing their results. **Lesson 3: Animal Homes** **Vocabulary -** Choose a few **Gather -** Quickly review different habitats discussed in previous lessons (ocean, forest, mountains, etc). Watch Habitats: What is a habitat? [FREE RESOURCE] where it discusses different animals located in different habitats. Discuss how these habitats discussed in the video are different. **Reason -** How do animals make their homes in the forest? Weather permitting,classes can go on a nature walk. It doesn't have to be far from your classroom. Walk along the field, playground, or perimeter of the school. Stop and look at birds in the sky/trees, insects in the grass, etc. Students can bring their science journal so that they can make a list of the animals that everyone sees. **Communicate -** Once students return to the classroom, have students share what they saw and where they spotted their animal or insect. Chart the animal and the habitat, Ex - snail - grass.(Animal/Habitat Chart Example) Discuss the environment/habitat it lives in.	**Lesson 3:** • Video - Habitats: What is a habitat? • Lesson - How do animals make their homes in the forest? • Chart example - Animal/Habitat Chart Example
Episode 3 **Explain** **Days: 4 days**	
Lessons	**Resources**
Lesson 4: Vocabulary Splash **Gather -** Display all the Vocabulary Words Sci Unit 5 on the board. Read each word to the class with a brief explanation of the words. **Reason -** As a class (can be an interactive writing type activity) sort these words in an open sort using their prior knowledge. Label each group of words. **Communicate -** Discuss as a group the final label headers of each group of words. Remind students that we	**Lesson 4:** • Vocabulary Wor… • Science journals

will be using these vocabulary words throughout the unit. Additionally, we will be exploring them in our science journals. **Lesson 5: Animal Needs** **Vocabulary -** Choose a few Vocabulary Words Sci Unit 5 to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** Read Aloud - Animals Should Definitely Not Wear Clothing by Judi Barrett Read Aloud As a class, create a chart of "Things Animals Need to Survive." By the end of it, make sure the following are on it: food, air, shelter, water. **This chart will be created 3 different times for animals, plants, humans so it can also be one large chart so you can compare at the end. **Reason -** Show and discuss this chart**.** Students will start to fill in their Plants and Animal Needs Journal by completing page 2 and 3. Now, either as a class or in groups, complete page 5 based on the squirrel facts on page 4 or have students pick an animal that they already know information about. **Communicate -** Come together as a class and discuss what belongs in each box (depending on if you did the squirrel or another animal.) **Lesson 6: Plant Needs** **Vocabulary -** Choose a few Vocabulary Words Sci Unit 5 to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** Watch or read: "Plant a Tiny Seed" As a class, create a chart of "Things Plants Need to Survive." By the end of it, make sure the following are on it: air, sun, water, and soil. **Reason -** Show and discuss this chart**.** Students will continue to fill in their Plants and Animal Needs Journal by completing page 6 and 7. Then have students draw pictures in their science journal to show what a plant needs to grow from a seed. **Communicate -** Come together as a class and share pictures of how a plant grows from a seed.	**Lesson 5:** • Vocabulary Wor… • Chart paper • Animal Needs Chart • Plants and Animal Needs Journal • Book -Animals Should Definitely Not Wear Clothing by Judi Barrett Read Aloud **Lesson 6:** • Chart paper • Plant Needs Chart • Plants and Animal Needs Journal • Plant a Tiny Seed • Science journal • Book - "Plant a Tiny Seed"

Lesson 7: Human Needs **Vocabulary -** Choose a few Vocabulary Words Sci Unit 5 to focus on. Students write the word, draw a picture of the word and (optional) write the word in a sentence in their journals. **Gather -** Song - **What do We Need to Live?** As a class, create a chart of "Things Humans Need to Survive." By the end of it, make sure the following are on it: shelter, water, food, air. **Reason -** Show and discuss this chart. **Communicate -** Now we've learned all about animal, plant, and human needs. As a class, create a class venn diagram to show the similarities and differences of all 3. Venn template - Venn2Circles **Lesson 8:** **Gather** - Read Aloud - Tops and Bottoms by Janet Steves 🥕 Kids Book Read Aloud: TOPS & BOTTOMS by Janet Stevens - Ask and answer key details about the storyl **Reason** - Students measure radish root growth from lesson 2. Students record length using non-standard unit (cubes) and draw a picture of their radish. Compare length with a partner. See whose is longer/shorter. **Communicate** - Students write what the radish needed to grow so long under their picture.	**Lesson 7:** • Vocabulary Wor… • Chart paper • Human Needs Chart
Episode 4 **Elaborate/Build New Content/Apply new Content** **Days: 1-3 days depending on the teacher/class**	
Activity	**Resources**
Lesson 8: PBL challenge (3 days) **Goal:** Students design a habitat for a plant, animal, or human based off of research. **Step 1:** Students will spend a day or two (can also be at home) researching their animal. Here's an example of a note taking sheet: habitat research. Students can also just use their science journals to draw pictures and "write" notes. **Step 2:** Students will make a plan for their habitat. Students need to make sure they create a habitat/shelter that will protect them from the climate, predators, and	**Lesson 8:** • habitat research. • Epic Books • Habitat Examples

provide them with their most basic needs. **Step 3:** Students will use their plan to collect materials (can be from the classroom and sent in from home) and begin building their habitat. The length of this will vary depending on the class. **Step 4:** Stop at a good halfway point and have the students pause to reflect. What do they still need to do? Do they have a shelter and food set up? Go on a gallery walk so students can give each other advice/ideas. **Step 5:** Taking the feedback and ideas into mind, students should work to complete their habitat. **Step 6:** When all of the projects are completed, host a museum! Invite other classes, teachers, staff members to come take a look. Students can stand by their habitat and be available to answer questions about their animal/plant/human. **Step 6:** Reflection time. As a class, discuss the whole process of a STEM challenge. Did you enjoy it? Was it difficult? Was your end product different from your plan? Do you think you successfully showed your animal/plant/human's habitat? Habitat Examples	
Episode 5 **Evaluate** **Days: 1**	
Assessment	**Resources**
Stem Rubric unit 5	
Common Core Curriculum Connections	
ELA/Literacy – W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-LS1-1) **Mathematics –** K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. (K-LS1-1)	
Instructional Strategies: Supports for English Language Learners	

Sensory Supports	Graphic Supports	Interactive Supports
Real-life objects (realia) Manipulatives Pictures & photographs Illustrations, diagrams, & drawings Magazines & newspapers Physical activities Videos & films Broadcasts Models & figures	Charts Graphic organizers Tables Graphs Timelines Number lines	In pairs or partners In triads or small groups In a whole group Using cooperative group structures With the Internet (websites) or software programs In the home language With mentors

Differentiation Strategies:

Accommodations	Interventions	Modifications
Allow for verbal responses	Multi-sensory techniques	Modified tasks/ expectations
Repeat/confirm directions	Increase task structure (e.g., directions, checks for understanding, feedback)	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding (e.g., writing, reading aloud, answering questions in class)	Individualized assessment tools based on student need
Audio Books	Utilize prereading strategies and activities: previews, anticipatory guides, and semantic mapping	Modified assessment grading