

Pre-Kindergarten Mystery Science Lesson Alignment and Support for Strand 1 Weather Salt Lake City School District 2021-2022

Mystery Science Lesson Rationale:

Mystery Science mini lessons seek to promote engagement and inspire excellence in students' mastery of science and engineering. The lessons support our vision and mission of equity and access in elementary science. The sequence of Mystery Science Mini lesson below supports pre-Kindergarten students' sense-making with respect to weather using three-dimensional instruction. The sequenced Mystery Science Lessons support Pre-kindergarten teachers in implementing the new Utah SEEd Standards about weather specifically in the 2021-2022 District Pacing Guide. Lessons include a video focused on a phenomenon. Most lessons use minimal materials, such as paper printouts and pencils. Additionally, most paper printouts can be downloaded individually from the Mystery Science Lessons websites in the form of an editable document. Some of the Mystery science mini lessons do not have an activity. An optional activity is listed for students. Teachers can make easy modifications to these lessons based on students' and teachers' resources.

Strand 1

Weather is the combination of sunlight, wind, snow, or rain, and temperature in a particular place at a particular time. Humans can plan and prepare for different weather conditions.

Standard 1.1

Obtain and communicate information about local, observable weather conditions while exploring and describing patterns found in different seasons. Emphasize the observation and recognition of data. Examples of data may include sunny, cloudy, windy, rainy, snowy, cold, or warm.

Standard 1.2

Obtain and communicate information about human behavior patterns in different weather conditions. Emphasize the observation and recognition of data. Examples of data may include clothing, food, safety, and other preparations for expected weather.

Mystery Science Lesson	Suggested Date and SEEd Alignment	Materials and Activity	Literature Connections
Lesson 1: How Old is the Earth?	September 7 SEEd Standard 1.1 Disciplinary Core Ideas: ESS2-1. Science and Engineering Practice: Obtain, evaluate, and communicate information. Crosscutting Concept: patterns	Materials per Student: Various objects for students to sort based on age. Items could include coins, books, pictures, clothing items, etc. Optional Activity: Have students sort objects to decide how old they are. Create a class graph to show the data you collected. Optional- Bring in some tree rings and count how old the tree is. Create a class graph to show the data you collected. Extension: Can you find the oldest thing in your home? Go on a scavenger	Literature Connection: Picture book: I am the Earth by Rebecca & James McDonald I am the Earth Video Epic Books: Earth Words A tiny brown monkey on the big blue Earth Sandy's incredible shrinking footprint Unite for Literacy: Earth Day! Readworks.org: Our Earth Text Set

		<p>hunt to look for it. Things like coins and books have dates on them that tell you when they were made. What is the oldest coin you can find? What is the oldest book? What about objects that don't have dates on them? Ask an adult to help you figure out the oldest object in your home.</p>	
<p>Lesson 2: How dangerous is it to look at the sun? OR How close could an astronaut get to the sun?</p> <p>Weather Emphasis: Sunny Temperature emphasis: warm/ hot</p>	<p>September 13</p> <p>SEEd Standard 1.2</p> <p>Disciplinary Core Ideas: ESS2-2. ETS1.B</p> <p>Science and Engineering Practice: Obtain, evaluate, and communicate information.</p> <p>Crosscutting Concept: patterns</p>	<p>Materials per Student:</p> <p>Optional Activity Part 1: Ask students what they know about the sun? How does the sun help us?</p> <p>Go outside and feel the warmth of the sun. Explore how the sun's energy heats up different locations on the playground. Record the temperature of the locations.</p> <p>Create a class graph to show the data you collected. Discuss patterns you noticed from the data.</p> <p>Optional Activity Part 2: Start an ongoing weather chart to collect data about the weather each day. Examples of data may include sunny, cloudy, windy, rainy, snowy, cold, or warm.</p> <p>STEM Extension: Have students construct a paper shade structure. Put an ice cube under each structure in a sunny location outside and see which structures prevent the ice from melting. Record the time of the ice melt. Create a class graph to show the data you collected. Discuss patterns you noticed from the data.</p> <p>Writing Extension: We use sunscreen and special glasses to protect ourselves from the Sun. Would we be better off without the Sun? What if you woke up one morning and the Sun no longer existed? What would happen after one day? After one year? Draw a picture to show what you think would happen. What are the good things about it? What are the bad things about it?</p>	<p>Literature Connection: Epic Books: Sun The contest between the sun and the wind Stretch to the Sun Maui Slows the Sun One yellow Sun Unite for Literacy: SOHO Explores the Sun A Hot Summer Day Readworks.org: The Sun paired Text</p>

<p>Lesson 3: Why are tornadoes so hard to predict?</p> <p>Weather Emphasis: Windy</p>	<p>September 20</p> <p>SEEd Standard 1.2</p> <p>Disciplinary Core Ideas: ESS2-2.</p> <p>Science and Engineering Practice: Obtain, evaluate, and communicate information.</p> <p>Crosscutting Concept: patterns</p>	<p>Materials per Student: Paper straws Straight push pins Paper windmill template</p> <p>Optional Activity: Ask students what they know about the wind? How can the wind help us? How can the wind hurt us?</p> <p>Have students create a paper windmill.</p> <p>Writing Extension: Most people try to get away from tornadoes. But the scientists known as storm chasers rush into storms to study them. Their cars keep them safe while they are there. If you were a storm chaser, what would you add to your car to make it safe in a tornado? How would you keep it from blowing away? How would you stop things from breaking the windows? Draw and label your special car.</p>	<p>Literature Connection: Epic Books: Tornado Tamer Unite for Literacy: Can you see the wind? Readworks.org: A tornado is coming</p>
<p>Lesson 4: What makes hurricanes so dangerous?</p> <p>Weather Emphasis: Wind, Rain, Cloudy</p>	<p>September 27</p> <p>SEEd Standard 1.1 & 1.2</p> <p>Disciplinary Core Ideas: ESS2-1 & ESS2-2., ETS1.B</p> <p>Science and Engineering Practice: Constructing explanations and designing solutions.</p> <p>Crosscutting</p>	<p>Materials per Student: Toilet paper roll or paper towel roll aluminum foil Recycled file folder to create end pieces. Beans, rice, un-popped popcorn, seeds, or beads to fill. Art supplies to decorate. Masking tape</p> <p>Ask students what they know about a rainstorm? Chart student ideas.</p> <p>Optional STEM Activity: Have students create a rain stick.</p> <p>Get a paper roll and Seal one side of the tube.</p>	<p>Literature Connection: Epic Books: Ready set Wait A penguin named Patience Unite for Literacy: Big Storms Readworks.org: Severe Storms</p>

	<p>Concept: patterns</p>	<p>On a recycled file folder, trace around an open end of your cardboard tube. Draw a larger circle around the first one. Cut around the bigger circle. Cut several slits from the outer edge of the larger circle into the smaller circle. Make two of these double circles, one for each end of the tube.</p> <p>Fold the slit edges up from the smaller circle. With School Glue or making tape, seal one end of the tube with one of the circles.</p> <p>Fill the rain stick. Roll and twist a long piece of aluminum foil into a spiral snake. Place the foil snake inside the tube.</p> <p>Pour a few items into the tube. Hold a hand over the open end of the tube and gently turn the rain stick over to see how it sounds. Students experiment with the number of items until they have a sound, they like best.</p> <p>Glue or tape the second end of the rain stick closed. Decorate the rain stick.</p> <p>Extensions- Sort and count items for the rain stick.</p> <p>Writing Extension: If you lived in an area with hurricanes, what could you do to protect your home? How could you make sure the windows don't break? How could you prevent the roof from flying off? How could you make sure it doesn't flood? Make a drawing of your home and all the things you could add to protect it from a hurricane.</p>	
<p>Lesson 5: Why does it get cold in winter? Weather Emphasis: Snowy</p>	<p>October 4 SEEd Standard 1.1 Disciplinary Core Ideas: ESS2-1</p>	<p>Materials per Student: Sidewalk chalk</p> <p>Optional Activity: You can safely study how the Sun moves by watching shadows. On a sunny day, find an object in your classroom that is in full sunlight. Look to see if it's making a</p>	<p>Literature Connection: Epic Books: What is snow? Snow Unite for Literacy: Is it cold outside? What should we wear? Water Changes</p>

Temperature Emphasis: Cold	Science and Engineering Practice: Obtain, evaluate, and communicate information. Crosscutting Concept: patterns	shadow. Then, use two stickers to mark the edges of the shadow. Wait an hour. Look again. Where is the shadow now? Where are the stickers? If you have time, check the shadow every hour to see what happens! Go outside and trace your shadows with sidewalk chalk. Writing Extension: Fold a paper in half. Draw a picture of what it looks like in the Summer and in the Winter. Where is the sun in your picture for each season? <table><tr><td>Summer</td><td>Winter</td></tr></table>	Summer	Winter	Explore my world: weather Readworks.org: Winter Weather Winter Text Set
Summer	Winter				
Lesson 6: Why do leaves change color in the Fall? In this mini-lesson, students discover how and why some tree leaves change color when the weather starts to get colder. In the activity, Falling for Leaves, students make crayon rubbings of tree leaves, then take a closer look to observe the characteristics of leaves in their own neighborhood.	October 11 SEEd Standard 1.1 Disciplinary Core Ideas: ESS2-1 Science and Engineering Practice: Obtain, evaluate, and communicate information. Crosscutting Concept: patterns	Materials per Student: Leaf Thanks Card Leaf Shape Worksheet 1 sheet of blank paper 1 leaf per student Crayons rulers Mystery Science Activity: Follow directions in the video to make a leaf rubbing and a card. Ask students to look at all the different cards. What is the same and what is different about the leaf rubbings? Have students look at their leaf worksheet. Have students circle all the things they notice about their leaf. Writing Extension: Write or draw a message inside your leaf rubbing card.	Literature Connection: Epic Books: Summer Green to Autumn Gold Weather in the Fall Unite for Literacy: It's Fall Here comes Autumn Readworks.org: The Four Seasons		

<p>Lesson 7: What is the coldest place on Earth?</p>	<p>October 18</p> <p>SEEd Standard 1.1</p> <p>Disciplinary Core Ideas: ESS2-1</p> <p>Science and Engineering Practice: Obtain, evaluate, and communicate information</p> <p>Crosscutting Concept: patterns</p>	<p>Materials per Student: Pre-frozen bags sandwich bags of ice with dinosaurs (3 bags per team) Tray, plate, or bowl for each ice block</p> <p>Optional Activity: <i>Dinosaur Ice Excavation</i> Your job is to save the dinosaurs! Test what materials will melt ice the fastest to excavate the dinosaur from the ice.</p> <p>Ice block 1: Add heat and pressure from hands to melt the ice for 3 minutes.</p> <p>Ice Block 2: Add salt and watch the melting for 3 minutes.</p> <p>Ice block 3: Spray with water and watch the melting for 3 minutes.</p> <p>Create a class graph to show the data you collected. Discuss patterns you noticed from the data.</p> <p>Writing Extension: Pretend that you are taking a trip to the coldest place on earth. Draw a picture to show what the coldest place on Earth looks like. What will you do when you are there?</p>	<p>Literature Connection: Epic Books: I know the weather Changing weather Winter, Winter, Cold and snow Unite for Literacy: Here comes Winter Readworks.org: Winter Text Set</p>
<p>Lesson 8: Why is snow white?</p> <p>In this mini-lesson, students see how the shape of snowflakes causes them to look like the color of light that is shining</p>	<p>October 25</p> <p>SEEd Standard 1.1</p> <p>Disciplinary Core Ideas: ESS2-1</p> <p>Science and Engineering Practice: Obtain, evaluate,</p>	<p>Materials per Student: 2 sheets of wax paper 1 Snowflake Maker worksheet Scissors Paper plates School Glue</p> <p>Mystery Science Activity: Follow directions in the video to create a wax paper snowflake.</p> <p>Discuss patterns in the different</p>	<p>Literature Connection: Epic Books: Little snowflake Snowy Things I do in Winter Unite for Literacy: It's Winter Readworks.org: Building things with Snow Stuck in the snow Sledding Snowflakes</p>

on them. In the activity, Wax Paper Snowflake, students create a decorative snowflake and investigate how to make something transparent look white.	and communicate information Crosscutting Concept: patterns	snowflakes you created. Writing Extension: What do you like to do on a snowy day? Draw a picture to show what you like to do.	
Lesson 9: Why do you get goosebumps when you're cold?	November 1 SEEd Standard 1.2 Disciplinary Core Ideas: ESS2-2 Science and Engineering Practice: Obtain, evaluate, and communicate information. Crosscutting Concept:	Materials per Student: Computers for simulation Clothing and accessories to act it out. Optional Activity: Use this simulation to let students, pick clothing for each season. Act it out: Have students sort items and select the outfit they would wear for each season. Writing Extension: When you're cold, you get goosebumps! It's not something you decide to do. Your body just does it! What other things does your body do without you thinking about it? For example, do you tell your heart to beat? Or does it just do it? Think of all the things your body does without you telling it anything. Draw or describe all the different things your body does on its own!	Literature Connection: Epic Books: Snow Day! In the Snow A warm winter Tail Unite for Literacy: A blanket of Snow I wish Let's make snow Ice cream Readworks.org: Getting around Alaska
Lesson 10: How do flowers bloom in the spring? In this	November 8 SEEd Standard 1.1 Disciplinary Core Ideas: ESS2-1	Materials per Student: Flower Power Card Crayons Paper Scissors Dot stickers Teacher note: You may want to make	Literature Connection: Epic Books: Nature Walk: Flowers Sorting through Spring Spring Blossoms Watching the Seasons: Spring

<p>mini-lesson, students learn how the unique properties of water help flowers bloom in the spring. In this activity, each student will make a colorful paper flower and a greeting card that they can give to any special person in their life. When placed in water, the paper flower will unfold, appearing to move and bloom in front of your eyes!</p>	<p>Science and Engineering Practice: Obtain, evaluate, and communicate information.</p> <p>Crosscutting Concept: Patterns</p>	<p>some extra flowers to demonstrate the bloom for students. OR students will need two paper flowers, one for their card and one to “Bloom”.</p> <p><u>To make your flower bloom:</u> Clean up supplies (Paper towels) Plastic plate 10”</p> <p>Mystery Science Activity: Follow directions in the video to make your paper flower and card.</p> <p>Extension: You can see for yourself how water moves inside a plant. Fill a glass with water and add a few drops of red or blue food coloring. Place a white flower in the glass. Wait a few hours and watch to see what happens. Look closely at the flower petals. What do you notice? Repeat this experiment but use a stalk of celery or a lettuce leaf. What do you predict will happen?</p>	<p>Patterns in Spring What happens in Spring? Weather in Spring Unite for Literacy: Dandelion Days Nature’s Colors Garden Giants The busiest Bugs I know It’s Spring Readworks.org: Plant growth Paired Text</p>
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