Strand Pre-K.2 Light
Mystery Science Scope and Sequence
Salt Lake City School District 2023-2024

Strand 2 Light
Sunlight has an effect on surfaces. Objects can be seen when light is available to illuminate them. Light is required for plant growth.

Standard 3–4 yr.2.1 Plan and carry out an investigation using the five senses to determine the **effect** of sunlight on different surfaces and materials. Examples could include determining if the effect is hot or cold or a light or dark surface.

Standard 3–4 yr.2.2 Carry out an investigation to show the **effect** of light in illuminating objects. Emphasize that objects can be seen when light is available to illuminate them. Examples could include observations about light when navigating a room with the lights off compared to the lights on.

Standard 3– 4yr.2.3 Plan and carry out an investigation to determine the **effect** of sunlight and water on plant growth. Examples could include growing plants in light or dark places.

Instructional Pacing for Strand Pre-K.2 Light			
Sept 5 Lesson 1 Why is the sky blue?	Sept 11 Lesson 2 How is a rainbow made?	Sept 18 Lesson 3 Has a shooting star ever landed on someone?	Sept 25 Lesson 4 What causes northern lights?
Oct 2 Lesson 5 What is a Black Hole?	Oct 9 Lesson 6 What's the biggest tree in the world?	Oct 17 Lesson 7 What's the biggest apple in the world?	

Scope and Sequence

Date, SEEd Standard, & Mystery Science Lesson	Materials and Assessment
Sept 5 **Standard 3–4 yr.2.2** **Science and Engineering Practice:** Plan and carry out an investigation	**Materials per Student:** Flashlights CDs Aluminum foil

Crosscutting Concept: Cause and effect **Lesson 1:** Why is the sky blue?	**Optional Activity:** Explore how Light works by making a prism using a CD. Poke a small hole in a piece of aluminum foil and fold the foil over the flashlight. Shine the flashlight onto the back of the CD. Or you can get a prism effect simply by holding the CD up to a light bulb so that the back of the CD faces the light bulb. **Extension:** The sky is not always blue. You can keep a Sky Journal and write about the different colors of the sky. Draw the color of the sky on different days. Draw the color of the sky at different times of the day. How many colors can you find? Do you notice any patterns of when the sky changes color? Video from NASA **Literature Connection** Epic Books: Boundless Sky Up in the Hawaiian sky Clouds a Compare and contrast book Explore my world: Clouds Weather watch: clouds Unite for Literacy: Cloud Questions Readworks.org: Looking at the Sky
Sept 11 **Standard 3–4 yr.2.2** **Science and Engineering Practice:** Plan and carry out an investigation **Crosscutting Concept:** Cause and effect **Lesson 2:** How is a rainbow made? In this mini-lesson, students discover how water acts like a prism, splitting white sunlight into all the colors of the rainbow. In the activity, Chasing Rainbows, students create their own rainbows using cups of water, sunlight, and plain white paper.	**Materials per Student:** Chasing Rainbows K-1 Handout Blank Paper (8.5 x 11") Clean up supplies (Paper towels) Crayons Pitcher Clear plastic cups 10 oz. 3 x 5 index cards **Mystery Science Activity:** Follow directions on the video to complete the "Chasing Rainbows" activity. **Extension:** Squirt a dime-size amount of dish soap into a bowl. Add water. Use a straw to blow some bubbles. Can you see the colors in

Making and Tinkering with STEM Trouble with Bubbles **Literature Suggestions:** Bubble trouble Bubble Bubble The Bubble Factory Chavela and the Magic Bubble	the bubbles? Look carefully! If you cannot find colors, move the bowl to a spot with different light. Like a rainbow, the colors that swirl in a soap bubble come from white light. The surface of the bubble splits the light into many colors! **Extension: Make** Climbing rainbows. Link to activity **Literature Connection** Epic Books: Optical Physics for babies Readworks.org: What is a rainbow?
Sept 18 **Standard 3–4 yr.2.1** **Science and Engineering Practice:** Plan and carry out an investigation **Crosscutting Concept:** Cause and effect **Lesson 3:**Has a shooting star ever landed on someone?	**Materials per Student:** Round plastic deli lids **Optional Activity:** Make a shape shadow! 1. Draw a shape with a marker on a lid. 2. Fill in the shape completely with the marker so it is completely black. 3. Let the ink dry for at least one minute. 4. Then flip the lid over and color the shape again so it is dark. 5. Turn on a flashlight and hold the lid in front of it. 6. Turn off the lights and point the symbol towards a wall. **Extension:** Every day, tiny rocks, smaller than sand grains, fall from space. Some land on the roofs of buildings. To find these space rocks, you can use a magnet in a plastic bag. With an adult's help, find a spot where water from a roof flow to the ground. Run the magnet in the bag through the sand and dirt. Tiny rocks that stick to the magnet through the plastic bag might be space rocks that have fallen to Earth!

	Literature Connection: Epic Books: Waves: Physical Science for kids Unite for Literacy: Show me a Shadow Readworks.org: What are shadows?
Sept 25 **Standard 3–4 yr.2.1** **Science and Engineering Practice:** Plan and carry out an investigation **Crosscutting Concept:** Cause and effect **Lesson 4:** What causes northern lights?	**Materials per Student:** Colored chalk or pastels Black construction paper Piece of blank white paper Cotton balls **Optional Activity:** **Create Northern Lights chalk Art!** 1. Cut out a mountain template with your white paper. 2. Place the white paper on top of your black paper. 3. Color a small about along the edge with chalk using several different colors. 4. Take your cotton ball and rub the chalk toward the top of your page to create the northern lights. Link to lesson website **Extension:** You can experiment with electric sparks. Put on clean, dry socks. (Wool socks work best but try whatever you have.) Shuffle your feet across a carpet or rug. Then, quickly touch something made of metal, like a doorknob. Do you feel a spark? If you do not, try another carpet or different socks. This works best on a dry day. To see the light that the spark makes, do this in the dark. **Literature Connection:** Epic Books: Once upon a Northern Night Bear and Fox: The Northern Trail Readworks.org: The Northern Lights

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Standard 3–4 yr.2.1
Science and Engineering Practice: Plan and carry out an investigation
Crosscutting Concept: Cause and effect

Lesson 5:
What is a Black Hole?</td>
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What is a Black Hole?

Materials per Student:
White cardstock or paper
White crayons
Black watercolor paint
Paintbrush and water

Optional Activity:
Nighttime sky watercolor resist with crayons
1. Have students draw stars with a white crayon on their paper.
2. Paint over the image with watercolor paint to create the night sky.
3. Hang to dry.

Literature Connection:
Epic Books:
General Relativity for Babies
ABCs of Physics
Unite for Literacy:
Would you Step out into Space?
Readworks.org:
All about Lights Text Set</td>
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<td>Oct 9

Standard 3– 4yr.2.3
Science and Engineering Practice: Plan and carry out an investigation
Crosscutting Concept: Cause and effect

Lesson 6: What’s the biggest tree in the world?

Making and Tinkering with STEM
Squirrel Proof Birdfeeder

Literature Suggestions:
Those Darn Squirrels
Nuts to you!
The secret life of squirrels
The tale of Squirrel Nutkin</td>
<td>Materials per Student:
Blank paper
Pencil

Optional Activity: Take a walk with an adult and look at the trees in your neighborhood. What is the biggest tree you can find? What makes you choose it as the biggest? Is it the tree’s height, the size of its trunk, or the spread of its branches? Make a drawing of the biggest tree in your neighborhood. Be sure to include what you think the roots look like under the ground!

Extension: Color the bark on a tree with chalk to examine the texture. Look for patterns of textures in the trees around your school.</td>
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	Extension: Collect some tree rings or slices of a tree and count the rings to see how old the tree is. **Extension:** Create a leaf rubbing from a tree in your neighborhood. **Literature Connection:** Epic Books: Energy: Physical science for kids Unite for Literacy: Underneath a juniper tree Trees Up in a tree Who climbs trees
Oct 17 **Standard 3– 4yr.2.3** **Science and Engineering Practice:** Plan and carry out an investigation **Crosscutting Concept:** Cause and effect **Lesson 7:** What's the biggest apple in the world? In this mini-lesson, students learn about a variety of apples. In the activity, Apple Trapper, students engage in the engineering design process and build an invention that can pick up apples in the classroom. Students explore the properties of paper and think like inventors - building, testing, learning from failure, and trying repeatedly!	**Materials per Student:** **Apple Trapper Inspiration (All Grades)** worksheet Scissors x Scrap paper (8.5 X 11") File folder label stickers or tape Red and green construction paper **Mystery Science Activity:** Follow the directions in the video to design and build an apple trapper to collect apples from the orchard. **Extension:** Grow a plant from a seed. Place some plants in a dark area and some in the light and compare the growth. **Literature Connection:** Epic Books: From Seed to Plant A Seed Needs Sun Who will plant a tree? Plant a plant Unite for Literacy: Let's Grow I can eat a whole plant! The Life of a seed A garden to explore Readworks.org: What plants need Miss Johnson's plant experiment