1st Grade Mystery Science Earth and Space Science

Lesson Alignment and Support

Salt Lake City School District 2020

Mystery Science Lesson Rationale:

Mystery Science 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 Full Lessons and Mini-Lesson below support first grade students' sense-making with respect to Earth and Space Science using three-dimensional instruction. The sequenced Mystery Science Lessons support first grade teachers in implementing the new Utah SEEd Standards about Earth and space science specifically in the Prioritized SEEd Pacing Guide. Lessons include a video focused on Earth and space-based phenomenon, a hands-on activity, and an assessment. The lessons are designed to take students approximately 60 minutes to complete. 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 that can be assigned through Canvas. Some lessons suggest markers, group work, or demonstrations. Teachers can make easy modifications to these lessons based on students' and teachers' resources.

Note: Use a Science Notebook or print the Mystery Science PDF Booklet for students to complete the lesson series below! You can also print individual lesson materials by following the links in the ***Materials per Student and Assessments***.

Strand 1.1: Season and Space Patterns Seasonal patterns of motion of the Sun, Moon, and stars can be observed, described, and predicted. These patterns may vary depending on the region, location, or time of year.

Standard 1.1.1: Movement of the Sun & Stars Obtain, evaluate, and communicate information about the movement of the Sun, Moon, and stars to describe predictable patterns. Examples of patterns could include how the Sun and Moon appear to rise in one part of the sky, move across the sky, and set; or how stars, other than the Sun, are visible at night but not during the day. (ESS1.A)

Mystery Science Living Things and Habitats Lesson	Suggested Date and SEEd Alignment	Materials and Assessments	Remote Learning Modifications
Lesson 1: Could a statues shadow move? In this Mystery, students investigate what it takes to make a stationary object's shadow move. In the activity, Moving Shadows, students use flashlights and paper gnomes to explore how moving the position of a light makes shadows move. Students	**October 12** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • Pencil • Assessments: PDF Booklet Page 3 (Draw the Sun Printout) Materials for Teacher Demo: • Blank Paper • Marker • Tape • Flashlight • Paper Gnome Printout	• Set up the activity and demonstrate over video conference with your students so they can make observations. • If students have a flashlight, have them explore shadows in their home.

relate these observations to shadows changing throughout the day and the Sun's position moving across the sky.		• Shadow Patterns Printout	
Lesson 2: Could a statues shadow move? Extension Activity Let students practice reading and writing skills while learning science vocabulary with Reading and Writing Vocabulary Cards.	**October 19** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • Pencil • PDF Booklet Page 4-8 (Reading and Writing Vocabulary Cards) • Assessments: Have students show you their word matches and their writing with their Reading and Writing Vocabulary Cards.	• None.
Lesson 3: Where's the shadow? Activity Students choose the shadow of a wall or building that makes a straight line and mark that line with chalk. Then students guess where the shadow will be in fifteen minutes and mark their prediction with chalk. After waiting 15 minutes, they mark the actual location of the shadow.	**October 26** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • Chalk • Assessments: Have students describe how the shadow changed over 15 minutes and compare their prediction to what actually happened.	• If a building shadow is not possible to mark, have students mark the shadow of a mailbox or tree.
Lesson 4: Shadow Partners Activity Students work with a partner to explore	**November 2** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars)	Materials per Student: • None. • Assessments: Have students answer the	• This activity requires students to

characteristics of shadows.	**Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	following questions: 1. Can you touch your partner's shadow without touching your partner? Can you make your shadow touch your partner's shadow? 2. Can you and your partner make a shadow that looks like a person with four arms? 3. What's the most interesting shadow you can find? Do all the shadows you find look like the objects that cast them?	work with a partner.
Lesson 5: What does your shadow do when you're not looking? In this Read-Along Mystery, Jada explores why her shadow changes over the course of a day at the beach. The Mystery includes a short exercise where students act out the movement of shadows with their bodies.	**November 9** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • Pencil • Chalk • Assessments: PDF Booklet Page 9 (Match the Shadows with their Time of Day)	• None.
Lesson 6: Trace Your Shadow Activity Students trace their shadows using	**November 16** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars)	Materials per Student: • Chalk • Assessments: Have students answer the question, Why	• If possible, students can ask a helper at home to trace their shadows.

colored chalk and track the shadow's changes throughout the day.	**Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	do you think your morning and afternoon shadows pointed different directions?	• Alternatively, have students trace the shadow of an object in their neighborhood at different times throughout the day (with adult supervision).
Lesson 7: How can the Sun help you if you're lost? In this Mystery, students develop a model of the sun's daily path across the sky, then use this model to help someone who's lost. In the activity, Sun Finder, students create a mobile paper model of the sun and earth to illustrate the position of the sun throughout the day.	**November 23** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • Pencil • Scissor • Three-Hole Punch • Paper Fasteners • PDF Booklet Page 10 (Sun Finder Printout) • Assessments: PDF Booklet Page 11 (Sun Movement Pattern)	• Have students do the activity at home. • Send each student home a paper fastener and a prepared *Sun Finder* template (a digital version will not work).
Lesson 8: How can the Sun help you if your lost? Extension Activity Let students practice reading and writing skills while learning science vocabulary with Reading and Writing Vocabulary Cards.	**November 30** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • PDF Booklet Page 12-18 (Reading and Writing Vocabulary Cards) • Sun Finder from Previous Lesson • Assessments: Using their Sun Finder, have students show you where the sun is at different times of the day.	• None.

		1. Where is the sun at lunchtime? 2. Where is the sun when you wake up in the morning? 3. Where is the sun just before dinnertime?	
Lesson 9: Why do the stars come out at night? In this Mystery, students use a model to investigate why the stars are visible at night but disappear when the sun comes out during the day. In the activity, Star Projector, students use paper cups to project stars onto a sky picture, and observe what happens to these stars when a flashlight acts as a model of the sun.	**December 7** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • PDF Booklet Page 19 (Big Dipper Printout) • PDF Booklet Page 20 (Sky Sheet Printout) • Assessments: PDF Booklet Page 21 (You Can't See Stars in the Daytime)	• Send each student home with: 1 paper cup, 1 dot sticker and 1 *Big Dipper Star* printout (a digital version will not work). • We suggest students use a push pin from home. Each student will also need a flashlight.
Lesson 10: How can stars help you if you get lost? In this Read-Along Mystery, Ryan's camping trip with his dad includes a night of stargazing, and a mystery to solve. The Mystery includes a short exercise where students imagine what they might see looking through a telescope. You can extend the lesson with the optional	**December 14** **Disciplinary Core Ideas:** ESS1.A (The Universe and Its Stars) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • Pencil • Assessments: PDF Booklet Page 22 (Big Dipper) Materials per Teacher: • Compass • Globe • Blank Paper	• Have students do the activity at home. • All supplies are digital.

activity, Where Is North?, that helps students learn the cardinal directions.			
Standard 1.1.2: Patterns in Space Obtain, evaluate, and communicate information about the patterns observed at different times of the year to relate the amount of daylight to the time of year. Emphasize the variation in daylight patterns at different times of the day and different times of the year. Examples could include varying locations and regions throughout the state, country, and world. (ESS1.B)			
Lesson 11: Why do you have to go to bed early in the summer? In this Read-Along Mystery, Arushi wonders why she has to go to bed while the sun is still up, and learns that the sun stays up longer on some days than others. The Mystery includes a short exercise where students get moving by acting out a bedtime routine. If you want to extend the lesson, we provide a printable Summer Sunshine Reader that your students can color and use to practice their reading skills.	**December 14-January 4** **Disciplinary Core Ideas:** ESS1.B (Earth and the Solar System) **Science and Engineering Practice:** Obtaining, Evaluating, and Communicating Information **Crosscutting Concept:** Patterns	Materials per Student: • Pencil • 5 Crayons or Colored Pencils • PDF Booklet Page 23-37 Black and White, 38-52 Color (Summertime Sunshine Reader Printout) • Assessments: PDF Booklet Page 53 (Match the Season to How Long the Days Are)	• Send each student home with a copy of the *Sunshine Summer Reader.* • As an alternative, you can assign the Read-Along digital story.