1st Grade Unit 2 - Patterns of the Sun, Moon, and Stars

Content Area: **Science**
Course(s): **Science Grade 1**
Time Period: **MP2**
Length: **30 days**
Status: **Published**

NJSLS - Science

1-ESS1-1	Use observations of the sun, moon, and stars to describe patterns that can be predicted.
1-ESS1-2	Make observations at different times of year to relate the amount of daylight to the time of year.

Science and Engineering Practices

Planning and Carrying Out Investigations

Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)

Analyzing and Interpreting Data

Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)

Disciplinary Core Ideas

ESS1.A: The Universe and its Stars

Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)

ESS1.B: Earth and the Solar System

Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)

Crosscutting Concepts

Patterns

Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1, 1-ESS1-2)

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

Science assumes natural events happen today as they happened in the past. (1-ESS1-1)

Many events are repeated. (1-ESS1-1)

Rationale and Transfer Goals

In this unit, students will become sky scientists as they observe, describe, and predict the regular patterns of objects in our sky and how they change throughout the year. Students will engage in hands-on observations and data collection to discover that the sun, moon, and stars all move in predictable ways. They will track the sun's journey across the sky, observe how shadows change throughout the day, and notice that the moon appears to change shape over time.

Additionally, students will investigate the relationship between the seasons and daylight. By analyzing seasonal data, they will discover that some months have more hours of daylight (summer) while others have fewer (winter). By the end of the unit, students will understand that our universe operates in reliable cycles and will be able to use these patterns to make real-world predictions about the world around them.

Enduring Understandings

Patterns in the sky are predictable.

The Sun controls daylight and shadows.

Seasons change daylight hours.

Data tells a story.

Essential Questions

How does the sky change, and how can we predict those changes?

Why does the world around us look and feel different at different times of the year?

Content - What will students know?

- The sun appears to rise in one part of the sky (the east), move across the sky during the day, and set in a different part of the sky (the west).
- The moon changes its observable shape (phases) over a predictable, repeating cycle of about a month.
- Stars are always in space, but they are only visible to us at night because the sun's bright light makes them impossible to see during the day.
- A pattern is something that repeats over and over again in a way that allows us to predict what will happen next.
- The amount of daylight (the time between sunrise and sunset) changes depending on the season.
- Summer has the most hours of daylight (longer days, shorter nights), while winter has the fewest hours of daylight (shorter days, longer nights).
- Spring and autumn act as transitions, where daylight hours are gradually increasing (spring) or decreasing (autumn).

Skills - What will students be able to do?

- Collect and record data (using drawings, journals, or simple charts) on the position of the sun during the morning, noon, and afternoon.
- Point out and describe patterns in the moon's changing appearance over the course of several weeks.
- Use past observations to predict where the sun will be at a certain time of day or whether stars will be visible at a given time.
- Use models or drawings to show that stars are still present in the sky during the day even when the sun blocks them from view.
- Look at simple, kid-friendly data displays (such as pictographs, shaded calendars, or bar graphs) to compare the amount of daylight in different seasons.
- Compare the outdoor experiences of different seasons.
- Provide evidence to support the claim that days get shorter in the winter and longer in the summer.

Activities - How will we teach the content and skills?

- Mystery Science Sun & Shadows Anchor Phenomenon
- Mystery Science Sun & Shadows Lesson 1
- Mystery Science Sun & Shadows Lesson 2
- Mystery Science Sun & Shadows Lesson 3
- Mystery Science Sun & Shadows Lesson 4
- Mystery Science Moon & Stars Lesson 1
- Mystery Science Moon & Stars Lesson 2
- Mystery Science Moon & Stars Lesson 3
- Read Alouds
- Keep a moon journal

Formative Assessments

- Mystery Science Sun & Shadows Lesson 1 Assessment
- Mystery Science Sun & Shadows Lesson 2 Assessment

- Mystery Science Sun & Shadows Lesson 3 Assessment
- Mystery Science Sun & Shadows Lesson 4 Assessment
- Mystery Science Moon & Stars Lesson 1 Assessment
- Mystery Science Moon & Stars Lesson 2 Assessment
- Mystery Science Moon & Stars Lesson 3 Assessment
- Teacher Observation
- Student projects/models
- Individual and Group Participation
- Exit Tickets

Summative Assessments

- Tests/Quizzes
- Moon Journal
- Mystery Science Sun & Shadows Performance Task
- Mystery Science Moon & Stars Performance Task
- Grade 1 Science Unit 2 Benchmark

Spiraling for Mastery

Content or Skill for this Unit	Spiral Focus from Previous Unit	Instructional Activity
Through experimentation students will observe, record, and display knowledge of the sun, moon, Earth, and stars and how they change. Predict the sun's movement.	This is the first opportunity for students to encounter these ideas.	Read-Alouds Modeling/Think Alouds/Whole-Group Discussions

Understand phases of the moon. Understand seasons and the sun's effect on temperature and light in each season.		Experimentation Moon Journal Multi Media Study Jams Our Sky PowerPoint Energy From The Sun Activity Where do the Stars go Lab Moon Phase Activity All About the Sun…Day, Night, and Shadows National Science Teaching Association Resources

Career Readiness, Life Literacies, & Key Skills

9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).

9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).
9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.2.IML.3	Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2).

Interdisciplinary Connections

1.OA.A.1	Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
1.DL.A.1	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
W.WR.1.5	With prompting and support, generate questions through shared research about a topic and determine possible sources to obtain information on that topic.
W.SE.1.6	With guidance and support from adults, gather and select information from multiple sources to answer a question or write about a topic.