



Marietta City Schools

District Unit Planner

Grade 2 Science

Theme	Unit 1 Patterns in Day and Night	Unit duration	12 weeks
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Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GaDoE Standards/3D Science Elements

S2E1. Obtain, evaluate, and communicate information about stars having different sizes and brightness.

- Ask questions to describe the physical attributes (size and brightness) of stars.
- Construct an argument to support the claim that although the sun appears to be the brightest and largest star, it is actually medium in size and brightness.

S2E2. Obtain, evaluate, and communicate information to develop an understanding of the patterns of the sun and the moon and the sun's effect on Earth.

- Plan and carry out an investigation to determine the effect of the position of the sun in relation to a fixed object on Earth at various times of the day.
- Design and build a structure that demonstrates how shadows change throughout the day.
- Represent data in tables and/or graphs of the length of the day and night to recognize the change in seasons.
- Use data from personal observations to describe, illustrate, and predict how the appearance of the moon changes over time in a pattern.

(Clarification statement: Students are not required to know the names of the phases of the moon or understand the tilt of the Earth.)

Unit Objectives:

Sunlight warms Earth's surface and gives the Earth light.

Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.

At night one can see the light coming from many stars with the naked eye. Stars are different sizes and brightness.

Our sun is a medium size star.

Some events on Earth occur in cycles, like day and night, and seasons.

Daylight starts decreasing from the first day of summer to the first day of winter.

Daylight starts increasing from the first day of winter to the first day of summer.

The moon does not create its own light. It reflects light from the sun.

Shadows change throughout the day, as the sun changes position throughout the day.

The moon appears to change shape throughout the month.

When the moon is full, we see the entire moon in the night sky.
When the moon is new, we don't see the moon in the night sky.

Unit Phenomena:

S2E1 – Use the image of a starry night on the Engage page of the Discovery Education Science Techbook unit [Sun & Stars](#):



Ask students what they notice and wonder. Record their thinking on a T-chart.

S2E2 – View this [All about shadows](#) powerpoint with students. The last slide connects to a video about shadows. Ask students to notice and wonder about the video and record their thinking on a T-chart.

Page Keeley Probes: : These probes can be used as phenomena. They are intended to elicit student understanding about science concepts. Starting a unit or lesson with a probe will help you uncover misconceptions and see what students already know about a topic. Using a probe at the beginning of a lesson and then at the end of the lesson serves the purposes of pretesting and then formatively evaluating student thinking. **Below is a list of probes from Page Keeley's book Uncovering Student Ideas in Primary Science, that are appropriate for this unit.** This book has been purchased for your grade level by the Office of Academic Achievement. **What Lights Up the Moon? When is the Next Full Moon?**

Science & Engineering Practices:

- Asking questions and defining problems
- Planning and carrying out investigations
- Developing and using models
- Obtaining, evaluating, and communicating information
- Constructing explanations and designing solutions

Disciplinary Core Ideas:

- Sunlight warms the Earth's surface.
- Patterns of sun, moon, and stars apparent motion in the day and night sky
- Seasonal changes of sunrise and sunset
- Some events on Earth occur in cycles, like day and night.

Crosscutting Concepts:

- Patterns
- Cause and Effect
- Scale, Proportion, and Quantity

Misconceptions:

The sun moves across the day sky.
The sun can go everywhere—like a floating yellow balloon.
The sun goes out at night and is relit in the morning.

Days and nights are always the same length of time.
The moon shines by its own light.
The moon always looks like a round ball.
The moon breaks apart and comes back together.
The moon is made of cheese.
Someone put a face of a man with a big nose on the moon

Math/ELA Connections/STEM Connections

ELAGSE2RI5: Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.

ELAGSE2RI6: Identify the main purpose of a text, including what the author wants to answer, explain, or describe. ELAGSE2RI7: Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.

ELAGSE2RI8: Describe how reasons support specific points the author makes in a text.

ELAGSE2W2: Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

ELAGSE2W7: Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).

ELAGSE2W8: Recall information from experiences or gather information from provided sources to answer a question.

ELAGSE2SL1: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

ELAGSE2SL2: Recount or describe key ideas or details from written texts read aloud or information presented orally or through other media.

ELAGSE2L4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., addition, additional). e. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.

MGSE2.MD.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

MGSE2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. MGSE2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems 5 using information presented in a bar graph.

STEM: Discovery Education Science Techbook – [Tracing Shadows Project](#)

Discovery Education Science Techbook Resources: *(You will need to be logged into your Discovery Education account using your Google credentials to access these links)* You will find station rotation activities such as leveled reading passages, interactives, hands-on labs, virtual labs, video clips, and more on the **Explore** page of each Techbook unit.

[Day and Night Cycle](#)
[Sun and Stars](#)
[Seasons of the Year](#)

Hands-on Activities

[Tracing Shadows](#)
[Star Patterns](#)
[Sun Changes](#)
[The Four Seasons](#)

Essential Questions	
<p>Factual—</p> <p>What does the moon look like?</p> <p>Do all months have the same amount of daylight?</p> <p>Inferential—</p> <p>Why can we sometimes see the moon in the daytime?</p> <p>Why does the moon look differently on different days?</p> <p>Critical Thinking-</p> <p>Do we always see the moon?</p>	
Tier II Words- High Frequency Multiple Meaning	Tier III Words- Subject/ Content Related Words
day, night, star, sun	shadows, moon, phase
Assessments	
<p>The Cycle of Day and Night Constructed Response</p> <p>Sun and Stars Constructed Response</p> <p>Seasons of the Year Constructed Response</p> <p>Anticipation Guide for Unit 1 Please use this as a post assessment for your students. It is a word document and can be edited to fit the needs of your students. *Teachers can access the anticipation guides and assessments via the grade level Schoology Course.</p>	

Teacher Resources These resources are intended to support teachers with background information and planning for instruction

The following Knowledge-Based Unit contains instructional read alouds designed to build knowledge around concepts associated with this planner. Highlighted lessons provide direct text-based support for the expectations of the associated SS or Sci standards and could be used to deepen student understanding/application of those standards. The remaining lessons build similar knowledge but do not directly relate to the content standards.

[15-Day Plan: The Sun and Moon's Patterns and Effects on Earth](#)

[GaDOE Inspire Science 2nd Grade: Unit 1: Patterns in Day and Night \(S2E1 & S2E2\)](#)

Objective or Content	Learning Experiences	Differentiation Considerations
CLE 1: S2E2. Obtain, evaluate, and communicate information to develop an understanding of the patterns of the sun and the moon and the sun's effect on Earth.	Earth and Space Science: Sun and Moon Students will explore the patterns in the day and night sky. Students will observe the patterns in seasons, the position of the sun, and moon phases.	Student Choice Performance Tasks Reflection and Goal Setting Learning Stations Choice Boards Formative Probes Science Journaling Multi-sensory activities Assistive Technology Flexible Grouping Multiple Means of Representation
CLE 2: S2E1. Obtain, evaluate, and communicate information about stars having different sizes and brightness.	Let's Talk About Stars Students will explore the stars in the sky.	

Recommended High Quality Complex Text By Lexile Band

Sunshine Makes the Seasons by Franklyn M. Branley

Day and Night by Margaret Hall

Night Sky by National Geographic Readers

Sun! One in a Billion by Stacy McAnulty

The Sun Is Kind of a Big Deal by Nick Seluk

Day and Night by National Geographic Readers