

# Grade 2

Ms. Petty

## Unit 4: Sun, Moon, and Stars



Essential Questions	Enduring Understandings
<p><b><u>Science</u></b></p> <p>Why does the sun shine during the day, but is not there at night?</p> <p>Why does the sun appear to move across the sky from east to west?</p> <p>How are shadows on Earth affected by the Sun?</p> <p>How does the Sun's changing position change shadows?</p> <p>Why does the moon appear to move across the sky?</p> <p>How does the moon get its light?</p> <p>What causes the moon to appear to change shapes each month?</p>	<p><b><u>Science</u></b></p> <p>There are many stars in the sky.</p> <p>Stars can be different sizes and of different brightness.</p> <p>Stars form patterns in the sky called constellations.</p> <p>The sun is a star. It is the closest star to Earth.</p> <p>Stars give off light.</p> <p>The sun stays in one place in space. The earth orbits around the sun. This makes it look like the sun is moving across the sky during the day.</p> <p>The sun appears to move from East to West. Its path can be followed using a fixed object, like a tree or pole, as a reference point.</p>

How is the moon a satellite?

How does the Earth's shadow affect the moon?

How does a sundial work?

What happens to the length of the day and night as the seasons change?

### **Mathematics**

How can I keep track of an amount?

- How can I learn to quickly calculate sums in my head?
- How can I use a number line to add or subtract?
- How can I use a number line to figure out 10 more or less than a number?
- How can I use data to help me understand the answers to the questions posed?
- How can place value help us locate a number on the number line?
- How can we select among the most useful mental math strategies for the task we are trying to solve?
- How do we know if we have enough money to buy something?
- How does mental math help us calculate more quickly and develop an internal sense of numbers?
- If we have two or more numbers, how do we know which is greater?
- In what type of situations do we add? In what type of situations do we subtract?
- In what type of situations do we subtract?
- What are the different ways we can represent an amount of money?
- What are the different ways we can show or make (represent) a number?
- What estimation and mental math strategies can I use to help me solve real world problems?

The sun shines all of the time. The spinning, or rotation, of the earth is what makes day and night.

Due to the tilt of the Earth and the shape and path of the orbit, days are longer in summer than nights. In winter, days are shorter than nights.

The position of the sun determines the length of a shadow. A sundial uses a shadow to mark time.

Moon phases result from the relative positions of the Moon, Earth, & Sun, and the amount of sunlight reflected by the Moon that is visible from Earth.

The moon's phases can be recorded monthly on a calendar.

The moon is always round in shape. What we see of the moon changes in a regular cycle that lasts 30 days.

Our calendars are lunar calendars because each month is approximately 30 days.

The moon produces no light of its own but reflects sun light.

The Earth produces no light of its own.

### **Mathematics**

- Addition and subtraction are inverse operations; one undoes the other.

- What happens to the value of a number when we add or subtract 10 from it? What digits change? What digits stay the same? Why?
- What happens to the value of a number when we add or subtract 100 from it? What digits change, what digits stay the same? Why?
- What is an effective way to estimate numbers?
  - What is mental math?
- What is the difference between place and value?
- What mental math strategies can we use?
- What strategies are helpful when estimating sums in the hundreds?
- What strategies will help me add multiple numbers quickly and accurately?
- What strategies will help me add numbers quickly and accurately?
- What type of graph should I use to display data?
- Why do I need to ask questions and collect data?
- Why is it important to be able to count amounts of money?
- Why should we understand place value?

**Social Studies**

\* Who was James Oglethorpe? Tomochichi? Mary Musgrove?

\* How did Oglethorpe demonstrate honesty and compassion with colonists and the Creek?

\* How did cooperation between colonists and the Creek help Savannah become a successful settlement?

\* How did Georgia become such a successful colony?

\* What do honesty, compassion, trustworthiness, and dependability mean?

\* Why are honesty, compassion, trustworthiness, and dependability important character traits?

- We can verify the results of our computation by using the inverse operation.
- Estimation helps us see whether or not our answers are reasonable.
- A numeral's meaning and value is based upon where digits are placed to write the numeral.

**Social Studies**

Distribution of Power: The student will understand that laws and people's beliefs help decide who gets to make choices in government.

Production, Distribution, Consumption: The student will understand that the ways people make, get, and use goods and services may be different from how people in other places make, get, and use goods and services.

Time, Change, and Continuity: The student will understand that some things will change over time, while other things will stay the same.

**Reading/ English Language Arts**

1. Reading expands understanding of the world, its people and oneself.

2. Readers develop a deeper understanding through reflection of text.

3. Authors write with different purposes in mind

\* How can you show these positive traits (honesty, compassion, trustworthiness, dependability) in your life?

\* How did James Oglethorpe, Mary Musgrove, and Tomochichi influence Georgia's past and present?

\* In what ways did the colonists depend on Georgia's Creek and Cherokee to help meet their needs?

**Reading/ English Language Arts**

1. How can we acknowledge differences in the points of view of characters? (CLI1, CLI7)

2. What is the best way to compare and contrast the most important points presented by two texts on the same topic? (CLI1, CLI5)

3. How can a reader describe the connection between a series of historical events in a text? (CLI1, CLI2, CLI3, CLI5)

**Real World Connection/PBL:**

**Students will:**

- Become familiar with the concept of the moon, sun, and stars
- Create a rocket and understand gravity
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### **Enduring Understanding**

There are many stars in the sky.

Stars can be different sizes and of different brightness.

Stars form patterns in the sky called constellations.

The sun is a star. It is the closest star to Earth.

Stars give off light.

The sun stays in one place in space. The earth orbits around the sun. This makes it look like the sun is moving across the sky during the day.

The sun appears to move from East to West. Its path can be followed using a fixed object, like a tree or pole, as a reference point.

The sun shines all of the time. The spinning, or rotation, of the earth is what makes day and night.

Due to the tilt of the Earth and the shape and path of the orbit, days are longer in summer than nights. In winter, days are shorter than nights.

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Our calendars are lunar calendars because each month is approximately 30 days.

The moon produces no light of its own but reflects sun light.

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## Essential Questions

Why does the sun shine during the day, but is not there at night?

Why does the sun appear to move across the sky from east to west?

How are shadows on Earth affected by the Sun?

How does the Sun's changing position change shadows?

Why does the moon appear to move across the sky?

How does the moon get its light?

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## Vocabulary

### Science

Star	Reflection	Brightness	New
Observe	Quarter	Shape	Length
Size	Shape	Night	Full
Sun Moon	Earth	Patterns	Shadow
Sundial	Day Half	Seasons	Observe
Chart Crescent			

### Mathematics

- addition
- associative property

- bar graph
- commutative property
- comparing
- compose
- concrete model counting strategy
- decompose
- difference
- dime
- dollar bill
- estimate
- expanded form
- fluency
- hundreds
- identity property
- join
- line plot
- mental math
- model
- nickel
- ones
- penny
- picture graph
- place value
- properties of operations
- quantity
- quarter
- remove
- scale
- strategy
- subtraction
- tens

### **Social Studies**

explorer, colony, settlement, colonist, barter, civility, debt, settler, slavery, honesty, trade, trading post, trustworthy, communicate, interpreter, dependability

### **Reading/English Language Arts**

voice dialogue digital tools autobiography biography linking words orally opinion piece record scan discussions time order words readers theatre informative text opinion belief

## Science Standards

S2E1. Students will understand that stars have different sizes, brightness, and patterns.

S2E2. Students will investigate the position of sun and moon to show patterns throughout the year

## Technology (websites and 21<sup>st</sup> Century Tools)

IT Standards:

- Entering information into a teacher created template (e.g. concept map).
- Illustrating a simple concept (e.g., concept map, web, bubble, etc.).
- Identifying components of multi-media presentations (e.g., title, transitions, sound effects, animation, text and graphics).

## Engineering (Implementation of STEM)

**S1CS1, S1CS2, S1CS3, S1CS4, S1CS5, S1CS6, S1CS7: Energy will be incorporated into all science processes, experiments and learning**

## Mathematics

**MGSE2.OA.1** Use addition and subtraction within 100 to solve one and two step word problems by using drawings and equations with a symbol for the unknown number to represent the problem. Problems include contexts that involve adding to, taking from, putting together/taking apart (part/part/whole) and comparing with unknowns in all positions. Add and subtract within 20.

**MGSE2.MD.8** Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

**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



using information presented in a bar graph.

**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.2** Measure the length of an object twice, using length units of different measurements; describe how the two measurements relate to the size of the unit chosen. Understand the relative size of units in different systems of measurement. For example, an inch is longer than a centimeter. (Students are not expected to convert between systems of measurement.)

**MGSE2.MD.3** Estimate lengths using units of inches, feet, centimeters, and meters.

**MGSE2.MD.4** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

**MGSE2.MD.9** Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole number units.

## Social Studies Integration

**SS2H2** The student will describe the Georgia Creek and Cherokee cultures of the past in terms of tools, clothing, homes, ways of making a living, and accomplishments.

a. Describe the regions in Georgia where the Creeks and Cherokees lived and how the people used their local resources.

b. Compare and contrast the Georgia Creek and Cherokee cultures of the past to Georgians today.

**SS2H1** The student will read about and describe the lives of historical figures in Georgia history.

a. Identify the contributions made by these historic figures: James Oglethorpe, Tomochichi, and Mary

Musgrove (founding of Georgia); Sequoyah (development of a Cherokee alphabet); Jackie Robinson

(sports); Martin Luther King, Jr. (civil rights); Jimmy Carter (leadership and human rights).

b. Describe how everyday life of these historical figures is similar to and different from everyday life in

the present (food, clothing, homes, transportation, communication, recreation, rights, and freedoms).

### Reading/Writing Integration

**RL5:** Describe the overall structure of a story including describing how the beginning introduces the story, the middle provides major events and challenges, and the ending concludes the action.

**RI.2.9:** Compare and contrast the most important points presented by two texts on the same topic.