

Far-Out Guide to the Solar System

Introduction

This teacher's guide helps students learn about the Sun, planets, moons, dwarf planets, asteroids, and comets that make up our fabulous Solar System. Books in the series take readers on a voyage to discover the diversity of objects moving about in space: how they got there, what they are made of, how they relate to the overall system circulating around the Sun, and what the future holds for them.

National Standards

This series supports [Science and Language Arts](#). Go to www.enslowclassroom.com and/or www.enslow.com and click on the Curriculum Correlations tab. Click on your state, grade level, and curriculum standard to display how any book in this series backs up your state's specific curriculum standard.

Classroom Activities

Activities linking to the five curriculum areas: Reading/Language Arts; Math, Science; Social Studies; and the Arts, can be found in this teacher's guide. Hands-on activities and a reproducible handout encourage readers to use comprehension and vocabulary skills relating to the book's subject. Some activities can be reworked to use with any book in the series.

Guided Reading Level: **M**

Reproducible for Educational Use Only

This guide is reproducible for educational use only and is not for resale. © Enslow Publishers, Inc.

Where to Find More Information About Titles in this Series:

Visit www.enslowclassroom.com and/or www.enslow.com to search for other titles and series, as well as download the teacher's guides for other titles in this series:

Titles in this series:	Library Edition ISBN:	Paperback Edition ISBN:
Far-Out Guide to the Sun	978-0-7660-3179-1	978-1-59845-180-1
Far-Out Guide to Mercury	978-0-7660-3180-7	978-1-59845-181-8
Far-Out Guide to Venus	978-0-7660-3181-4	978-1-59845-182-5
Far-Out Guide to Earth	978-0-7660-3182-1	978-1-59845-183-2
Far-Out Guide to the Moon	978-0-7660-3189-0	978-1-59845-184-9
Far-Out Guide to Mars	978-0-7660-3183-8	978-1-59845-185-6
Far-Out Guide to Jupiter	978-0-7660-3184-5	978-1-59845-186-3
Far-Out Guide to Saturn	978-0-7660-3178-4	978-1-59845-187-0
Far-Out Guide to Uranus	978-0-7660-3185-2	978-1-59845-188-7
Far-Out Guide to Neptune	978-0-7660-3186-9	978-1-59845-189-4
Far-Out Guide to the Icy Dwarf Planets	978-0-7660-3187-6	978-1-59845-190-0
Far-Out Guide to Asteroids and Comets	978-0-7660-3188-3	978-1-59845-191-7

Titles in this series can be purchased through all major vendors or directly from:

Enslow Classroom, an imprint of Enslow Publishers, Inc.
40 Industrial Road, Box 398 Berkeley Heights, NJ 07922-0398
Phone: 1-800-398-2504 E-mail: customerservice@enslow.com

Web Page: www.enslowclassroom.com and/or www.enslow.com

Teacher's Guide for **Far-Out Guide to the Moon**

The Moon is our only natural satellite, moving with Earth as it orbits the Sun. The rocky surface of the Moon cannot give off its own light, but it can reflect light from the Sun. Different parts of the Moon reflect the light as it moves through the sky, creating a monthly cycle of phases from a dark New Moon to a crescent to a full moon. In this book, readers discover that the Moon is covered with fascinating features that have been viewed from Earth, by spacecraft, and by American astronauts who left their footprints on the dusty Moon floor.

Introduction, pages 4–9 Read the title, *Far-Out Guide to the Moon*, aloud and have students discuss the cover photograph. Then browse a few pages, pointing out text features such as the Table of Contents, Index, headings, photo captions, text boxes, maps, and labeled diagram. Read aloud the first sentence on page 5. Explain that authors often use a descriptive text structure to help readers visualize, or create pictures in their minds. The author selects details that appeal to readers' five senses (sight, hearing, smell, taste, touch). Invite students to share what they visualize when they read that the Moon is moving away from us. Direct students to use their visualization skills as they read the rest of the section.

Chapter 1, pages 10–27 Encourage students to continue to use their visualization skills as they read the chapter. On page 13, point out that the author uses a compare-and-contrast text structure to compare the Moon and Earth. Remind students that to compare things, look for ways they are alike; to contrast them, look for ways they are different. Ask students to note the compare-and-contrast relationships as they read the chapter. Skim and scan the *At a Glance*, *Fast Facts*, and *Timeline* pages together and stress that they summarize information for readers.

Chapter 2, pages 28–35 Point out how the author uses words in the chapter title and headings that refer to visualizing: *Looking for Lunar Ice*, *Searching the Shadows*. Add that the author also uses a sequence text structure that tells events in the order they happened. Discuss how dates and words like *first*, *then*, *next*, and *finally* signal sequence. Add that sometimes there are no signals, but readers can infer the sequence from the text. Encourage students to make sequence charts on which to list events in order. Explain that the charts help readers better remember what they read and understand the relationships between events.

Chapter 3, pages 36–43 Let students partner-read and discuss what is ahead for the Moon. Encourage partners to share their visualizations as they read. Do both readers visualize the same thing? Explain visualization may make the text meaningful to each person in a different way. Draw attention to the *Words to Know*, *Find Out More*, and *Index* pages that follow the chapter. Discuss how such information can help readers find information more easily.

After Reading Ask students to share what they learned about the make-up, movements, and explorations of the Moon. To draw out personal responses to the book, ask: *Which part of the book did you find most interesting? Would you ever want to travel to the Moon? Why or why not? If you did, what would you miss most about Earth?*

Activities linking to Reading/Language Arts, Math, Science, Social Studies, and the Arts on the page that follows. Make copies of the Handout on the last page. Read the directions aloud, then let students do the page with you or independently. Answers: 1. phases, f; 2. Maria, e; 3. tides, g; 4. gravity, b; 5. Regolith, a; 6. orbit, b; 7. craters, c.

Activities The Five Curriculum Activities

SAFETY WARNING:

Before doing any activity, make sure students do not have allergies to items needed. Have an adult present at all times to supervise activities requiring the use of sharp or hot/cold objects. Always review directions and safety rules with students before they begin a project.

Reading/Language Arts activity:

Write *solar* on the board. Remind students that the *sol* at the beginning of the word means *sun*. Circle the suffix *-ar* and explain that it means “relating to.” Then write *lunar* on the board and ask students what it means. Extend learning by having students use a dictionary to research the meanings of other *-ar* words, such as *polar*, *circular*, *singular*, and *tubular*.

Math activity:

Remind students that on page 22 they learned that the Moon’s diameter is 2,159 miles across. Add that the diameter of Earth is 7,926 miles. Have students figure the difference, $(7,926 - 2,159 = 5,767$ miles) Then ask, *What is the difference in miles rounded off to the nearest thousand miles?* (6,000)

Science activity:

Let students demonstrate how we see the phases of the Moon. You will need a lamp and a baseball. Place the lamp at one end of a darkened room. Have students, one at a time, stand at the other end of the room. Explain: *The light represents the Sun, the ball represents the Moon, and your head represents Earth. Hold the ball in front of you so it is between your face and the light. Now, move the ball slowly around your head at arm's length, from right to left. As the ball moves, you should see it go through the same phases as the Moon!*

Social Studies activity

Remind students that everything in history happens in sequence. For example, the Pilgrims came to this country before it became the United States. That is why people invented calendars to keep track of time. Have students make lunar calendars showing how phases of the moon over the period of a month, Tell students to draw what they see each night as the moon changes. Point out that just as daily calendars help us predict what day it will be tomorrow, a lunar calendar helps us predict how the moon will look the next night.

Arts activity:

Direct students to the photograph of the Moon on page 12. Discuss the different shades of gray, then challenge students to make clay models of the Moon, complete with craters. Let students experiment to find ways to make darker and lighter shades, such as adding colored chalk or tempera, mixing several colors of clay, adding water, or painting on color.

Handout

Crack the Code

Use the Code key below to help you decode each word. Then draw a line to its meaning.

Code Key																	
A	B	C	D	E	G	H	I	L	M	N	O	P	R	S	T	V	Y
13	1	9	14	2	6	22	19	3	8	52	20	15	42	18	31	10	5

1. 15 22 13 18 2 18

a. rocks and soil on Moon surface

2. 8 13 42 19 13

b. force keeping the Moon in orbit

3. 31 19 14 2 18

c. bowl-shaped holes

4. 6 42 13 10 19 31 5

d. the Moon's path around Earth

5. 42 2 6 20 3 19 31 22

e. Moon's lowland plains

6. 20 42 11 19 31

f. changing Moon shapes

7. 9 42 13 31 2 42 18

g. rise in ocean caused by the Moon