

Finding the Moon

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About **Finding the Moon**

DeltaScienceModules, THIRD EDITION

Students explore *Finding the Moon* with twelve hands-on activities and the Delta Science Reader. They discover that Earth’s nearest neighbor in space is far more interesting than any storybook Moon. Through direct observations and modeling exercises, students learn that the Moon is visible day and night, that it rises and sets, appears to change shape, casts shadows, reflects light, and lacks air and water. Students record daily drawings of the full lunar cycle in a four-week Moon Journal. Then they demonstrate the phases of the Moon, and its far side. Students also form craters on a “moon dust” surface and handle substances very similar to moon soil and rocks.

The Delta Science Reader *Finding the Moon* introduces students to what we see in the sky and to Earth’s closest neighbor, the Moon. Students discover what makes the Moon appear to shine and why the Moon appears to have different shapes. They read about craters, seas, and other parts of the Moon’s environment. Students are introduced to Neil Armstrong, the first person to walk on the Moon. Students also compare the size of the Moon to that of Earth and the Sun.

Overview Chart for Hands-on Activities

Hands-on Activity	Student Objectives
1 What Is the Moon? <i>page 13</i>	<ul style="list-style-type: none"> • compare the elements of the daytime and nighttime skies • discover that, unlike the Sun, the Moon can be seen both during the day and at night • discuss the role of the Sun as the star closest to Earth
2 Earth/Moon Scale Models <i>page 21</i>	<ul style="list-style-type: none"> • make clay models of Earth and the Moon to show their correct shapes and relative sizes • discuss the shape and relative size of the Sun • infer why the Moon looks the same size as the Sun in the sky, even though it is much smaller
3 The Moon Rises and Sets <i>page 29</i>	<ul style="list-style-type: none"> • discuss what is meant by sunrise and sunset • observe and record the position of the Moon every 30 minutes for several hours • discover that the Moon appears to move across the sky just like the Sun • learn what causes moonrise and moonset
4 The Moon Changes Shape <i>page 39</i>	<ul style="list-style-type: none"> • observe and record the shape of the Moon at night for a period of 2 weeks • observe and record the shape of the Moon during the day for a period of 2 weeks • infer that the phases of the Moon repeat themselves every month
5 Moonlight and Moon Shadows <i>page 47</i>	<ul style="list-style-type: none"> • discuss the source of sunlight and shadows • observe and record the movement of a shadow cast by the Sun • predict whether or not the Moon can cast a shadow • observe and record the movement of a shadow cast by the Moon
6 Earth and Moon Environments <i>page 55</i>	<ul style="list-style-type: none"> • discuss what all living things need to survive • examine and discuss photographs of Earth taken from space and from different regions on Earth • examine and discuss photographs of the Moon taken from space and from the Moon's surface • infer that the Moon cannot support life
7 Lunar Landforms <i>page 63</i>	<ul style="list-style-type: none"> • examine photographs of the Moon's surface for clues to its features • guess what might have caused the Moon's surface to look the way it does • create a model of the Moon's cratered surface by dropping marbles into powder • discover that the craters on the Moon's surface were caused by the impact of rocks from space
8 Lunar Soil <i>page 71</i>	<ul style="list-style-type: none"> • predict the texture of the Moon's surface from previous activities • examine a mixture that feels like Moon soil • examine some rock samples similar to those brought back by astronauts
9 The Phases of the Moon <i>page 77</i>	<ul style="list-style-type: none"> • review the drawings in their Moon Journal • discuss how the shape of the Moon seems to change over time • recognize the possible shapes the Moon can have • create a Moon Phase Flip-Book
10 Modeling the Moon's Phases <i>page 85</i>	<ul style="list-style-type: none"> • model the orbit of the Moon around Earth • infer that moonlight is sunlight reflected by the Moon's surface • discover that the Moon's phases are caused by changes in the amount of light reflected toward Earth as the Moon orbits Earth
11 The Far Side of the Moon <i>page 93</i>	<ul style="list-style-type: none"> • model the orbit of the Moon around Earth • discover that the Moon shows only one side to Earth • compare the features of the near side of the Moon to those of the far side of the Moon
12 A Trip to the Moon <i>page 99</i>	<ul style="list-style-type: none"> • review what they have learned about the Moon environment • discuss items they will need to bring with them in order to survive on the Moon • choose their destination from the maps of the Moon
Assessment <i>page 105</i>	<ul style="list-style-type: none"> • See page 105.

Finding the Moon

Process Skills	Vocabulary	Delta Science Reader
compare; collect, record, display, or interpret data; communicate	Earth, Moon, planet, star, Sun	pages 2–3
make and use models, communicate, infer	model	page 15
communicate, observe, make and use models, infer	moonrise, moonset, sunrise, sunset	pages 2–3
observe, infer		pages 6–10
communicate, observe, predict	moonlight, shadow, sunlight	
communicate, observe, infer	environment	pages 11–13
observe; hypothesize; make and use models; collect, record, display, or interpret data	crater, lunar	pages 11–13
predict, observe		pages 12, 14
make and use models, communicate, infer	full Moon, new Moon, phases	pages 6–10
make and use models, infer, observe	orbit, reflect	pages 6–10
make and use models, observe, compare	far side, near side	page 15
communicate, make and use models	astronaut	pages 11–14

See following page for the Delta Science Reader Overview Chart.

Overview Chart for Delta Science Reader

Finding the Moon

Selections	Vocabulary	Related Activity
Think About...		
What Do We See in the Sky? <i>page 2</i>	Moon, Sun	Activity 1
Why Does the Moon Shine? <i>page 4</i>	reflect	Activity 10
What Are Moon Phases? <i>page 6</i>	full Moon, new Moon, phases	Activities 4, 9, 10
What Is the Moon Like? <i>page 11</i>	crater, seas	Activities 6, 7, 10
People in Science		
• Neil Armstrong <i>page 14</i>	astronaut	Activities 8, 12
Did You Know?		
• About the Size of the Moon <i>page 15</i>	Earth	Activity 2

See pages 113–121 for teaching suggestions for the Delta Science Reader.

MATERIALS LIST

Finding the Moon

Quantity	Description	Quantity	Description
		TEACHER-PROVIDED ITEMS	
32.....	bags, plastic, fluted*	1.....	bag, paper, large, white
32.....	bags, plastic, reclosable*	1.....	box, cardboard, with lid*
32.....	balls, foam	1.....	bucket, large
2.....	batteries, D-cell*	1.....	chalk, piece
1.....	cards, Moon Phase, p/5	-.....	clothing/accessories
1.....	cat litter, 7.5 lb*†	16.....	crayons, box
16.....	clay, modeling, can*	1.....	cup, measuring
1.....	cocoa, powdered, 8 oz*	1.....	globe
32.....	dowels	1.....	knapsack
32.....	envelopes, white, large*	1.....	knife, with serrated edge
1.....	extension cord	1.....	marker
1.....	flashlight	-.....	newspaper*
1.....	flour, 5 lb*	33.....	paper, white, large*
1.....	light bulb	64.....	paper, white, plain*
1.....	light source	11.....	paste, jars
16.....	magnets, bar	32.....	pencils
20.....	marbles, magnetic	-.....	plastic wrap*
1.....	Moon Journal	32.....	scissors
1.....	Moon Phase Flip-Book (2)	1.....	sifter
16.....	pans, aluminum	1.....	spoon
1.....	paper, construction, p/50*†	1.....	stapler, heavy-duty
1.....	paper, shelf*	1.....	timer or clock
1.....	Parent Letters, A and B	1.....	toy car
1.....	photos, Earth surface, p/4	-.....	water, tap*
1.....	photos, Moon surface, p/4		
1.....	poster, Earth from space		
1.....	poster, Moon from space		
1.....	poster, Moon map (far side)		
1.....	poster, Moon map (near side)		
32.....	rocks, basalt		
32.....	rubber bands		
7.....	sand, fine, 2 lb*†		
1.....	tape, masking*		
1.....	tennis ball		
1.....	Teacher's Guide		
8.....	Delta Science Readers		
		* = consumable item	† = in separate box

ACTIVITY SUMMARY

This Delta Science Module is designed to teach young students about Earth’s closest neighbor in space: the Moon.

ACTIVITY 1 Students compare the elements of the daytime and nighttime skies. To their surprise, they discover that the Moon can be seen both during the day and at night.

ACTIVITY 2 Students make scale models of Earth and the Moon. They discuss the shape and relative sizes of Earth and the Moon and learn why the Moon looks the same size as the Sun in the sky, even though the Sun is so much bigger.

ACTIVITY 3 Students observe and record the apparent movement of the Moon in the sky. They learn that the Moon rises and sets just like the Sun. They also learn that moonrise and moonset are caused by the rotation of Earth.

ACTIVITY 4 Students observe changes in the apparent shape of the Moon, and record their daily observations in a Moon Journal. After 4 weeks of observations, students will have a complete record of the lunar cycle. Their Journals will form the basis for a discussion of the Moon’s phases in Activity 9.

ACTIVITY 5 Students observe that objects placed in the Sun can cast shadows, and that the shadows move over the course of the day. Then they experiment with moonlight and learn that moonlight is bright enough to cast shadows and that the shadows move as the Moon changes position in the sky.

ACTIVITY 6 Students are introduced to the differences in the environments on Earth and the Moon. Students discuss the life-sustaining elements found on Earth and conclude that, because the Moon contains no air or water, nothing can live there.

ACTIVITY 7 Students learn how the surface of the Moon looks and feels and reenact the cratering of the Moon’s surface by bombarding pans of powder with “space rocks.”

ACTIVITY 8 Students have an opportunity to touch “Moon soil” and discover its peculiar properties. They also get to examine rocks very similar to those brought back by the Apollo astronauts.

ACTIVITY 9 This activity begins when students have completed their Moon observations from Activity 4. By examining their Moon Journals as well as the class record, students come to understand that there is a regular pattern to the changes in the Moon’s shape. These changes are called the phases.

ACTIVITY 10 Students use a light source and a sphere to discover that the Moon’s phases are caused by changes in the amount of sunlight reflected toward Earth as the Moon orbits Earth.

ACTIVITY 11 Students learn that there is a side of the Moon that they have never seen, called the far side. They come to this conclusion after modeling the orbit of the Moon around Earth and observing that the same side of the Moon always faces Earth.

ACTIVITY 12 Students review what they have learned about the conditions on the Moon, then use this information to help them pack for an imaginary trip to the Moon.