



What Shape Is the Moon Tonight?

Overview: *Students will gather data about the phases of the moon.*

Materials

- copies of Student Moon Record sheet (page 10)
- parent letter (page 9)
- Classroom Moon Record (page 11)
- glue
- small bulletin board covered with black butcher paper
- 16³/₄ inch (2 cm) white, self-adhesive dots
- white and orange crayons
- pencil

Lesson Preparation

Make a transparency of the Classroom Moon Record and project it onto the black paper. The diameter should stretch at least two feet (60 cm). Use white crayon to trace the arc and pencil to make the small marks. These represent the positions of the moon during half the month.

Pre-activity (Begin this lesson two days after the new moon. Check the weather section of the newspaper or a calendar for this date.)

1. Distribute the parent letter and Student Moon Record. Discuss these with the students so they understand how to record the phases of the moon every evening at the same time.
2. Show them the Classroom Moon Record and say that each day you will place a moon shape there showing what they report in the evening sky. Point out where the sun is shown on the record.
3. As students report the moon shape each day, cut an adhesive dot into that shape and place it on the chart. The first one will be on the first or second mark, depending upon how many days past the new phase this record is begun.
4. After three days of recording data, have students predict how the next day's phase will look. Draw all predictions on the board and check them the next day. If a night is cloudy, have students predict what the shape of the moon was, based on the phases before and after.

Closure

- Review the positions and phases of the moon relative to the sun's position. Repeat the activity with the balls and light so students can see how this represents what they are recording.
- About two days after the moon is full, look for it in the morning sky in the west. Its phase will change to gibbous, quarter, and then a crescent as it gets closer to the sun each day. Be sure they see that it is now the left side of the moon which is illuminated by the sun.

Extender

Make a daytime record of moon phases after the full moon. Project the moon record on blue paper and make the same markings. Since this is a day view, the sun should appear in the east (sunrise). Even though students will view the moon after the sun has risen, the sun can be in the east. The full moon would be in the west as the sun is rising. As the moon changes to gibbous, circles can be cut according to views seen and glued along the arc, continuing west to east, as the moon moves around Earth. The last quarter phase would be 90° between the east and west; the final crescent would be very close to the sun as it rises in the east.

What Shape Is the Moon Tonight? *(cont.)*

Parent Letter for Moon Observations

To the Teacher: The time for sunset can be found in most weather reports on TV or in the newspaper. Add the time to the letter which is 30 minutes after sunset, the time students should observe and draw the moon.

Date _____

Dear Parents,

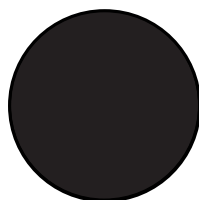
We are studying the changing shapes of the moon (phases), and each child has been asked to look at the moon and draw it each evening. (A helpful chart of the moon's phases appears below.) Please help your child with this activity. It is important that he or she observe the moon at about the same time each evening. We will be viewing the moon approximately 30 minutes after sunset which will be about _____ p.m. Have your child go outside to get a good view of the moon. Ask him or her to draw exactly what is seen and bring the drawing to school the next day. We will be using those drawings to place the correct phase on a Classroom Moon Record daily.

It will take approximately two weeks for us to gather the data we need for this study. This activity will help your child understand that the moon is constantly changing its shape as well as its position every day.

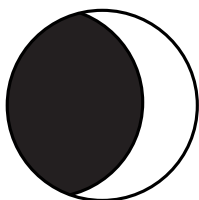
Thank you for helping your child learn about the moon. You are always welcome to come visit our class to see our moon record.

Cordially,

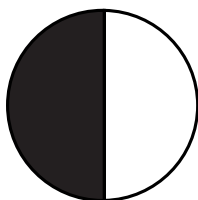
Phases of the Moon



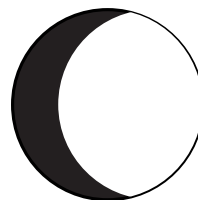
New Moon



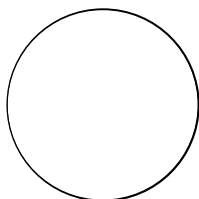
Crescent Moon



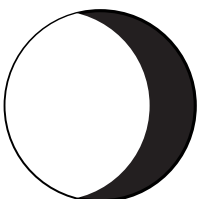
First Quarter Moon



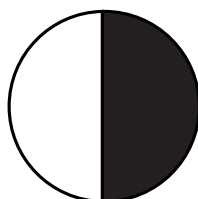
Gibbous Moon



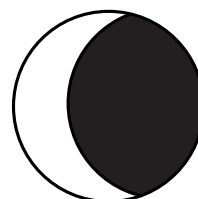
Full Moon



Gibbous



Last Quarter



Last Crescent



What Shape Is the Moon Tonight? *(cont.)*

Student Moon Record

Name: _____ Date: _____

Go outside where you can see the moon clearly. Make a drawing of the moon each evening about _____ P.M. Write the date and time. Bring this record to school each day.

Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____
Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____
Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____
Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____
Date: _____ Time: _____	Date: _____ Time: _____	Date: _____ Time: _____

What Shape Is the Moon Tonight? *(cont.)*

Classroom Moon Record

To the Teacher: Make a transparency of this page and project it onto a large piece of black butcher paper. The horizon line should be at least two feet (60 cm) long. Use white crayon to trace the arc and horizon. Trace the marks along the arc in pencil so they are not seen. These are the positions of the moon phases. The phases begin with the new moon at the western horizon, first quarter moon 90 degrees from east and west, and full moon on the eastern horizon.

Color one of the self-adhesive dots orange to represent the sun. Place it on the classroom chart in the location indicated on this drawing, to represent the sun's position 30 minutes after sunset.

The sky is represented by the arc. The view is to the south.

