

EARTH'S MOON

HANDS-ON ACTIVITY: PHASES OF THE MOON

Objectives

Students will...

- explain why the moon looks different from Earth as it revolves around the Earth.
- name the different phases of the moon.

Materials:

- Styrofoam balls (5 cm in diameter)
- A lamp with a bright bulb, shade removed
- A dark room
- Paper

Procedure:

1. Introduce the activity by going over the moon phase names and the shapes of the phases as they appear from Earth. You may want to refer to the moon phases diagram on The Earth's Moon map.
2. Ask students to place the ball on the end of their pencil and hold the pencil and ball an arm's length away from them, between the bulb and their eyes.
3. Explain to students they are the Earth, the ball is the moon, and the light is the sun. The view of the ball, from their eyes, is the same as the moon appears from Earth.

4. In the first position, the moon is between the sun and Earth. Explain to students that the moon is usually passing above or below the sun as it appears from Earth. Ask them how much of the sunlight on the moon they see. The answer is none. Tell students this is known as the new moon.
5. They should now move their pencils to the left about 45 degrees from where they started. Ask them how much of the sunlight they observe from that position. The right edge should be illuminated as a crescent. Explain that this is known as the waxing crescent.
6. Ask them to move their arms to 90 degrees from where they started. Ask them how much of the moon is illuminated and how much of it they can see, remembering their perspective is the same as ours from Earth. Tell students this is known as the first quarter.
7. Again they can move their arms another 45 degrees to 135 degrees from where they started. Again ask what they can see and explain to them that this is known as the waxing gibbous.

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Timing: One class period
(45 minutes)



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8. *On the next 45-degree move, make sure students are not blocking the light from the lamp. Now students should be able to see the full moon with the complete illuminated side facing Earth. They will probably need to turn around to see this. Explain to students that the moon reaches this point 14 days into its revolution cycle.*

9. *Ask students to switch the pencil into their right hands and face the lamp (the "sun") again. From the full moon phase, students should move the moon in 45-degree increments, stopping at the waning gibbous, last quarter, waning crescent, and new moon. You may want to mention the day in the cycle when the moon reaches these phases. It will be back at the new moon at 29½ days.*

Extension Activity

- After completing this activity, ask students to record the phase of the moon for the next month. Ask them to draw a grid with 30 boxes. Each night they should draw a picture of the part of the moon they see and label it with the date and phase of the moon. At the end of the month, ask them to bring in their grids and compare findings.

Conclusion

To summarize, ask students if they have any questions; this can be a hard concept to grasp. Tell students to draw what they saw, labeling each phase with its name and the number of days into the cycle. They should draw the whole moon but only color the part they saw illuminated.

