

Investigation Three – What is Moonlight

Standard I Students will understand that the shape of Earth and the moon are spherical and that Earth rotates on its axis to produce the appearance of the sun and moon moving through the sky.
Objective 1 Describe the appearance of Earth and the moon.
Intended Learning Outcomes <ol style="list-style-type: none">1. Use science process and thinking skills2. Manifest scientific concepts and principles3. Understand science concepts and principles4. Communicate effectively using science language and reasoning

Standard I

Objective 1

Background Information

The moon shines by reflecting sunlight. Like Earth, half of the moon is always lighted by the sun's direct rays, and the other half is always in shadow. As the moon travels around Earth, only part of its bright side is seen from Earth. Without the sun, there would be no moonlight.

Pre-Assessment/Invitation to Learn

While your students are out of the classroom, set up a mirror so that it catches the sun and reflects a bright spot of light onto a conspicuous classroom location. When the students return and notice that reflection, ask them what could be causing the bright spot of light. After a short discussion, direct their attention to the mirror. Find out how many students think the mirror is the source of the light. Next, move the mirror out of the sun's path and turn off the lights in the room. After the students have noted that the mirror makes no light, shine the flashlight onto the mirror. Guide students to conclude that the mirror makes no light of its own; however, light can bounce off (or reflect from) the mirror, causing it to shine.

Instructional Procedure

1. Ask the students the following questions.
 - Where does the moon get its light?
 - If the moon has no light of its own, why does it appear to shine and glow at night?
 - What do you think shines on the moon?
 - Have the students answer the first question in their journals On page 5.

Materials

- Mirror
- Flashlight
- Globe
- My Moon Book

2. Have students stand in a triangle configuration. One student holds the flashlight, one holds the globe, and one holds the mirror.
3. Turn out the lights. Observe the globe.
4. Turn on the flashlight and shine the light on the mirror. Hold the mirror so the light is reflected to the globe or ball. (Caution students about shining the light in other students' eyes.)
5. The flashlight represents the sun, the globe or ball is Earth, and the mirror is the moon. The moonlight we see from Earth comes from the sun.
6. Have students complete page 5 in their moon books.

Curriculum Extensions

Science –

- Walk around the school yard on a sunny day and observe all the objects the sun reflects into our eyes. (*ILO 1*)

Language Arts -

- Tell how mirrors have been used to send messages many miles away. (*Standard VII, Objective 2.*)

Assessment Suggestions

- Students draw how the moon gets its light in their journals.
- Check for accuracy on page 5 of their journals.

Homework & Family Connections

- Conduct the experiment at home, explaining how the moon appears to have light.
- Read books about Earth and moon.
- Send home a list of Web sites and encourage students to look them up with their families.