ACTIVITY AT HOME

PINK PALACE MUSEUM

Space Science

ECLIPSE

Demonstrate how the earth, sun, and moon create eclipses.

Materials

Flashlight or desk lamp
A large ball
A small ball
Rod
String

Note: The balls can be anything, as long as one is significantly larger than the other. Try a basketball and tennis or golf ball, clay, or even balloons.

Results

The two balls created different shadows on each other depending on where they both were.

Procedure

- Place the larger ball on a flat surface. Secure it with a stand or hold it in place.
- Tie the string to the end of the rod. Tie the other end around the smaller ball.
- Point the flashlight or desklamp at the middle of the larger ball from about 3 feet away.
- Suspend the smaller ball between the light and the larger ball. Observe the shadow created on the larger ball.
- Try moving the smaller ball closer to the larger ball and then the light. How did the shadow change?
- Rotate the smaller ball around the larger ball, watching how the shadow changes.
- Continue rotating the smaller ball. Once it is on the other side of the larger ball, is it completely in shadow?
- Move the larger ball so that it is only partly illuminated and rotate the small ball around it again. Did it make different shadows?

Why?

You've just demonstrated how the earth and moon create eclipses with the sun's light! Depending on where the earth is around the sun and where the moon is around the earth, the earth and moon will block part of the light from the sun and create shadows. When the moon is directly between the earth and sun, it's called a solar eclipse. However, the shadow on the earth is much smaller than the moon. When the earth is directly between the sun and the moon, the moon is put completely in shadow because it is much smaller than the earth. This is called a full lunar eclipse.

To learn more about space science, check out the Sharpe Planetarium at the Pink Palace Museum.