WHAT CAUSES AN ECLIPSE?

A. Question: *What are the conditions for a solar eclipse to occur?*

B. Materials Needed:

1. A strong flashlight, slide projector, or another light source.
2. A large (20cm diameter) solid color sphere.
3. A small (5cm diameter) rubber or styrofoam ball.
4. A knitting needle.

C: Procedure:

1. Stick the knitting needle into the small ball, so that you can hold it between the light source and the large ball without casting a shadow of your hand.
2. Hold the smaller ball between the light source and the large sphere and adjust the distance from the sphere, such that the small ball casts a dark shadow in the center and grayish shadow on the edges.

D: Anticipated Results:

Students should observe a representation of an eclipse.

E: Thought Questions for Class Discussion:

1. What does it mean if something is eclipsed?
2. For a solar eclipse to occur, how must the earth, sun, and moon be positioned in relation to each other?
3. Would all people on earth be able to see a solar eclipse when it occurs?
4. At what time (day or night) can a solar eclipse be observed?
5. How must the earth, sun, and moon be positioned in relation to each other, in order for a lunar eclipse to occur?
6. What are safe ways to observe a solar eclipse?

F: Explanation:

The light source represents the sun, the large sphere the earth, and the small ball the moon. In order for a solar eclipse to occur, the moon must be positioned between the earth and the sun. For a lunar eclipse to occur, the earth must be between the sun and the moon. Only those people living in the eclipse path can see either a partial (those in penumbra) or a total eclipse (those living in the umbra).