Name: Class Period:

Figuring out Eclipses

![MC900083183[1]]()Part 1: What causes eclipses?

Materials:

* Lamp
* 3” diameter Styrofoam ball per group
* Pencil or dowel rod per group

Procedure:

1. Take turns holding the Styrofoam ball.
2. First, face the lamp.
3. Hold the Styrofoam ball straight out in front of your face.
4. What is being blocked?

1. What is in between you and the sun(lamp)?

1. What type of eclipse is this?

1. Now, turn with your back to the lamp.
2. Again, hold the Styrofoam ball straight out in front of your face.
3. What is being blocked?

1. What is in between the sun and the moon?

1. What type of eclipse is this?

Discussion Questions:

1. What phase is the moon during a **solar eclipse**?
2. What phase is the moon during a **lunar eclipse**?

Part 2: Why don’t we see eclipses each month?

Materials:

* Lamp in center of the room
* Measuring tape or yardstick for each group
* 3” diameter white Styrofoam ball (to represent the Earth) per group
* 7/8” diameter white Styrofoam ball (to represent the moon) per group
* Paperclip for smaller Styrofoam ball handle
* Pencils or dowel rod for large Styrofoam ball handle

Procedure:

1. Carefully insert a pencil or dowel rod into to 3” diameter Styrofoam ball to act as a handle.
2. Carefully unfold a paperclip and insert it into the 7/8”Styrofoam ball to act as a handle.
3. Line up with the lamp, which will represent the sun.
4. One person will hold the moon and one person will hold the Earth.
5. Have the third person measure out 8 feet so that the moon and Earth are 8 feet apart. This represents the scale distance of the Earth and moon.
6. Put the moon in position for a **solar eclipse**.
7. Move the moon up or down to see how precisely it must line up with the Earth to cause an eclipse. Also notice the size of the moon’s shadow on the Earth.
8. Now put the moon in position for a **lunar eclipse**.
9. Once again, move the moon up or down to see how precisely it must line up with the Earth to cause an eclipse.

Discussion Questions:

1. Draw a diagram of a **solar eclipse**.
2. Draw diagram of a **lunar eclipse**.
3. Which type of eclipse are you more likely to witness, a **solar eclipse** or a **lunar eclipse**? Use information from this lab to explain your answer.

1. After the class discussion, explain in your own words why we do not see a **solar** or **lunar eclipse** every month.