

Name: \_\_\_\_\_

Period: \_\_\_\_\_ Date: \_\_\_\_\_

### LAB: Replicating the Moon Phases Astronomy

#### Review:

1. List out the Moon phases in order beginning with a new Moon.



2. What is the difference between the synodic period and the sidereal period? Explain.



3. Will the Moon always follow the Sun by rising in the evening and setting in the morning? Explain.



4. How far away is the Moon and how are we able to figure that out? Explain.



5. Compare and contrast the Moon's rotation versus its revolution. How are they similar and how are they different? Explain.

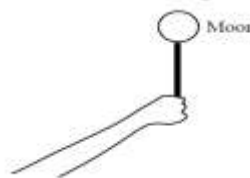


#### Materials:

- Styrofoam ball
- wooden dowel
- light bulb
- positioned lamp post

#### Procedure A: Lunar Phases

1. Place the ball on the wooden dowel if it wasn't done so already and set up the lamp post.
2. The light bulb represents the Sun, the white ball represents the Moon and your head represents Earth. Imagine your nose as a giant mountain on Earth's northern hemisphere with a tiny person standing on it (partially sideways), looking at the Moon.
3. Hold the dowel with the white ball on it at arm's length in front of you and a little above your head. Slowly rotate your body, keeping the "Moon" in front of you and watching as various parts of the white ball become lit and/or shaded.



**Questions:**

1. Draw diagrams showing the positions of the light bulb, your head, and the white ball (as all seen from the ceiling) for each of the following phases:

A. Full Moon

B. Quarter Moon (both 1<sup>st</sup> and 3<sup>rd</sup>)

C. New Moon

2. At any given time, what percentage of the model Moon is actually lit? Why? Draw out a diagram to help justify your answer.

**Procedure B: Moon's Revolution**

1. Follow the same procedure as A and fill out the table below.

	Side of the Moon that would be lit during the waxing phases (right or left and why?)	Side of the Moon that would be lit during the waning phases (right or left and why?)
If the Moon revolves from east to west (clockwise when looking down on Earth's north pole)		
IF the moon revolves west to east (counterclockwise when looking down on Earth's north pole)		

How does this help us understand which way the Moon revolves when observing from here on Earth's surface? Explain.