

Sec.: _____ Name: _____

Experiment: Direct Observations of the Moon Phases (E. Science 9-23-2b)

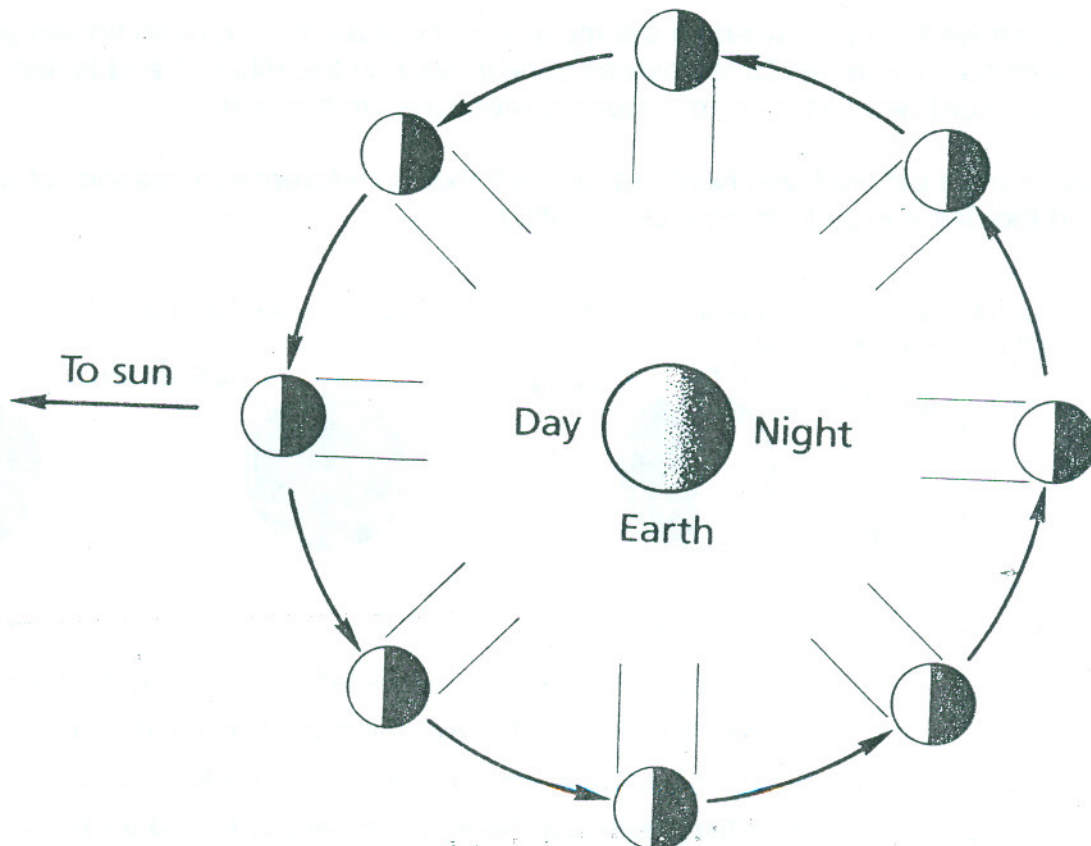
Purpose: To observe a moon-Earth model of why the moon has different shapes as it orbits around the Earth.

Materials: globe
polystyrene ball on pencil direct light

Methods:

1. Place the globe in the middle of the room, place light source 3 m to the left hand side of the room.
2. Place the moon one meter from the Earth between the Earth & the sun. On the diagram in results label the name for this phase.
3. Stand next to the globe and beside the label on the diagram draw the lighted part of the moon you observed from Earth, when looking at the moon.
4. Repeat steps 2 and 3 for the remaining seven positions of the moon. For example place the moon 45° counter clockwise from the previous position.

Results:



The m

Conclusions:

1. Remember the moon takes 29.5 days to complete the phases from new moon to new moon.
 - a. How many days from the new moon will it take to reach first quarter?
 - b. How many days from the new moon will it take to reach full moon?
 - c. How many days from the new moon will it take to reach third quarter?
2. What would be the moon's shape as seen by an observer on Earth after 7 days from new moon?

Discussion:

1. When viewed on any single night, the moon appears to move westward across the sky. When viewed on successive nights, the moon appears to move about 13° eastward through the patterns of stars. Classify each motion as real or apparent and explain the cause of these motions. (Two parts to this question)

Westward movement is _____ because

Eastward movement is _____ because

2. The moon does not rise the same time each night. How can you determine how much later the moon rises each night?

3. Explain how the moon's shape appears to change.

4. The terms we learnt today about the moon and its phases have been known even in Biblical times. There are 26 references to new moon in the Bible. Read Isaiah 60: 19, 20 and record what phase of the moon is mentioned in this text.

5. What promise did God give Noah, (after the flood), in reference to seasons of the year, and the day and night cycles (Gen. 8:22)?

6. Identify each phase of the moon in Figure 1 by writing its name on the line beneath the phase shown. Then answer the questions that follow on the lines provided.



1. _____
- _____
- _____
- _____
- _____
2. What phase occurs between the full moon and the third quarter?
3. What phase occurs between the third quarter and the new moon?
4. What phase occurs between the new moon and the first quarter?
5. What phase occurs between the first quarter and the full moon?