

# All About The Moon

Investigation Data Sheet



## Does the Moon Change Shape?

What you see when you look at the moon depends on its location. The moon never goes away or changes shape — we just see a different fraction of sunlight being reflected from the moon to the Earth throughout its monthly orbit.

### Objective

Create a model to show why the moon looks different throughout the month and observe how its position changes in relation to Earth and the sun.

### Materials

- a styrofoam ball
- a pencil
- a flashlight
- a darkened room

**Safety Notice:** All applicable laboratory safety rules must be followed. Students should not perform any experimental activity without the teacher's supervision and express permission. Students must follow safety guidelines and wear appropriate protective gear.

### Procedure

1. Place the styrofoam ball at the end of a pencil. This represents the moon.
2. You are “the Earth.” Raise the moon above your head.
3. Have another student represent “the sun” by standing at the other end of the room with the lit flashlight.
4. Keep holding the moon high so you can see the light. Now start turning to the left very slowly and observe what happens. Stop at least four times to observe the amount of light reflected off the moon. Be sure not to block the light with your head!
5. Draw a picture of the moon’s appearance in each phase below.

First Quarter Moon	Full Moon	Third Quarter Moon	New Moon

## Conclusions

How do the positions of the sun, moon, and Earth affect the phases of the moon?

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What happens during a solar eclipse?

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What happens during a lunar eclipse?

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How would the moon phases change if the moon revolved around Earth in the opposite direction?

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