

## Section 4

### Understanding Earth and Space Systems

#### EXPLORATION 1

## Why doesn't the moon look round all the time?

Explore the phases of the moon.

Even though the moon looks like a glowing ball in the night sky, it does not produce its own light. Instead, it reflects light from the sun. As the moon orbits Earth, the angle at which we view the moon changes. Consequently, the part of the moon that we can see changes, too. These changes are known as the phases of the moon, which repeat in a monthly cycle. At different times of the month, the moon appears to us in different forms – from a full and round circle to a skinny crescent.

*The moon appears perfectly round tonight. Why doesn't it look round like this every night?*



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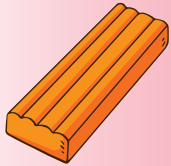
### Understanding Earth and Space Systems

#### EXPLORATION 1

## Why doesn't the moon look round all the time?

Try this experiment to explore how the phases of the moon occur.

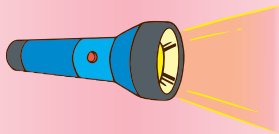
### Materials:



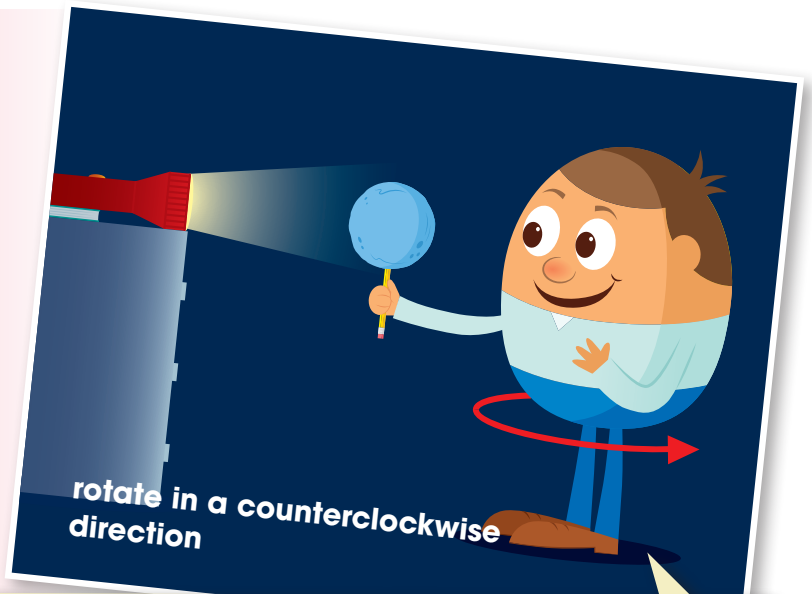
modelling clay



a pencil



a flashlight



*Mould the modelling clay into a big ball and insert the pencil into the ball. Go to a dark room and place the flashlight on a shelf at eye level. Stand in front of the flashlight. Hold up the ball at arm's length slightly above your head to line up with the flashlight. Keep holding up the ball and observe the lit part of the ball as you rotate slowly in a counterclockwise direction.*

In this experiment, the flashlight represented the sun, the ball was the moon, and you represented our Earth. As you rotated, you should have observed the different phases of the moon. At the start, the moon was between Earth and the sun, so you could not see any of its lit-up side. This is called the new moon phase. As the moon orbited Earth, you could see more and more of the lit-up side until the moon was finally on the opposite side of Earth from the sun. This is the full moon phase. As the moon continued to orbit Earth, you could see less and less of its lit-up side.

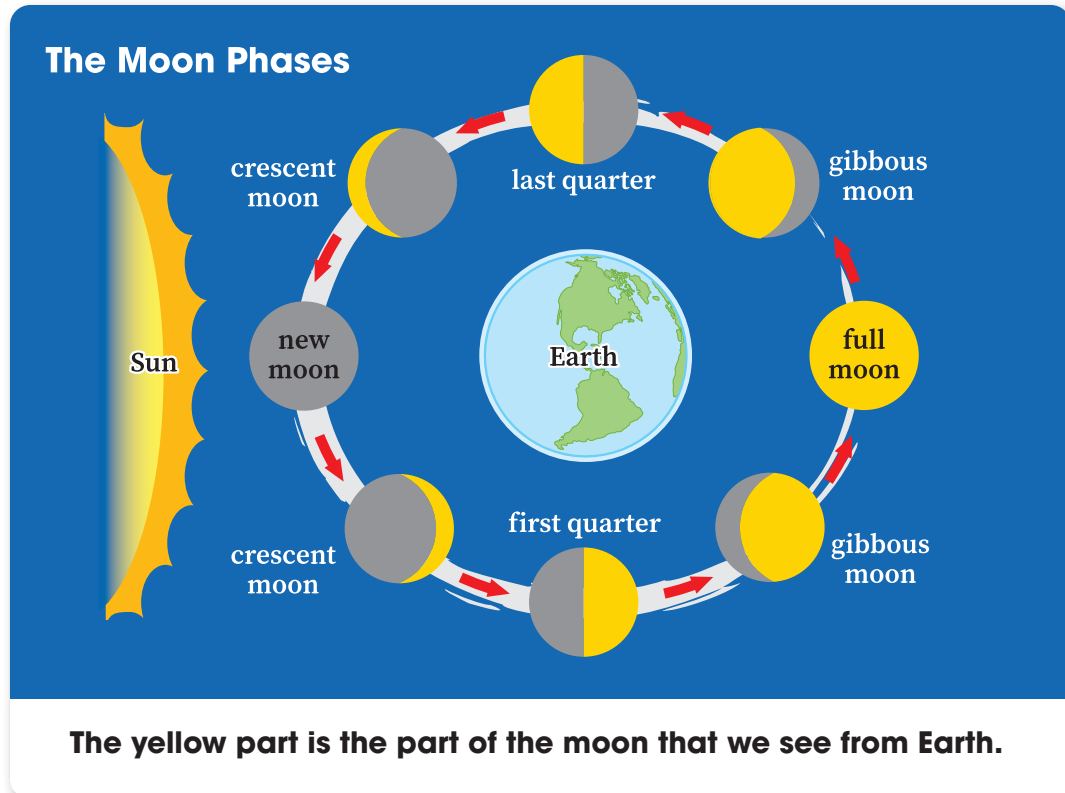
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#### EXPLORATION 1

## Why doesn't the moon look round all the time?

Look at the diagram of the moon phases. Then fill in the blanks.



1. The phases of the moon depend on its position in relation to the sun and \_\_\_\_\_.
2. The lunar cycle starts when the moon is in complete darkness. This is called a \_\_\_\_\_ moon.
3. A \_\_\_\_\_ moon looks swollen on one side.
4. It is called a \_\_\_\_\_ moon when the moon is less than half-lit.

Answers:  
1. Earth  
2. new  
3. gibbous  
4. crescent