

# By the Light of the Moon

If the Moon is just a big hunk of rock, where does moonlight come from?  
The answer is the Sun!



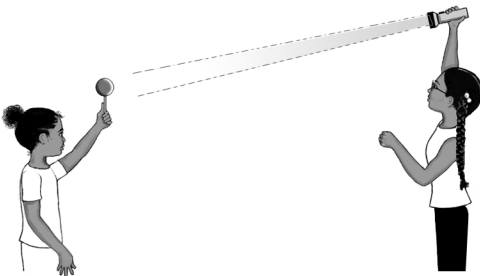
Sunlight reflects off the surface of the Moon, so we

can see it from the Earth. In this experiment you'll see why the moon goes from full to dark and back again.

## Let's see how sunlight reflects off the moon!

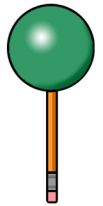
Here's  
all you  
need

- a flashlight
- a foam or rubber ball
- a pencil or a pointed stick



### Here's what to do:

1. Find a partner to work with. Choose one person to be the Sun, and the other to be the Moon.
2. Carefully push the pencil or a stick into the ball, like a lollipop. The ball represents the Moon.
3. Stand about 5 to 10 feet apart. Face each other.
4. If you are the Earth, hold the Moon in front of you at arm's length, just above your head. If you are the Sun, hold the flashlight above your head and shine it EXACTLY on the Moon (the foam or rubber ball).



5. Turn out the lights. Pull down the window shades if you need to, to darken the room.
6. If you are the Earth, describe what the Moon looks like now.
7. If you are the Earth, start turning slowly in place, away from the Sun. Be sure that the Moon is still held out in front of you. (Turn like a top, but very slowly.)
8. If you are the Sun, stand still. Shine the flashlight **exactly** on the Moon at all times.
9. If you are the Earth, describe what you see as you turn. Pause every couple of seconds and look at the Moon. *What kind of a Moon is it now?* Do this until you've turned all the way back to where you started. Switch roles and repeat the activity. Now you can explain in words why the Moon looks different at different times. *What would happen if the Moon didn't revolve around the Earth?*

### Here's more about the phases of the moon:

It takes about 29 and a half days for the Moon to circle the Earth. That's how long it usually takes to see all the phases of the Moon. There are times, however, when we can see all the phases of the moon in just a few hours! That happens during a total lunar eclipse -- when the Earth is between the Sun and the Moon, and the Moon passes perfectly through the Earth's shadow.

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