

# The phases of the moon

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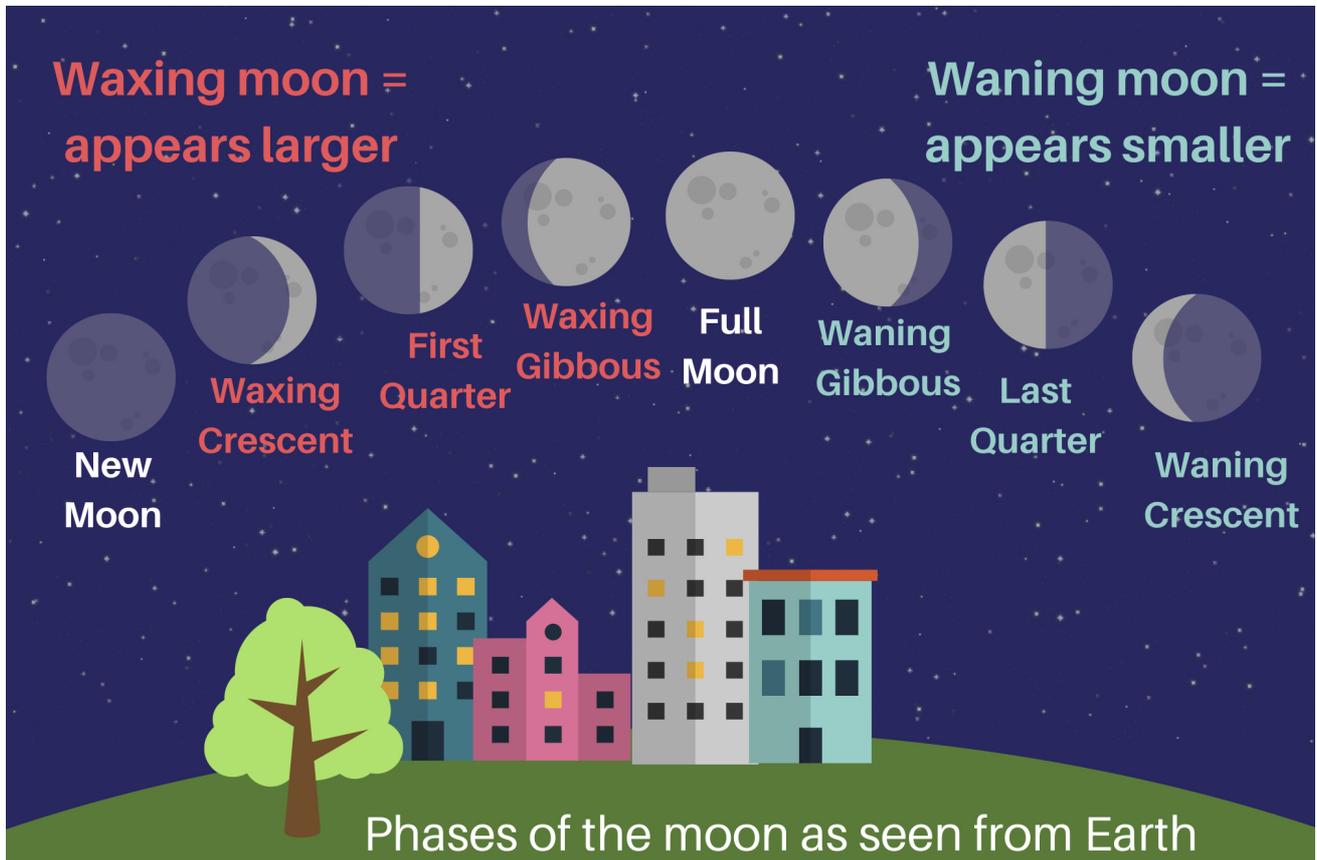
TOP: The phases of the moon are shown in the night sky. The phases change over the course of the lunar month. Photo from: Spirit-Fire/Flickr. BELOW: Phases of the moon, as seen from the solar system and from Earth. Images by: Newsela Staff.

**Question:** What are the phases of the moon?

**Answer:** The lunar month is the 29.53 days it takes to go from one new moon to the next. During the lunar month, the moon goes through all its phases. The phases are illustrated in the picture below.

## The Dark Side Of The Moon

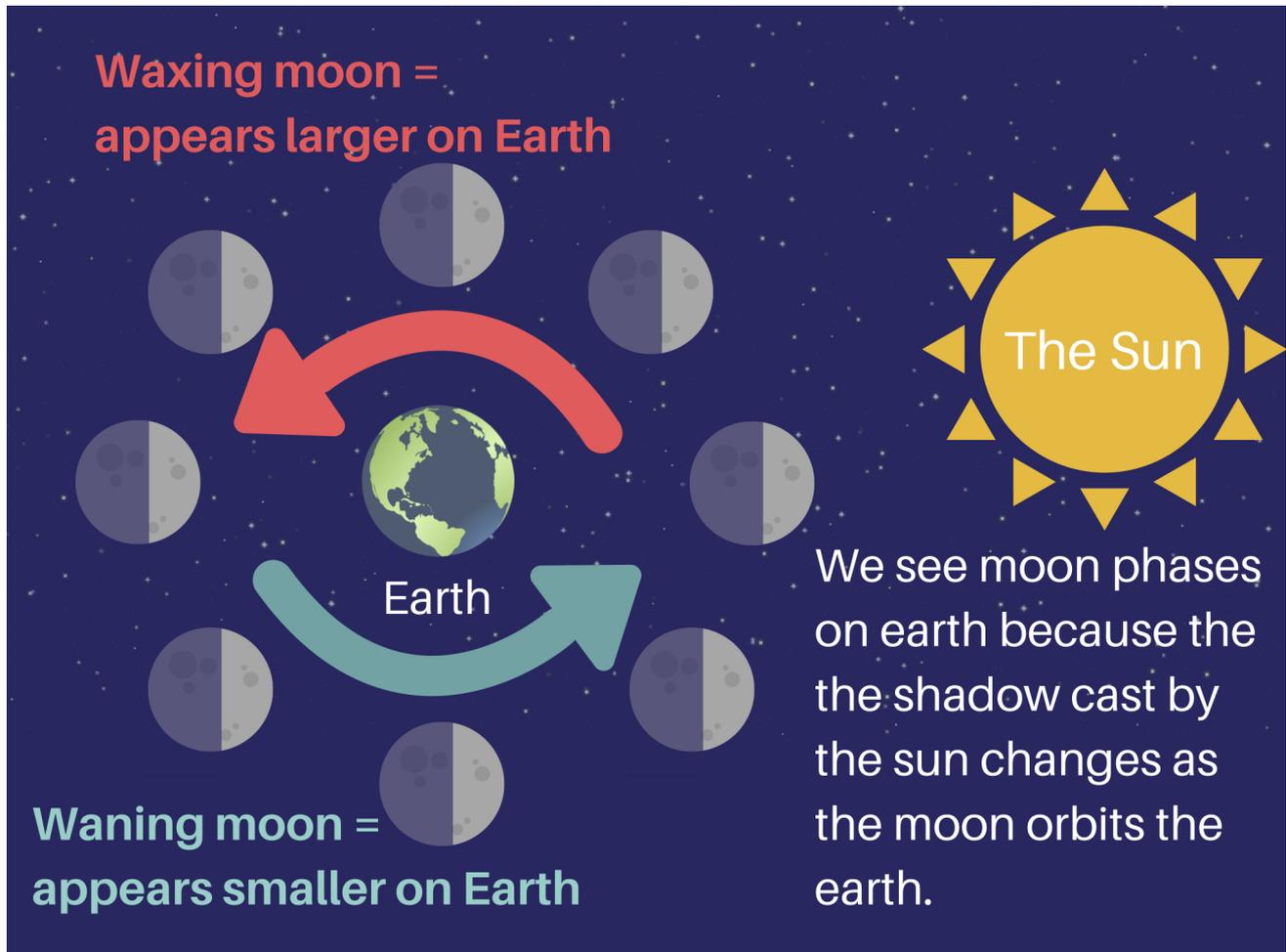
Like the Earth, half of the moon is lit by the sun while the other half is in darkness. The phases we see result from the angle the moon makes with the sun as viewed from Earth.



We only see the moon because sunlight reflects back to us from its surface. During the course of a month, the moon circles once around the Earth. If we could magically look down on our solar system, we would see that the half of the moon facing the sun is always lit. But the lit side does not always face the Earth. As the moon circles the Earth, the amount of the lit side we see changes. These changes are known as the phases of the moon, and they repeat in a cycle over and over.

### Wax On, Wax Off

At new moon, the moon is lined up between the Earth and the sun. We see the side of the moon that is not being lit by the sun. In other words, we see no moon at all, because the brightness of the sun outshines the dim moon. When the moon is exactly lined up with the sun (as viewed from Earth), we experience an eclipse.



As the moon moves eastward away from the sun in the sky, we see a bit more of the sunlit side of the moon each night. A few days after new moon, we see a thin sliver of moon in the western evening sky. This curved sliver is called a crescent. The crescent moon waxes, or appears to grow fuller, each night. When half of the moon is illuminated, we call it the first quarter moon. This name comes from the fact that the moon is now one-quarter of the way through the lunar month.

The moon continues to wax. Once more than half of the disc is illuminated, it has a shape we call gibbous. The gibbous moon appears to grow fuller each night until we see the full sunlit face of the moon or the full moon. The moon has now completed one-half of the lunar month.

During the second half of the lunar month, the moon grows thinner each night. This action is called waning. Its shape is still gibbous at this point but grows a little thinner each night. As it reaches the three-quarter point in its month, the moon once again shows us one side of its

disc illuminated and the other side in darkness. However, the side that we saw dark at the first quarter phase is now the lit side. As it completes its journey and approaches new moon again, the moon becomes a waning crescent.

## **DIY Phases**

You can demonstrate the phases of the moon for yourself by using a lamp and a baseball. Place the lamp with its shade removed in one end of a darkened room. Sit at the other end of the room and hold the baseball up in front of you so that it is between your face and the lamp. Now slowly move the ball around your head at arm's length. As the baseball orbits your head, you will see it go through the same phases as the moon.

## **Moon Watchers**

Many people watch the phases of the moon for their own interests and hobbies. These moon watchers include fishermen, gardeners, hikers, photographers, scientists and many others.

In the 18th century, a small group of people in England started a club called the Lunar Society. The "lunatics" scheduled their dinner meetings on evenings of the full moon. They did this for practical reasons, not because of any superstition. In the days before electricity, seeing one's way home after dark was far easier by the light of a full moon. In the early 21st century, electricity has banished the need for such careful scheduling, but the light of the full moon still makes a difference.