

The Moon

The moon is closer to the earth than any other object in the solar system. People have visited the moon.

With the pictures and rocks that the astronauts have brought back from the moon during the **Apollo Missions**, scientist have been able to study what the moon is like.

The moon's surface is covered with **craters**. Craters are large, shallow holes in the ground on the moon. They are formed by the impact of meteorites smashing into its surface.

An **Italian scientist called Galileo Galilei, in 1609, took a closer look at the moon through a telescope.** He drew pictures of the things he saw there. **He saw an uneven rough surface full of peaks and valleys.**

Robert Hooke, an English scientist, wondered how the craters on the moon were made.

There are two ways to form craters:

1) Something huge hits the surface of the planet and makes an impact (dent) --> These are on the moon

2) Volcanic Craters - when the top of a volcano collapses (NOT on the moon)

 [Why Does the Moon Have Craters? | NASA Space Place – NASA Science for Kids](#)

Robert Hooke said that the craters on the Moon were from volcanic craters(Proven wrong later). Many scientists agreed with him but could not prove it until they had samples of the Moon or Lunar, rock. In 1969, Astronauts travelled to the moon on the Apollo missions and bought back samples of the rock in and around the Moon's craters.

When the scientist on Earth studied these rocks they realized that some were pieces of meteorites. They then realized that the craters on the moon were caused by this impact. The craters are called Impact Craters.



First People to Walk on the Moon

Apollo 11 blasted off on July 16, 1969. Neil Armstrong, Edwin "Buzz" Aldrin and Michael Collins were the astronauts on Apollo 11.

Four days later, July 20, 1969, Armstrong and Aldrin landed on the moon. They landed on the moon in the Lunar Module. It was called the Eagle. Collins stayed in orbit around the moon. He did experiments and took pictures.

On July 20, 1969, Neil Armstrong became the first human to step on the moon. He and Aldrin walked around for three hours. They did experiments. They picked up bits of moon dirt and rocks.



First words as he step onto the moon,
"One small step for man, one giant leap for mankind"

[Original Recorded Footage Of The Moon Landing Found | NBC Nightly News \(youtube.com\)](#)

First Moon Landing 1969



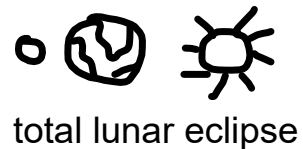
54 min

 How Did Galileo Galilei Change the World Today?
Documentary Science Space History

How Does the Moon Affect the Earth?

As the Moon and the Earth move in space, they sometimes block each other from the sun's light. When this happens, we see an eclipse.

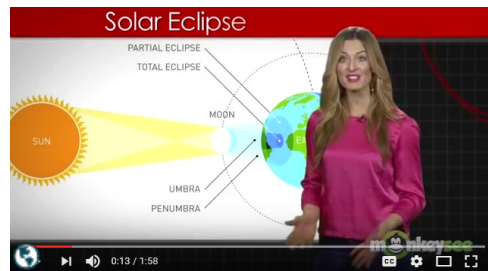
Lunar Eclipse - the Earth blocks the sun's light from reaching the Moon.



total lunar eclipse

Solar Eclipse

Solar Eclipse - the Moon blocks the sun's light from reaching the Earth.



Solar eclipse



Full Solar Eclipse - April 8, 2024

Both solar and lunar eclipses are alike in that one body blocks the sun's light from reaching another body. The shadow of the moon on the Earth in a solar eclipse is very small and only covers a small portion of the Earth, while the shadow of the Earth on the moon in a Lunar eclipse easily covers the whole face of the moon.




Feb. 10, 2017 Lunar Eclipse Pictures

To see a solar eclipse, you have to be on the daylight-facing side of Earth. To see a Lunar Eclipse you can be anywhere on the night-facing side of Earth.

The moon travels around the Earth every 29.5 days BUT we do not have a solar eclipse every month because the plane that the Moon orbits around the Earth is a little tilted, so that the moon is not always perfectly in line with the sun and the Earth. Because of this tilt, the solar eclipses are very rare.

How does the Moon Move?

The Moon is the largest and brightest object in the night sky. The Moon does not give off its own light, it reflects the sun's light.

To us the Moon appears to change shape over the course of several nights. We call these different shapes the phases of the moon.(Look at Page 24 Exploration) 

The Moon, like the Earth, has two kinds of motion.

- 1) revolves around the Earth in an orbit
- 2) rotates on its axis.

(It takes the Moon 29.5 Days to make a complete rotation around the Earth). It takes the Moon the same amount of time to make one rotation on its axis.

The phase of the moon is how much of the moon appears to us on Earth to be lit up by the sun. Half of the moon is always lit up by the sun, except during an eclipse, but we only see a portion that's lit up. This is the phase of the moon.

Around once per month, every 29.53 days to be exact, the moon orbits around the Earth. As the moon circles the Earth, we can only see a portion of the lit up side. When we can see 100% of the lit up side, this is a full moon. When we can't see any of the lit up side, this is called a dark moon or new moon.

What are the different phases of the moon?

As the moon orbits or circles the Earth, the phase changes. We'll start with what is called the New Moon phase. This is where we can't see any of the lit up side of the moon. The moon is between us and the sun (see the picture). As the moon orbits the Earth we can see more and more of the lit up side until finally the moon is on the opposite side of the Earth from the sun and we get a full moon. As the moon continues to orbit the Earth we now see less and less of the lit up side.

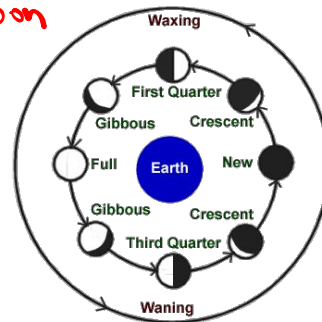
Waxing - is when the new moon begins and we see more and more of the moon.

Waning - starts after full moon and we see less and less of the moon.

The phases of the moon starting with the New Moon are:

- > New Moon
- > Waxing Crescent
- > First Quarter
- > Waxing Gibbous
- > Full
- > Waning Gibbous
- > Third Quarter
- > Waning Crescent
- > Dark Moon

→ don't see moon



[Moon Phases: Waxing, Waning and Lunar Cycle - Video & Lesson Transcript | Study.com](#)



Waxing or Waning?

As the New moon begins its orbit and we see more and more of the moon, this is called Waxing.

After the moon gets to its Full phase, we start to see less and less of the moon. This is called Waning.

Attachments

Unit 1 Space Test Outline.notebook