

## EARTH'S MOON

Earth's only natural satellite, the Moon, orbits the planet at an average distance of around 384,400 kilometers (238,855 miles). Unlike Earth, the Moon has almost no atmosphere to protect it from extreme temperatures. Shaded areas can be as cold as  $-233^{\circ}\text{C}$  ( $-387^{\circ}\text{F}$ ), while sunny areas can be as hot as  $123^{\circ}\text{C}$  ( $253^{\circ}\text{F}$ ). Also, without an atmosphere, the Moon has nothing to protect it from objects moving through space. For this reason, the Moon's surface is covered with millions of impact craters.

### How Big Is the Moon?

The Moon measures about 10,917 kilometers (6,783 mi.) around at its widest point. If Earth were hollow, about fifty Moons would fit inside it.

### The Moon's Orbit

The Moon takes about twenty-seven Earth days to completely orbit Earth. It also takes twenty-seven Earth days to spin around, or rotate, once. Because the Moon orbits and rotates at the same rate, we are always looking at the same side, or face, from Earth. The side of the Moon that always points away from us is known as "the dark side" of the Moon.

### Where Did the Moon Come From?

Scientists don't know for sure where the Moon came from. One theory is that billions of years ago, an object about the size of Mars collided with Earth. The leftover materials of the collision formed the Moon.

### The Moon's Influence

The Moon doesn't just look pretty in the night sky; its orbit affects many things on Earth. People have used the phases of the Moon to track time for thousands of years. More importantly, the Moon's gravity actually helps keep Earth's orbit and rotation constant, which helps keep our climate stable. The Moon also affects the oceans. As the Moon orbits Earth and Earth rotates on its axis, gravity from the Moon and Sun pulls at the water on Earth's surface, creating the tides.

### Going to the Moon

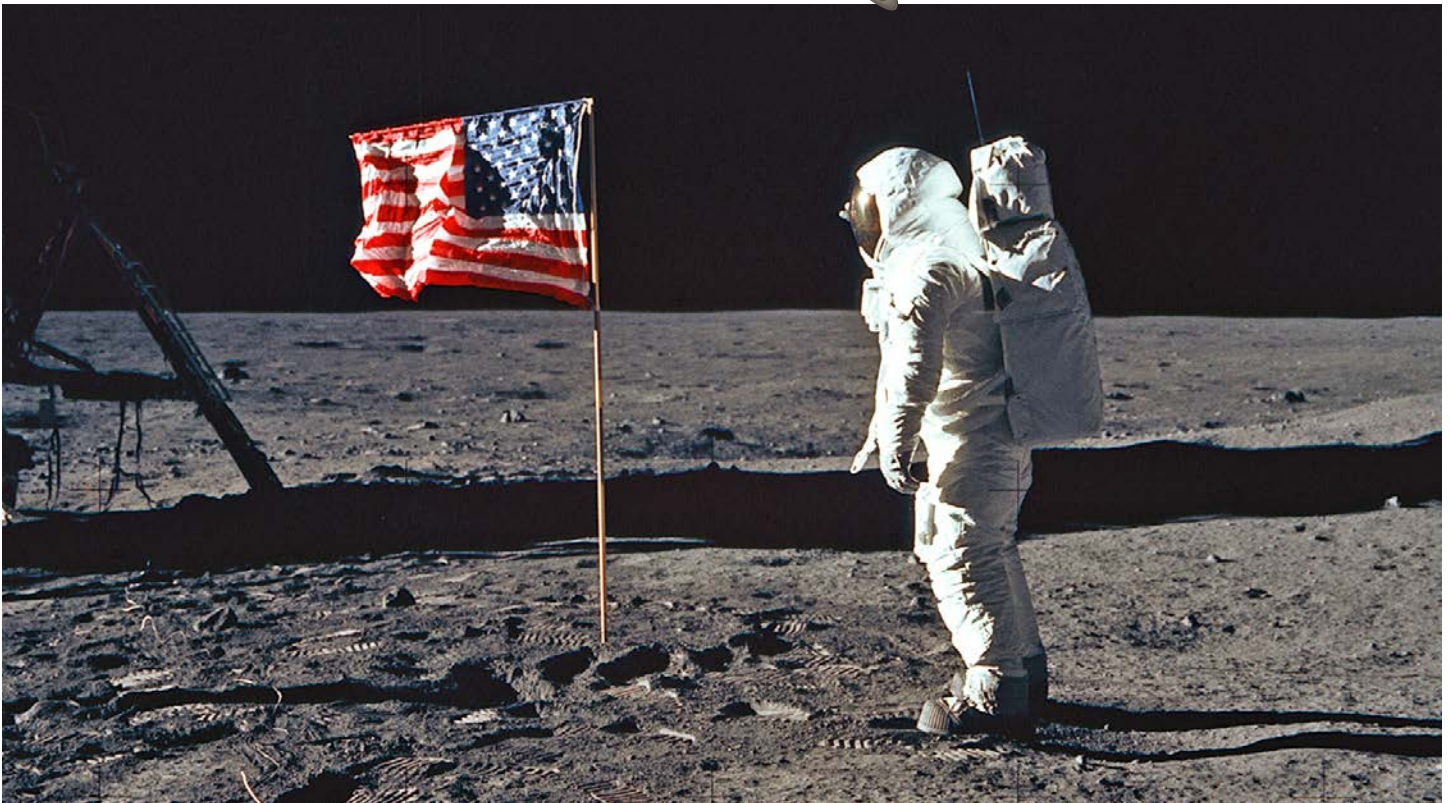
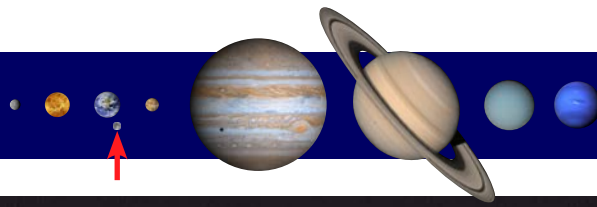
Since space travel became possible, people have sent more than one hundred spacecraft to the Moon. Most of these spacecraft were robots controlled by people on Earth. Few people have ever walked on the Moon's surface. Neil Armstrong and Buzz Aldrin, members of the *Apollo 11* mission, became the first humans to walk on the moon on July 20, 1969. In total, twelve American astronauts have walked on the Moon, and they brought back 382 kilograms (842 lbs.) of lunar rock and soil. No people have visited the Moon since 1972.



### DO YOU KNOW?

- A lunar eclipse happens when Earth blocks the Sun's light from reaching the Moon's surface. A solar eclipse happens when the Moon blocks the Sun's light from reaching Earth's surface.
- The Moon may glow, but it doesn't create light. It only reflects light from the Sun.
- Gravity on the Moon is about six times weaker than it is on Earth. If you weigh 50 kilograms (110.2 lbs.) on Earth, you'll weigh about 8.3 kilograms (18.3 lbs.) on the Moon.

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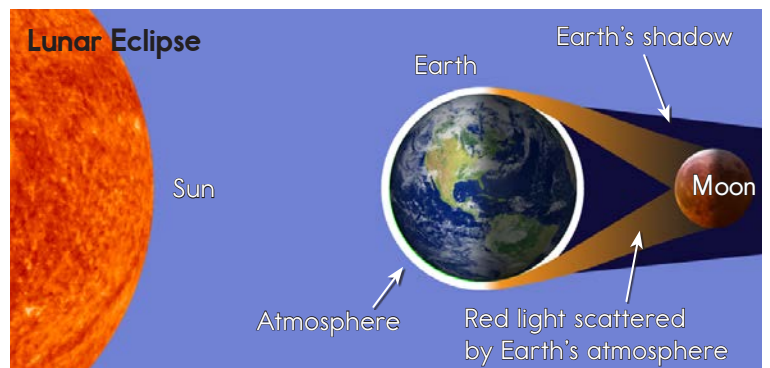


Edwin "Buzz" Aldrin salutes the U.S. flag during the *Apollo 11* mission. The photo was taken by Neil Armstrong, using a special

camera designed to work on the Moon. To the left is the leg of the Lunar Module, which carried the astronauts to the Moon's surface.



This photo, taken by the *Apollo 11* astronauts, shows Earth rising above the Moon's horizon.



Some red light from the Sun bends as it passes through Earth's atmosphere and reaches the Moon, turning it red.

### Solar Eclipse

