18 days—the **time** it would take to **fly to the Moon** at the **speed of a jumbo jet**.

The Moon

The Moon is Earth's closest neighbor in space and looms larger than any other object in the night sky. Its cratered surface may be cold and lifeless, but deep inside the Moon is a gigantic ball of white-hot iron.

Earth and Moon have existed together in space ever since the Moon formed as the result of a cosmic collision. It orbits around our planet, keeping the same face toward us at all times. As we gaze on its sunlit surface, we look at a landscape that has barely changed since 3.5 billion years ago. Back then, the young Moon was bombarded by asteroids. For millions of years they blasted out surface material and formed craters. The largest of these were then flooded with volcanic lava, creating dark, flat plains that look like seas.

Lunar maria
Dark, flat areas known as maria, or seas, are huge plains of solidified lava.

Gray surface
The Moon's surface is covered in a layer of fine gray dust an inch or so deep.

Moon profile

Diameter ..... 2,159 miles (3,474 km)
Average surface temperature .....-63°F (-53°C)
Length of lunar day ..... 27 Earth days
Time to orbit Earth ..... 27 Earth days
Gravity (Earth = 1) 0.17

How the Moon formed

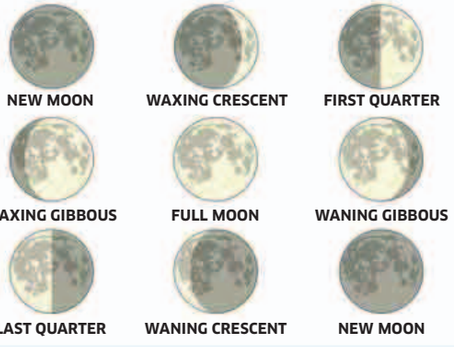
Scientists think the Moon formed as a result of a collision between Earth and a planet 4.5 billion years ago. The debris was pulled together by gravity and became the Moon.

Impact
A planet smashes into Earth and blasts molten rock into space.

Moon formation
A disc of debris forms. The particles slowly join to form a Moon.

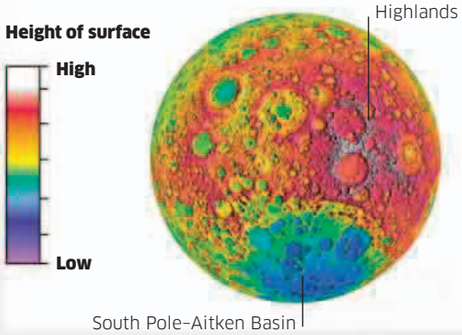
Phases of the Moon

As the Moon orbits the Earth, a changing amount of its face is bathed in sunlight. The different shapes we see are the Moon's phases. One cycle of phases lasts 29.5 days.



The far side

The Moon keeps the same face toward the Earth all the time. The face we never see—the far side—can only be viewed by spacecraft. Its crust is thicker and more heavily cratered than the near side. Elevation (height) maps reveal high and low areas of land.

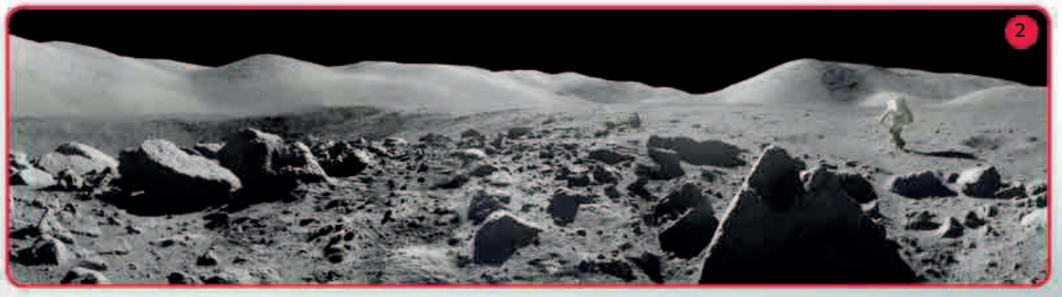


Lunar craters
Craters exist all over the Moon. They range from small bowl-shaped hollows a few miles wide to the vast South Pole–Aitken Basin, which is 1,600 miles (2,500 km) in diameter. Many craters, like Eratosthenes (above), have central hills that formed as the ground rebounded after the asteroid struck.

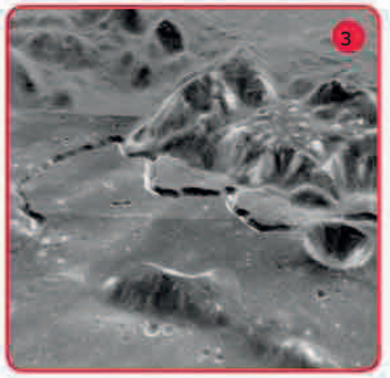
Lunar layers

Like Earth, the Moon is made of different layers that separated out long ago, when its whole interior was molten. Lightweight minerals rose to the top, and heavier metals sank to the center. The outermost layer is a thin crust of rock like the rock on Earth. Under this is the mantle—a deep layer of rock that gets hotter toward the center. The bottom part of the mantle is partly molten. In the Moon's center is an iron core heated to about 2,600°F (1,400°C) by energy from radioactive elements. Scientists think the outer core is molten but the inner core is squeezed solid by the pressure of the rock around it.

Man on the Moon
Astronauts landed on the Moon six times during NASA's Apollo program. They found a world of gray, dusty plains and rolling hills under an inky black sky. Below, an astronaut heads back to his rover vehicle parked near Camelot Crater (left), where he had been collecting samples. The large boulders were flung out of the crater when it formed.



Highlands
All the Moon's hills and mountains are the rims of craters or central peaks in craters.



Hadley Rille
A deep gorge named Hadley Rille cuts through flat plains at the edge of the Moon's Sea of Showers, winding for more than 60 miles (100 km). How it formed is a mystery, but it might be an ancient lava channel. In July 1971, Apollo astronauts drove their rover to the edge of Hadley Rille to take photographs and study it.

SEA OF SERENITY (MARE SERENITATIS)

SEA OF TRANQUILITY (MARE TRANQUILLITATIS)

The mantle gets hotter toward the center.

Inner core
A hot, 300-mile- (480-km-) wide ball of solid iron forms the inner core.

Outer core
The outer part of the Moon's iron core is molten or partially molten iron.

Inner mantle
Heat from radioactive elements has partially melted the inner mantle.

Mantle
The mantle is mainly solid rock and is rich in silicate minerals, which are common on Earth.

Crust
Made of granitelike rock, the Moon's crust is about 30 miles (48 km) thick on the near side and 46 miles (74 km) thick on the far side.

Far side
The Moon's far side, which is not visible from Earth, is covered in craters and has no large maria (seas).

Craters in craters
On many parts of the Moon the craters overlap each other, the newer ones lying on top of older craters.