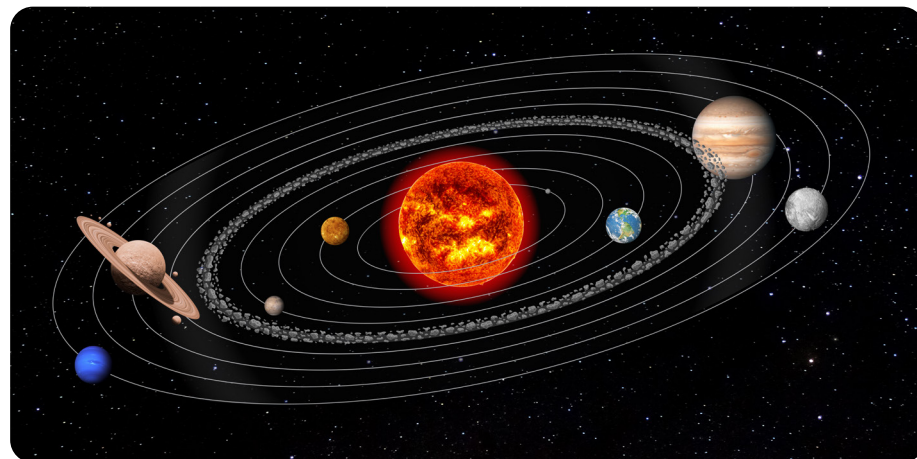


Our Place in Space

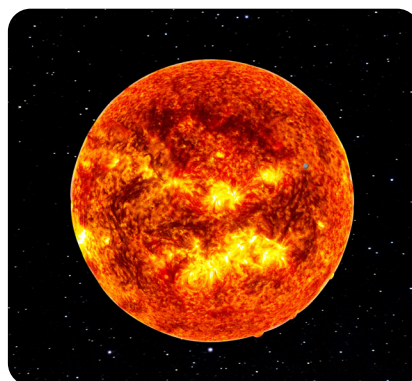
The Solar System

The Solar System consists of eight planets that orbit around the Sun.



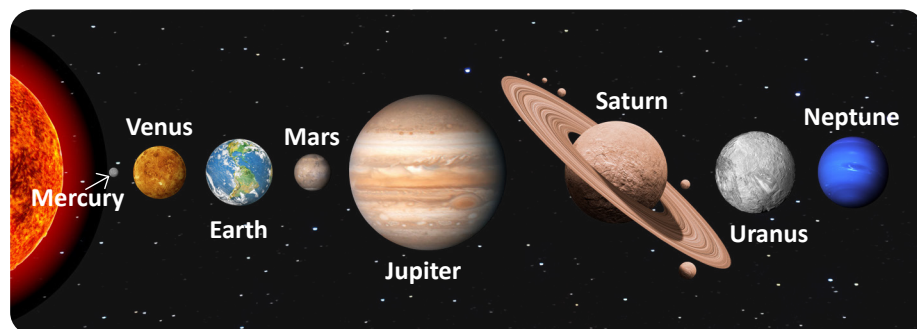
The Sun

The Sun is a 4.5 billion-year-old star. It is a huge, hot ball of gas that rotates on its axis once every 27 Earth days. The Sun is the only source of light and heat in the Solar System. Without it, life as we know it would not exist on Earth.



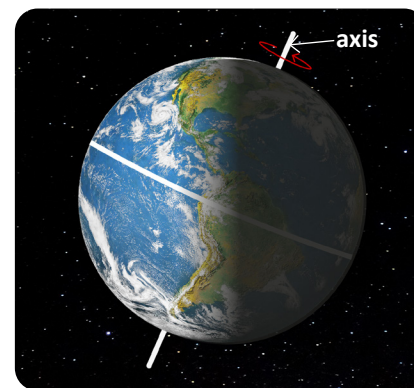
The planets

There are eight planets in the Solar System. The planets closer to the Sun (Mercury, Venus, Earth and Mars) are terrestrial planets because they are made of rock. They are hotter and have a shorter orbit and a shorter year than the planets farther away. Planets that are farther from the Sun (Jupiter, Saturn, Uranus and Neptune) are made of gas and are called gas giants. They are colder and have a larger orbit and a longer year than the closer planets.



The Earth

The Earth is the fourth planet from the Sun in the Solar System and is the only one to support life. The Earth rotates on an axis at a tilt of 23.5° . One rotation takes 24 hours, which is one day. The Earth orbits the Sun once every 365.25 days, which is a year.

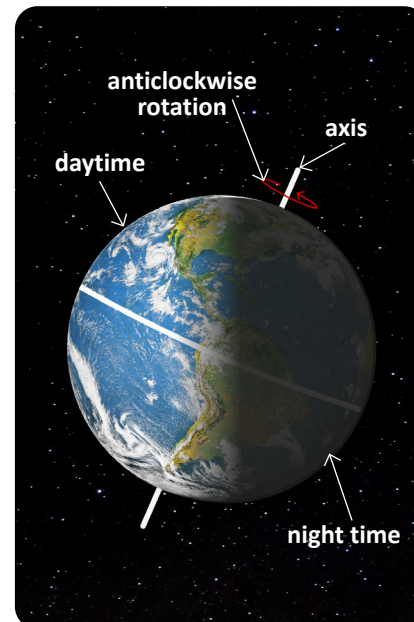


Daytime and night time

As the Earth rotates, it is daytime in the places that face towards the Sun, and night time in the places that face away from the Sun.

During the day, the Sun appears to rise in the east, move across the sky in an arc and set in the west. However, this is due to the Earth rotating and not the Sun moving.

As the Earth rotates in an anticlockwise direction, we turn into the Sun's light. From Earth, the Sun appears to rise from the horizon in the east. At sunset, we rotate away from the Sun's light, and the Sun appears to set in the west.

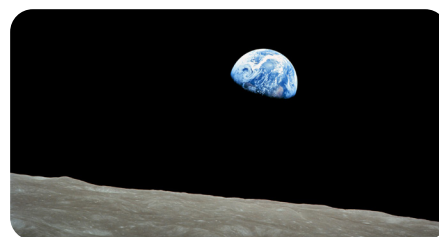


Beliefs about the shape of the Earth

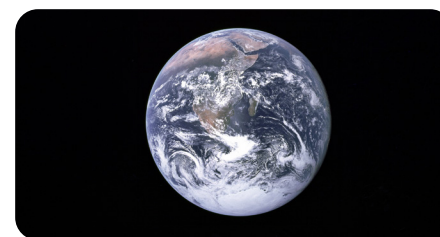
Many ancient civilisations believed the Earth was flat and shaped like a floating disc, a cylinder or even a square.

Over time, evidence, including observing different star patterns across countries, ships 'disappearing' bottom-first over the horizon, and explorers circumnavigating the Earth, led people to believe the Earth was a sphere.

In the 20th century, photographs like *Earthrise* and *The Blue Marble* were taken from space, which proved that the Earth was a sphere.



Earthrise



The Blue Marble

The Moon

The Moon orbits the Earth once every 27.3 days, which is around one month. It also rotates on its axis once every 27.3 days, so we only see one side of the Moon from Earth. The Moon is not a natural light source; it reflects the Sun's light.



Phases of the Moon

As the Moon orbits, we see differing amounts of the Moon's lit side from Earth. These are known as the phases of the Moon.

When none of the lit surface can be seen from Earth, it is a new Moon. When all the lit surface can be seen, it is a full Moon. When the Moon is waxing, more and more of the lit side is visible. When it is waning, less and less of the lit side is visible.



Solar and lunar eclipse

A **solar eclipse** is when the Moon passes directly between the Earth and the Sun, blocking our view of the Sun and casting a shadow on part of the Earth.

A **lunar eclipse** is when the Earth is in line between the Moon and the Sun and casts a shadow on the Moon.



solar eclipse