

# Earth and Space

In space, planet **Earth** - the planet inhabited by humans - alongside other planets, stars, moons, asteroids and other objects form our **Solar System**.

Inside the Solar System, Earth and seven other planets (including the dwarf planet Pluto) **orbit** (travel round) the **Sun** due to its **gravitational pull**. The Sun is the biggest star in our Solar System. As Earth orbits the Sun, the Moon also orbits our planet.

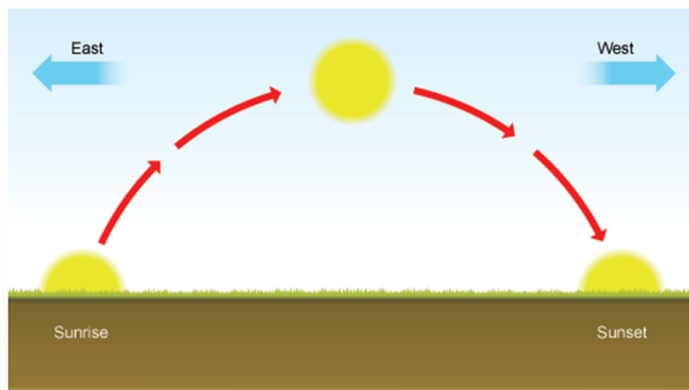
Nowadays, we know that the Earth, Sun and Moon are approximately **spherical** bodies however many years ago some people believed that the Earth was flat.

## Earth's orbit around the Sun

It takes **365.25 days** to complete its orbit around the Sun, therefore every four years we have an extra day in February. When this occurs, we call it a **leap year**.

## Why do we have day and night?

As the Earth orbits the Sun, it rotates meaning half of the Earth is facing the Sun whilst the other half is facing away. The part of the Earth facing the Sun will experience **day** and the part facing away will experience **night**. It takes **24 hours** for the Earth to rotate on its axis. The Sun does not move, but it is the Earth's movement that makes the Sun appear to rise in the morning from the east and set in the evening in the west.



Images sourced from BBC Bitesize

## The Phases of the Moon

The Moon takes **28 days** to orbit the Earth. We call this the **lunar month**. The Moon is not a light source and simply **reflects** the light from the Sun. The Moon also does not change shape, instead we see different amounts of the Moon's surface depending on its position in relation to the Earth and the Sun. These changes in the amount we can see are called the **phases of the Moon**.

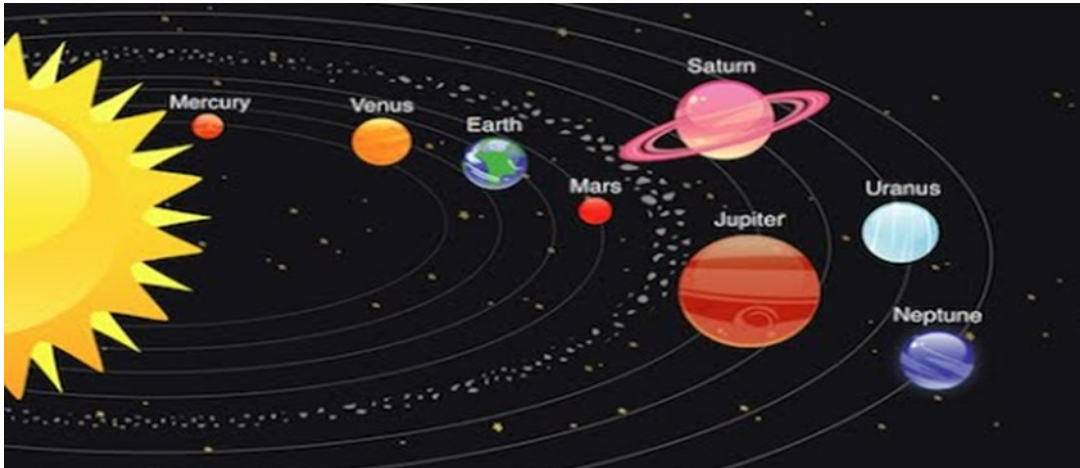
During each lunar month, the Moon starts off unilluminated (**New Moon**). As more of the Moon becomes illuminated (lit up), it becomes a **Full Moon** and then back to unilluminated again. This process is continuous.



**Waxing** occurs after New Moon and before a Full Moon as more of the Moon illuminates.

**Waning** occurs after a Full Moon and before a New Moon as less of the Moon is illuminated.

## Key Vocabulary



*Asteroid - A small rocky body orbiting the sun.*

*Axis - An imaginary line about which a body rotates.*

*Celestial - Positioned in or relating to the sky, or outer space as observed in the astronomy.*

*Day - A twenty-four hour period, from one midnight to the next, corresponding to a rotation of the earth on its axis.*

*Dwarf planet - A celestial body resembling a small planet but lacking certain technical criteria to be classed as a planet e.g. Pluto.*

*Geocentric - Where people believed the earth was at the centre of the solar system.*

*Heliocentric - Representing the sun as the centre of the solar system, the modern view of the solar system.*

*Moon - A natural satellite of any planet.*

*Night - The period from sunset to sunrise in each twenty-four hours.*

*Orbit - The regularly repeated oval course of a celestial object around a star or planet.*

*Planet - A celestial body moving in orbit round a star.*

*Rotation - The action of rotating about an axis or centre.*

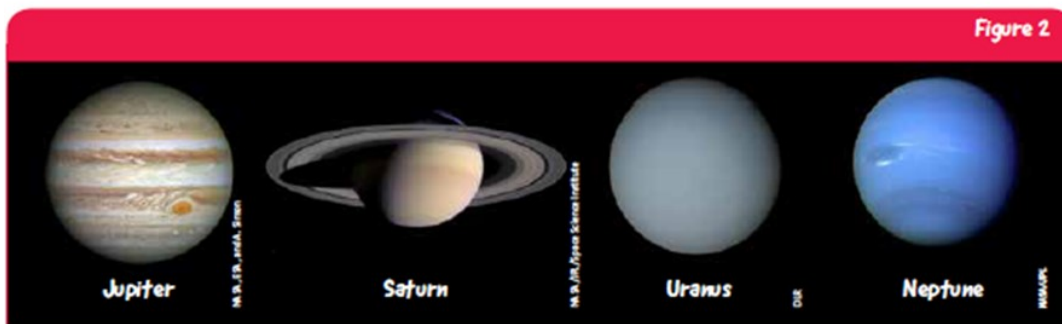
*Solar system - The collection of eight planets and their moons in orbit round the sun.*

*Star - A fixed luminous point in the night sky which is a large, remote body like the sun.*

*Sun - The star round which planets orbit.*



↑ The inner (terrestrial) planets. The images shown here are not to scale.



↑ The outer (giant) planets. The images shown here are not to scale.