

What should I already know?

- *Light from the sun can be dangerous and that there are ways to protect our eyes.
- *That shadows are formed when the light from a light source is blocked by an opaque object.
- *How to find patterns in the way that the size of shadows change.
- *We live on Earth, and this is a planet in our Solar System. The Sun is the centre of our Solar System.
- *We have a moon.

Key vocabulary

- astronomer** – someone who studies astronomy (space science).
- axis**– an imaginary line about which a body rotates. The Earth's axis runs from the North Pole to the South Pole.
- celestial** – positioned in or relating to the sky, or outer space as observed in astronomy.
- day** – a 24-hour period, from one midnight to the next, corresponding to one rotation of the Earth on its axis.
- dwarf planet** – a celestial body looking like a small planet but lacking certain technical criteria to be classed as a planet e.g. Pluto.
- galaxy** – a huge collection of gas, dust and billions of stars and their solar systems.
- geocentric model** – people believed that the Earth was the centre of the solar system.
- heliocentric model** – the modern view of the solar system in which the sun is at the centre and the planets orbit it.
- lunar** – relating to the moon.
- moon** – a natural satellite of any planet. The Earth has one moon. Some planets have more.
- night** – the period from sunset to sunrise in each 24 hours.
- orbit** – to move in a regular, repeating curved path around a star or planet.
- planet** – a celestial body moving in orbit around a star.
- rotate** – to spin e.g. The Earth rotates on its own axis.
- satellite** – any object or body in space that orbits something else.
- solar system**– the collection of 8 planets and their moons in orbit around the sun.
- star** – a fixed luminous point in the night sky, which is a large, remote body like the sun.
- sun** – the star around which the planets in our solar system orbit.
- universe** – everything that exists anywhere.

Nicolaus Copernicus (1473-1543)

Astronomer who formulated the idea that the Sun was the centre of our solar system, and not the Earth.

**Galileo Galilei (1564-1642)**

Astronomer who built on Copernicus' idea and proved it. His work on gravity allowed astronomers to understand how planets stayed in orbit.

**What will I know by the end of the topic?*****Why we have day and night.**

It appears to us that the **Sun** moves across the sky during the day, but the **Sun** does not move at all. It looks like the **Sun** moves because of the movements of Earth. The Earth **rotates** (spins) on its axis. It does a full **rotation** once in every 24 hours. Daytime occurs when the side of Earth is facing towards the **Sun**. Night occurs when the side of Earth is facing away.

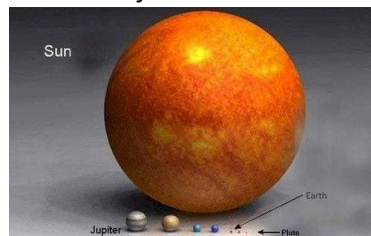
While the Earth is **rotating**, it is also **orbiting** (revolving) around the **Sun**. It takes a little more than 365 days to **orbit** the **Sun**.

***How the Earth and other planets move in our solar system.**

The Sun is the centre of our solar system and all planets (and their moons) orbit it. The sun's gravitational force keeps the planets in orbit.

***The shape of the Earth, Sun and Moon.**

The Earth, Sun and Moon are all approximately spherical. However, there are huge differences in their sizes. The Sun's diameter is approximately 109 times the diameter of the Earth.

***How our moon moves around the Earth.**

Our **Moon** orbits Earth in an oval-shaped path while spinning on its axis. At various times in a month, the **Moon** appears to be different shapes. This is because as the **Moon** **rotates** round Earth, the **Sun** lights up different parts of it.

***That day and night do not happen at the same time everywhere in the world.**

As the Earth rotates on its **axis**, the Sun only shines on the side of the Earth that it is facing. This means:

- it is **daytime** for the parts of the Earth that have the Sun shining on them
- it is **night-time** for places that are on the opposite side of the Earth and are in the shade

As it is night in some parts of the world while it is day in other parts, different places in the world have different times. Therefore, the world is divided into **24 different time zones**. One for each hour in a day.