

# Earth and Space

## Knowledge

### Living Things and their Habitats

I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system

I can describe the movement of the Moon relative to the Earth

I can describe the Sun, Earth and Moon as approximately spherical bodies

I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

## Working Scientifically

Comparing the time of day at different places on the Earth through internet links and direct communication

Creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day

Finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.

## Hook into a Book



## Key Vocabulary

<b>orbit</b>	To move in a regular, repeating curved path around another object.
<b>rotate</b>	To spin. E.g. Earth <b>rotates</b> on its own <b>axis</b> .
<b>axis</b>	An imaginary line that a body <b>rotates</b> around. E.g. Earth's <b>axis</b> (imaginary line) runs from the North Pole to the South Pole.
<b>geocentric model</b>	A belief people used to have that other <b>planets</b> and the <b>Sun</b> orbited around Earth.
<b>heliocentric model</b>	The structure of the Solar System where the <b>planets</b> orbit around the <b>Sun</b> .
<b>astronomer</b>	Someone who studies or is an expert in astronomy (space science).

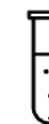
## Key Vocabulary

<b>Sun</b>	A huge star that Earth and the other <b>planets</b> in our solar system orbit around.
<b>star</b>	A giant ball of gas held together by its own gravity.
<b>moon</b>	A natural <b>satellite</b> which orbits Earth or other <b>planets</b> .
<b>planet</b>	A large object, round or nearly round, that orbits a <b>star</b> .
<b>sphere</b>	A round 3D shape in the shape of a ball.
<b>spherical bodies</b>	Astronomical objects shapes like <b>spheres</b> .
<b>satellite</b>	Any object or body in space that orbits something else, for example: the <b>Moon</b> is a <b>satellite</b> of Earth.

## Activate Prior Knowledge

### EY

- Explore and talk about different forces they can feel.
- Describe what they see, hear and feel whilst outside
- Understand the effect of changing seasons on the natural world around them.



### KS1

- I can observe changes across the four seasons
- I can observe and describe weather associated with the seasons and how day length varies.



### KS3

- Gravity force, weight = mass x gravitational field strength (g), on Earth  $g=10 \text{ N/kg}$ , different on other planets and stars; gravity forces between Earth and Moon, and between Earth and Sun (qualitative only)
- Our Sun as a star, other stars in our galaxy, other galaxies
- The seasons and the Earth's tilt, day length at different times of year, in different hemispheres
- The light year as a unit of astronomical distance.



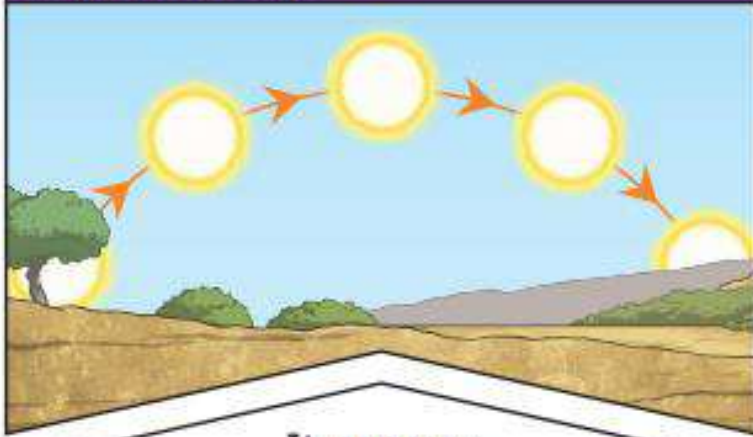
Investing in

the UNIQUENESS

of each individual

"I Am Fearfully And Wonderfully Made"  
- Psalms 139 v14

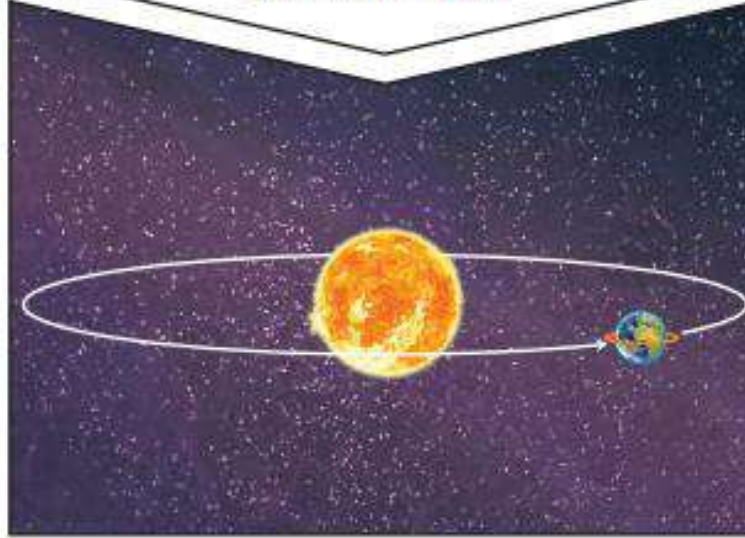
## Key Knowledge



It appears to us that the **Sun** moves across the sky during the day but the **Sun** does not move at all. It seems to us that the **Sun** moves because of the movements of Earth.

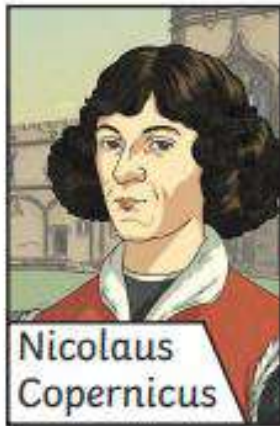
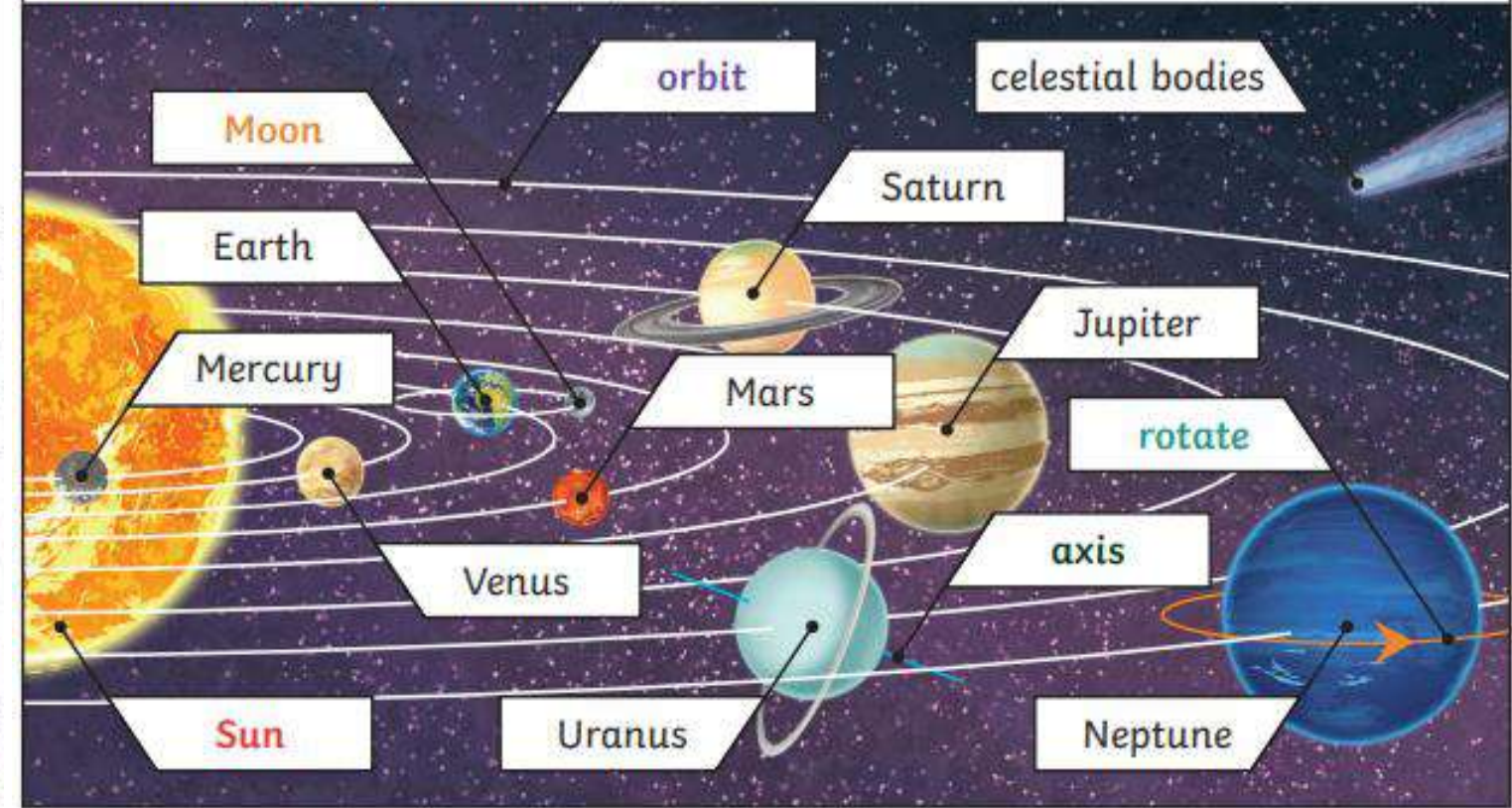


Earth **rotates** (spins) on its **axis**. It does a full **rotation** once in every 24 hours. At the same time that Earth is **rotating**, it is also **orbiting** (revolving) around the **Sun**. It takes a little more than 365 days to **orbit** the **Sun**. Daytime occurs when the side of Earth is facing towards the **Sun**. Night occurs when the side of Earth is facing away from the **Sun**.



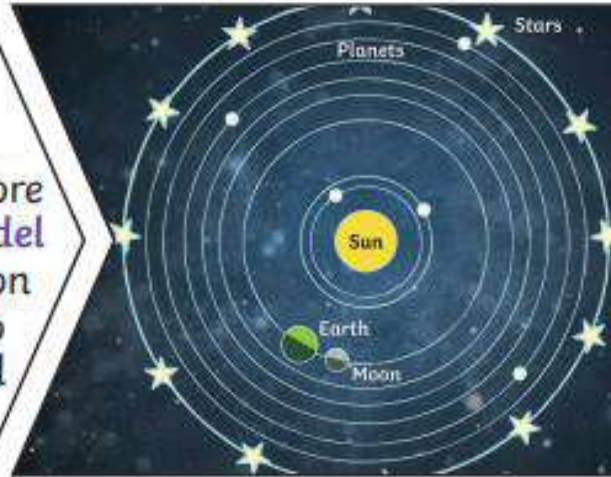
Mercury, Venus, Earth and Mars are rocky **planets**. They are mostly made up of metal and rock. Jupiter, Saturn, Uranus and Neptune are mostly made up of gases (helium and hydrogen) although they do have cores made up of rock and metal.

## Our Solar System (not to scale)



Nicolaus Copernicus

The work and ideas of many **astronomers** (such as Copernicus and Kepler) combined over many years before the idea of the **heliocentric model** was developed. Galileo's work on gravity allowed **astronomers** to understand how **planets** stayed in **orbit**.



The **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.



Pluto used to be considered a **planet** but was reclassified as a dwarf **planet** in 2006.

