



Science Year 5

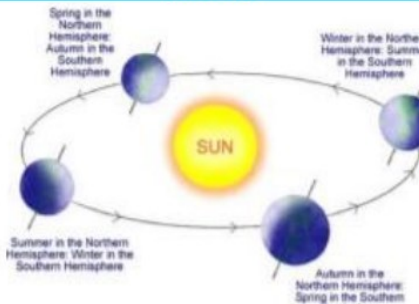
Autumn 2

The Earth and

Beyond

Sustainability links: Global Warming

Seasons



- It is the Earth's tilt that causes the seasons.
- The seasons are the opposite for the Northern and Southern Hemispheres.



Key Facts

Planets

- ◇ There are 8 planets in our Solar System (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune). Pluto is a dwarf planet.
- ◇ They all orbit the Sun, which is a star, and they all have moons.
- ◇ The first four planets are relatively small and rocky, while the four outer planets are gas giants (Jupiter and Saturn) or ice giants (Uranus and Neptune).



The planets are called Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

An easy way to remember the names of planets in order is:
My Very Easy Method Just Speeds Up Naming

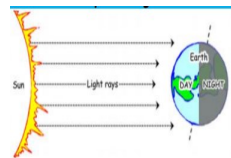
Orbits

- ◇ The Sun, Earth and Moon are approximately spherical.
- ◇ It takes 24 hours for the earth to rotate on its axis once.
- ◇ It takes 365 and $\frac{1}{4}$ days for earth to orbit the sun.
- ◇ Every four years we have an additional day on Feb 29th - this is called a leap year.
- ◇ It takes 28 days for the moon to orbit earth.



Day and Night

- ◇ The Earth rotates on its axis anti-clockwise and makes a complete rotation over 24 hours (a day).
- ◇ This makes it appear as the Sun moves through the sky but the Earth's rotation causes day and night.
- ◇ Different parts of the Earth experience daylight at different times - this means that it is morning, afternoon and night in different places. This is also the reason why we have **time zones**.



Vocabulary

Word	Definition
The Solar System	A collection of the eight planets and their moons, which orbit the Sun.
Axis	A line through the centre of a spinning object
Rotation	The spinning of the Earth around its axis. The Earth rotates once every 24 hours.
Crescent	A narrow curved shape pointed at both ends.
Equator	An imaginary line round the earth at an equal distance from the North and South poles.
Satellite	An object that orbits a planet or a star.
Model	A physical representation of an idea or process.
Orbit	The curved path taken by something moving round a planet or other body in space.
Moon	A natural satellite that orbits the Earth and reflects light from the Sun.
Leap year	A year which has 366 days. The extra day is the 29th February. There is a leap year every four years.
Galaxy	An extremely large group of stars and planets. Our galaxy is called the Milky Way.

Knowledge and Understanding:

Children will learn:

- In this module children develop their knowledge of the Earth's (and other planets) place in the solar system and their relationships with other bodies in space, in particular with the Sun.
- Children also learn how the Earth's orbit determines the length of a year and why we have leap years.
- Children also learn how the Earth's rotation and tilt affect the direction and length of shadows, and how to use shadows for telling the time.

Key skills and concepts:

Children will be able to:

- They report and present findings in different ways, including booklets, oral presentations and annotated diagrams, draw conclusions, identify causal relationships and explain their thinking.

Phases of the Moon



The Moon has different phases depending on where it is in its orbit. At different times, the moon appears to be different shapes because the sun light up different parts of the moon as it moves around the Earth. The Moon's gravity causes high and low tides.

The apparent movement across the sky

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 movement of the Earth.



The apparent movement of the sun makes shadows longer in the morning and evening. The shadows are shortest at midday when the sun is highest in the sky.

Key Questions

What is the solar system?

What are planets?

How can we use models as representations of the Solar System and planets?

How can we describe the motion of the Earth and planets?

How have our ideas about the Solar System changed over time?

What is planet Earth?

Why do we have night and day?

What is the moon?

Why does the moon change shape?