

Sholing Junior School - Science

Topic: Earth and Space

Year: 5

Strand: Physics

What should I already know?

- We have four seasons (autumn, winter, spring and summer).
- The Sun is a source of light but the Moon is not.
- Know that a **shadow** is caused when an object blocks light from passing through it.
- The properties of a **sphere**.

What I will learn.

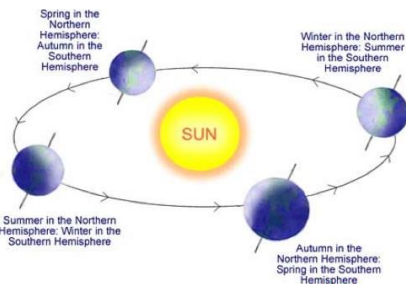
I will:

- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

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**. Because of the Earth's tilt, the poles experience 24 hours of sunlight in the summer, and very few hours of sunlight in the winter. As the Earth **rotates**, **shadows** that are formed change in size and orientation.

Year length and the seasons

- The Earth takes 365 and a quarter days to **orbit** the Sun.
- Because of the extra quarter day it takes to **orbit** the Sun, every four years on Earth is a **leap year!**
- It is the Earth's tilt that causes the seasons.



The Moon

- The Moon **orbits** the Earth anticlockwise and takes approximately 28 days.
- The Moon spins once on its **axis** every time it **orbits** Earth. This means that we only see one side of the Moon.
- The Moon has different phases depending on where it is in its **orbit**.
- The Moon's **gravity** causes high and low tides.

What is the Solar System?

- 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).
- There are also **asteroids**, **meteoroids** and **comets** in the **Solar System**.
- The **Solar System** is in a **galaxy** called the Milky Way.
- The **galaxy** is in the **universe**.

Other

Diagrams



The Sun, Earth and Moon are approximately **spherical**.

The Earth **orbits** the Sun. The Moon **orbits** Earth.



Vocabulary

axis	An imaginary line through the middle of something
comet	A bright object with a long tail that travels around the Sun
galaxy	An extremely large group of stars and planets. Our galaxy is called the Milky Way.
gravity	The force which causes things to drop to the ground
leap year	A year which has 366 days. The extra day is the 29th February. There is a leap year every four years
meteorite	A rock from outer space that has landed on Earth
orbit	The curved path in space that is followed by an object going round and round a planet, moon, or star
planet	A large, round object in space that moves around a star
shadow	A dark shape on a surface that is made when something stands between a light and the surface
Solar System	The Sun and all the planets that go round it
sphere	An object that is round in shape like a ball
spin	Turns quickly around a central point
star	A large ball of burning gas in space
time zones	One of the areas into which the world is divided where the time is calculated as being a particular number of hours behind or ahead of GMT (Greenwich Mean Time)
universe	The whole of space and all the stars, planets, and other forms of matter and energy in it

Investigate!

- We will be introduced to a model of the Sun and Earth that enables you to explain day and night. We will learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006). We will understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones).
- You should remember that it is not safe to look directly at the Sun, even when wearing dark glasses.