Year 5 - Science

NC Unit: Earth and Space	Sun, Earth and Moon: What is moving?	Earth Sciences

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**.

Big Ideas this works towards:

- Living things on Earth come in a huge variety of different forms that are all related because they all came from the same starting point 4.5 billion years ago.
- The universe follows unbreakable rules that are all about forces, matter and energy.

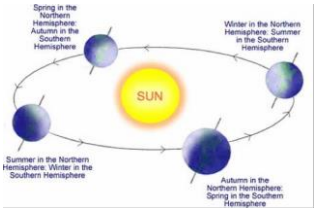
What will I know by the end of the unit?

What causes 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**.
- 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.



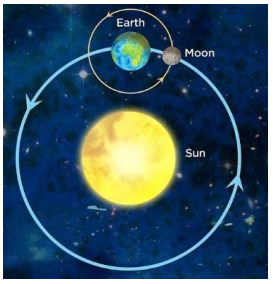
The Moon

- 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**.

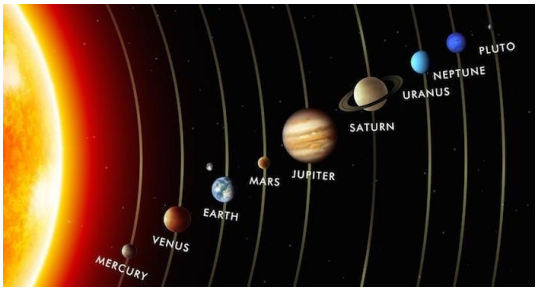
Other Diagrams



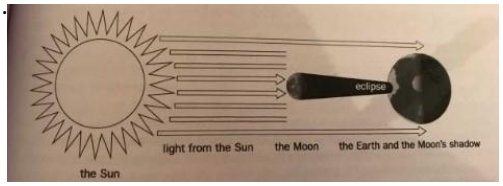
The Sun, Earth and Moon are approximately **spherical.**

The Earth **orbits** the Sun.

The Moon **orbits** Earth.



When the Moon passes between the Sun and Earth, the **shadow** cast by the Moon falls on the Earth's surface and we would no longer be able to see the Sun. This is called a **solar eclipse**.



Vocabulary

asteroid	a rock that **orbits** the Sun in a belt between Mars and Jupiter
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 goinground 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