KS3 Space **Knowledge Organiser**

Key Words

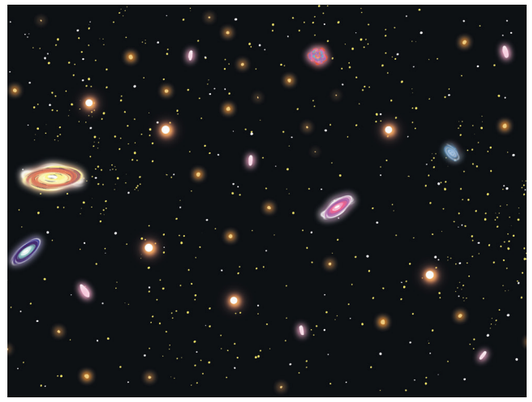
asteroid	A small rocky object which orbits the Sun, mostly found in a region between Mars and Jupiter.
comet	An icy object which orbits the Sun, mostly found in the outer solar system.
meteor	A piece of rock or metal that falls from space into the Earth's atmosphere and burns up before reaching the Earth's surface.
meteorite	Any meteor that lands on Earth.
moon	A natural object which orbits a planet.
planet	A round or nearly round object which orbits a star, in a path it has cleared of small objects.
star	A luminous object consisting mostly of hydrogen and helium, held together by its own gravity.

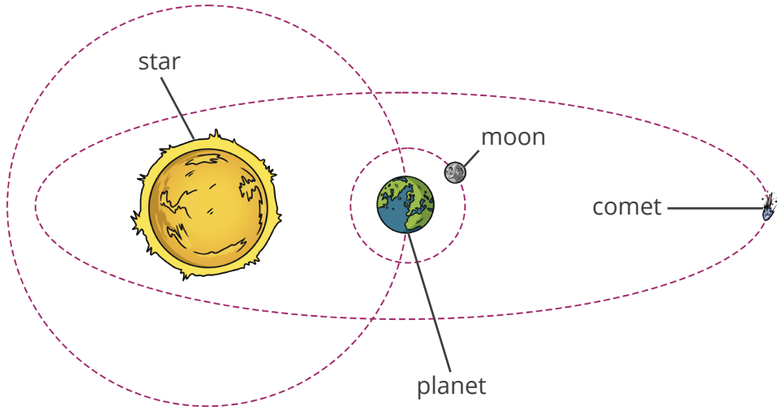
Structure of the Universe

We live on the planet Earth. The Earth **orbits** a star at the centre of the **solar system**, called the Sun.

The solar system is found in a **galaxy** called the Milky Way. A galaxy is a collection of many billions of stars, many of which have their own planets orbiting them.

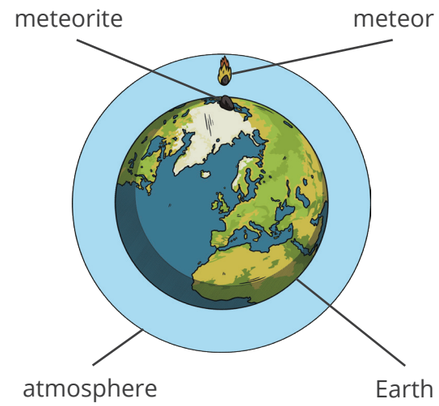
The **universe** is filled with many galaxies, all containing stars and planets.





Distances on astronomical scales (like those found across galaxies and the universe) are much larger than those on Earth. Therefore, **light years** are often used as the units to measure distance.

A light year is the distance that light can travel in one year (when in a vacuum).



smallest

meteor

meteorite

comet

asteroid

moon

planet

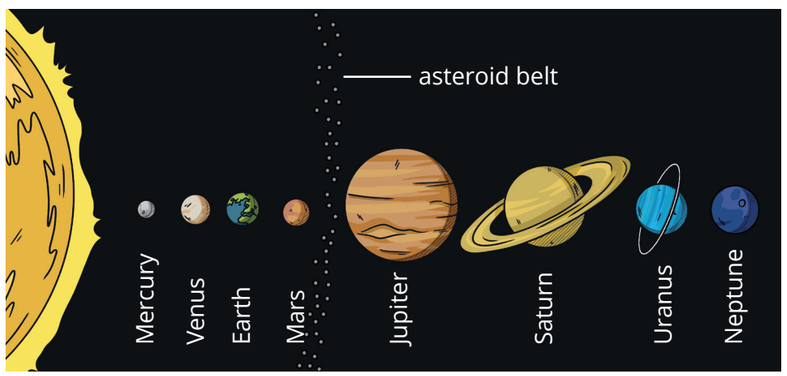
star

solar system

galaxy

largest

The Solar System



There are eight planets in the solar system. These eight planets can be grouped into different types.

- Mercury, Venus, Earth and Mars are known as **terrestrial (rocky)** planets;
- Jupiter and Saturn are known as **gas giants**;
- Uranus and Neptune are known as **ice giants**.

Gravity and Weight

Gravitational force (gravity) is an attractive force between objects with mass. The gravitational force between each planet and the Sun causes them to orbit the Sun.

An object's weight is force pointing to the ground, which is caused by a planet's **gravitational field strength**.

Each planet has a different gravitational field strength, so an objects weight is different on different planets.

You can calculate weight by using the equation:

weight = mass × gravitational field strength

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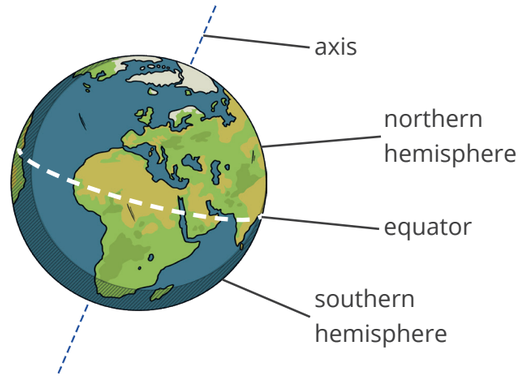
day	The time taken for a planet to make one full rotation on its axis. On Earth, one day is 24 hours.
daytime	The period of time between sunrise and sunset.
equator	The line that divides the Earth into the northern and southern hemispheres.
equinox	When the day and night are the same length. This occurs twice a year (once in spring and once in autumn).
month	The approximate time for the Moon to orbit the Earth.
night-time	The period of time between sunset and sunrise.
northern hemisphere	The half of the Earth above the equator.
seasons	Periods of time that the year is divided into, characterised by different weather patterns and daylight hours.
southern hemisphere	The half of the Earth below the equator.
summer solstice	The longest day of the year, when a hemisphere is at its maximum tilt towards the Sun.
winter solstice	The shortest day of the year, when a hemisphere is at its maximum tilt away from the Sun.
year	The time for the Earth to make one complete orbit around the Sun (365.25 days).

The Earth

Earth Facts:

- The Earth takes one year to orbit the Sun.
- The Earth rotes once about its **axis** every 24 hours.
- Half of the Earth is in sunlight (daytime), while the other half is in darkness (night-time).
- The Earth is divided into the **northern hemisphere** and the **southern hemisphere**, which are split by the **equator**.



The Earth is tilted on its axis, which causes the seasons. When a hemisphere is tilted towards the Sun, it experiences **summer** (warmer weather and longer days). When a hemisphere is tilted away from the Sun, it experiences **winter** (colder weather and shorter days).

The longest day of the year is the **summer solstice** and the shortest day is the **winter solstice**. Between these two days are the **spring** and **autumn equinoxes**, when the day and night are of equal length.