P1 Chapter 4: Space

Knowledge organiser

Space

A **galaxy** is a collection of billions of **stars**. The Earth is in the **Milky Way** galaxy.

Planets are large objects that orbit stars, and do not **produce** light.

Asteroids are rocky objects smaller than planets, that also orbit stars.

Satellites are objects that orbit planets. This includes **natural satellites** (moons) and **artificial satellites** (e.g., the International Space Station).

Meteors are bits of rock which burn up in Earth's atmosphere. They are called **meteorites** once they hit the ground.

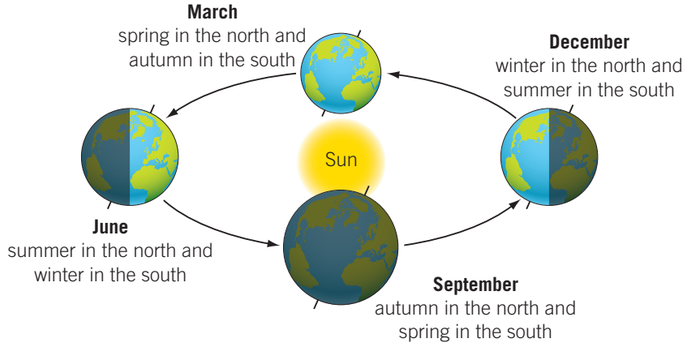
The Universe
contains billions of
Galaxies
contain billions of
Stars
are orbited by
Planets, asteroids, and comets
planets may have
Moons

The Earth

The Earth is the only place we have found life in the **Universe**.

It takes a **year** for the Earth to orbit the Sun - 365.2442 days. We add one day every fourth year (a leap year) because of the extra 0.2442 days.

The Earth's **axis** is tilted 23.4 degrees, which causes **seasons** (which have different day lengths and temperatures).

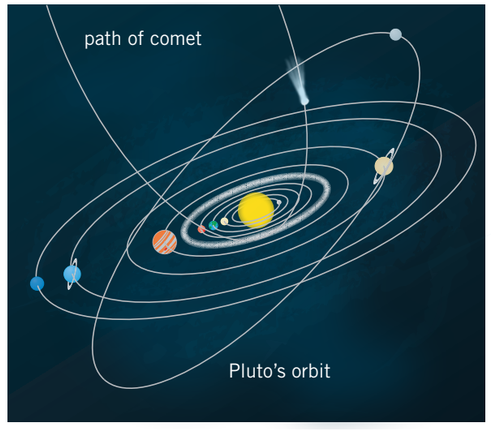


The Earth spins on its axis every 24 hours, giving us **day** and **night**.

The Solar System

Our **Solar System** is everything that orbits around the Sun. This includes:

- Inner planets – the **terrestrial** (rocky) planets
  - Mercury
  - Venus
  - Earth
  - Mars
- **Asteroid belt** (Including the **dwarf planet** Ceres)
- Outer planets **–** the **gas giants**
  - Jupiter
  - Saturn
  - Uranus
  - Neptune
- Kuiper belt objects (such as Pluto)
- **Comets** (balls of ice)



The further a planet is from the Sun, the colder its temperature is (apart from Venus, because of its thick atmosphere).

Gravity pulled gas and dust together to form the Sun about 5 billion years ago. The planets then formed from a spinning disc of gas and dust around the Sun.

An exoplanet is a planet that is orbiting a star that is not the Sun.

A group of stars is called a **constellation**. Different constellations are seen in winter and summer because the Earth is moving around the Sun.

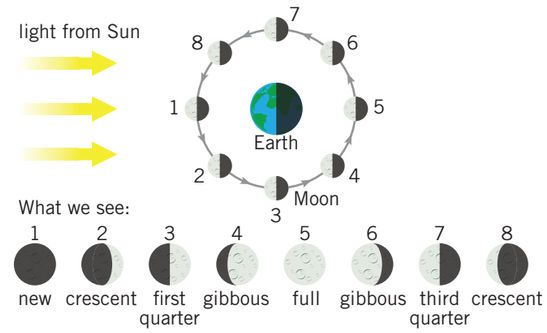
The Moon

The **Moon** orbits the Earth every 27 days and 7 hours.

It takes the same amount of time to spin on its axis, so we always see the same side.

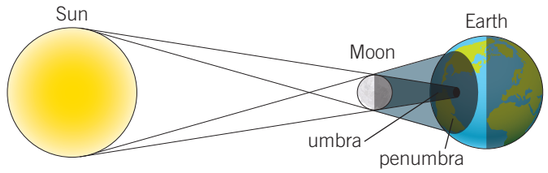
Phases of the moon

As the Moon moves around the Earth different parts are lit by the Sun, so it looks different to us.



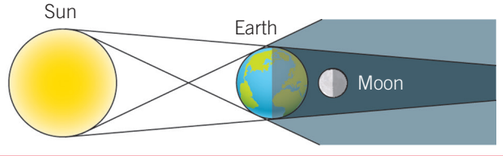
Solar eclipses

The Moon blocks light hitting part of the Earth. The **umbra** is the region of total darkness (like night), and the **penumbra** is where the light is partially blocked.



Lunar eclipses

The earth stops light hitting the Moon.



Key Words

Make sure you can write a definition for these key terms.

artificial satellite · asteroid · asteroid belt · astronomer · axis · comet · constellation · day · dwarf planet · ellipse · galaxy · gas giant · hemisphere · lunar eclipse · meteor · meteorite · Milky Way · Moon · natural satellite · night · partial solar eclipse · penumbra · phases of the Moon · season · Solar System · star · terrestrial · total solar eclipse · umbra · Universe · year