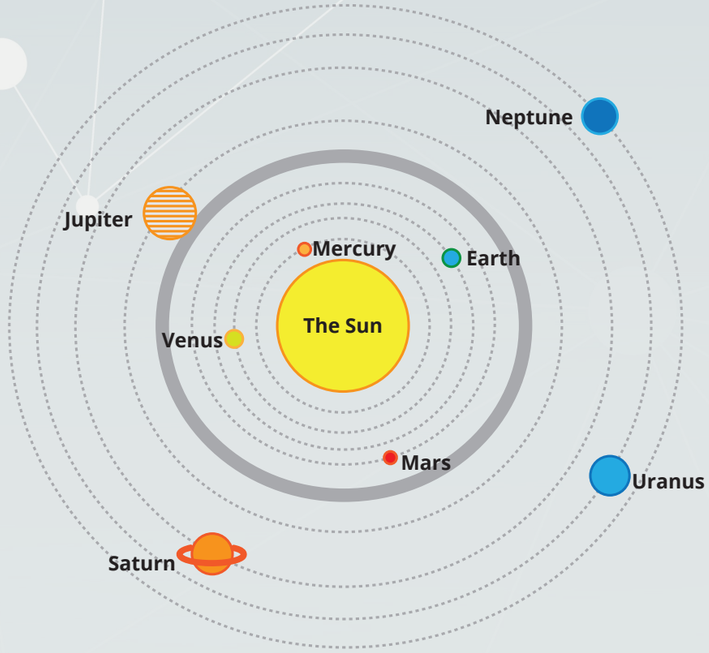
The Solar System (planetary system)
The solar system consists of a star (the Sun) and all the objects orbiting it, these include the planets, moons, dwarf planets, asteroids and comets.



The Sun is at the centre of the Solar System.

Planets orbit the sun, **moons** orbit planets.

The **asteroid belt** is a region between the orbits of Mars and Jupiter where there are thousands of rocky asteroids and dwarf planets.

A **dwarf planet** is a body similar to a planet but too small to be called a planet. Pluto is an example.

Comets are formed from ice and dust beyond the orbit of Neptune and have highly elliptical orbits.

Remember, the Sun is not the only star with planets, other stars have planets in their planetary systems.

Distances in space
As distances in space are so large it is impractical to use meters or km, therefore different units are used:
Astronomical unit = the mean **distance from the Sun to the Earth** (approximately 150 000 000km)
Light year = the **distance** light travels in one year.

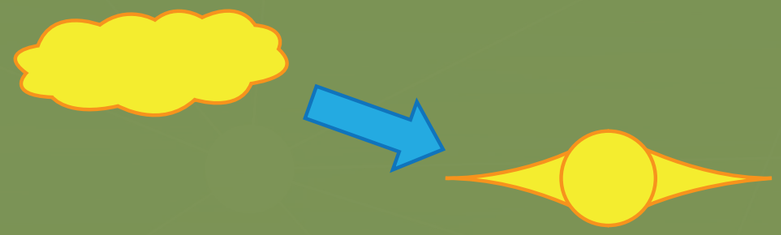
Planets in the Solar System

Planet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
Composition	Inner planets **Rocky** planets				Outer planets **Gas** giants			
Mas (relative to Earth)	0.055	0.815	1	0.107	318	95	15	17
Distance from the sun (AU)	0.4	0.7	1	1.5	5.2	9.5	19.2	30
Time for one complete orbit (years)	0.24	0.60	1	2	12	30	84	160
Temperature	430	465	20	-20	-150	-170	-200	-210
Number of moons	0	0	1	2	63	60	27	13

Although you will not need to remember the specific numbers above, you will need to **remember the order** and **recognise patterns** in the data. For example, as the distance from the Sun increases so does the time for one orbit.

Note: at the distance from the Sun increases the **temperature** decreases; **except for Venus** which has a thick atmosphere which keeps more heat in.

Formation of the solar system
The Solar System formed from a cloud of gas, mainly hydrogen and helium, and **dust ejected from a supernova. Gravitational forces** caused this cloud to collapse and the particles to collect together.



As the cloud collapsed it began to **spin**, this made it turn into a disk.

The centre of the disk became the Sun and the rest collected together to form the planets.

The **inner planets are rocky** because it was too close to the Sun for the **light gaseous** elements to condense and so the elements were **pushed further away** from the Sun.

The **outer planets are gaseous** because it is further from the Sun and the **gaseous elements were able to condense** and collect to form the gas giants.