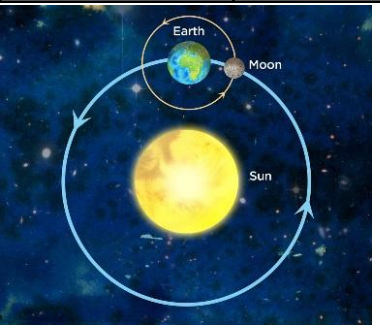
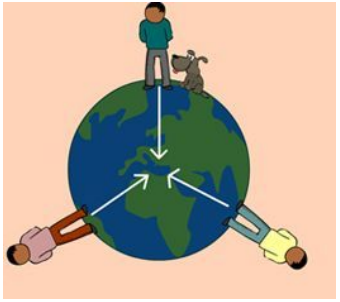
Science Department

KNOWLEDGE & VOCABULARY ORGANISER

Physics- Earth & universe



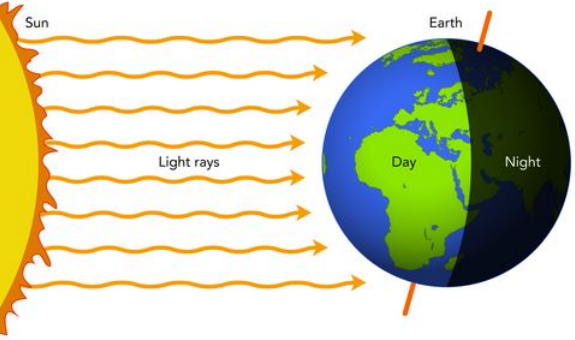
Gravity
The planets are held in their orbits by the force of the Sun's gravity. The Moon is held in its orbit around the Earth by the Earth's gravity. The Sun's gravity also holds dwarf planets and asteroids in their orbits. Comets orbit the Sun too.
Gravity always pulls things towards the centre of the mass making the gravity. So on Earth it pulls inwards towards the centre of the Earth



Weight and Mass
Mass is the amount of matter there is in something. It is measured in kilograms, kg.
An object's mass the same everywhere in the universe.

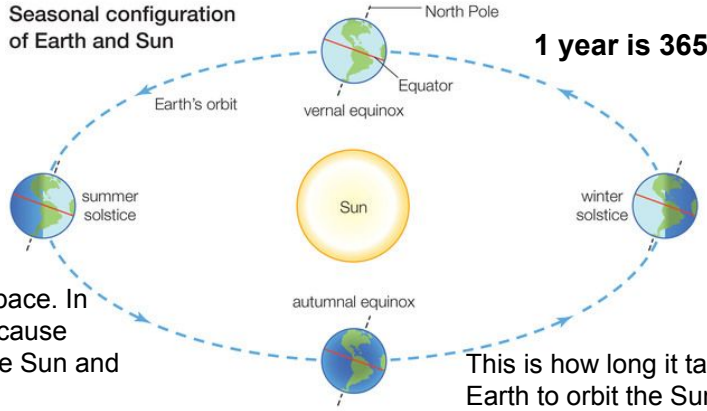
Weight is the force of gravity on an object and is measured in Newtons, N.
Gravity is not the same everywhere in the Universe. So, an object's weight depends on where it is.

Weight (N) = mass (kg) x gravitational field strength (N/kg)



Day and Night
The Earth rotates (spins) round on its axis once in **24 hours**. We spin into the light – day - and then back out again – night

The Earth's axis is tipped over in space. In Britain we get different seasons because sometimes we are tilted towards the Sun and sometimes away.



1 year is 365.25 days.

This is how long it takes the Earth to orbit the Sun once.

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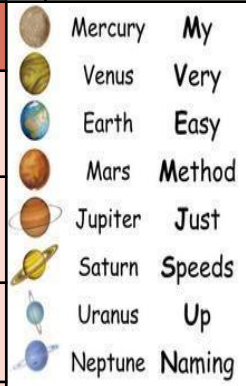
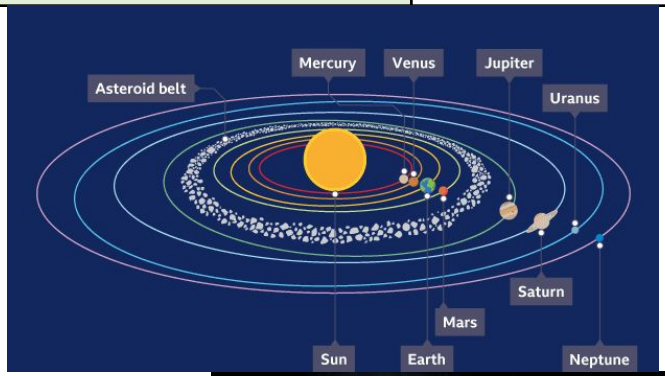
Keyword	Definition
Attraction	When two or more things come together, eg the north pole of a magnet is attracted to the south pole of a magnet.
Gravity	The force of attraction between all objects. The more mass an object has, the larger the force of gravity it exerts.
Mass	Amount of matter there is in something. Measured in kilograms, kg.
Orbit	An orbit is the path that an object takes in space when it goes around a star, a planet, or a moon.
Season	One of four times of the year (winter, spring, summer or autumn).
Solar System	The solar system consists of the Sun, with planets and smaller objects such as asteroids and comets in orbit around it.
Star	A large mass at the centre of a Solar System (if there are other bodies present) that produces heat and light, eg the star at the centre of our Solar System is called the Sun.
Weight	The force of gravity on an object. Measured in newtons, N.

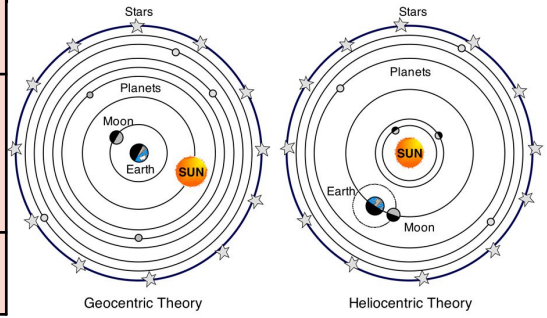


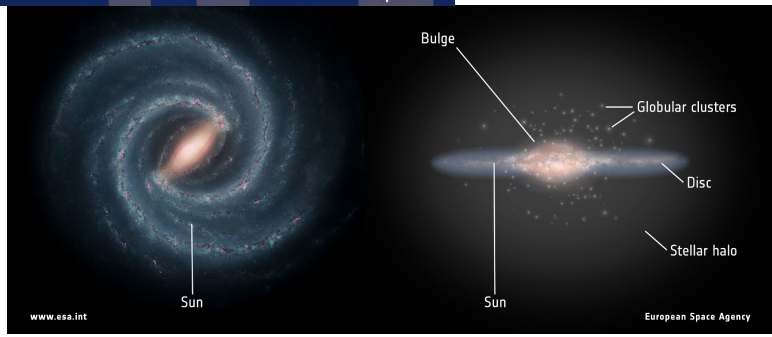
A way to remember the order of the planets.



Our Sun is at the center of our solar system. Our Sun is one of over 150 billion stars in the milky way galaxy. The milky way galaxy is one of an estimated 150 billion galaxies within the Universe

Once, we thought the Earth was at the centre of the Universe. This was called the Geocentric Model. We now know the Sun is at the center of our solar system, this is called the Heliocentric model





Our galaxy and the Universe is so big that we measure distance in "Light Years". 1 light year (ly) is how far light would travel in one year. Light travels 300,000,000m/s.
1ly is equal to: 300,000,000×365.25(days) ×24(hrs)×60(mins)×60(secs)
This is equivalent to almost 9.5 trillion kilometres.
The milky way galaxy is approximately 100,000ly across.