Earth and the Universe

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.
Magnetic Field	Area surrounding a magnet that can exert a force on magnetic materials.
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.
Repulsion	When two or more things are forced apart, eg the north pole of a magnet is repelled by the north pole of another magnet.
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.

Further Reading:
https://www.bbc.com/bitesize/topics/z8c9q6f
https://www.bbc.com/bitesize/guides/zysbgk7/revision/1
https://www.bbc.com/bitesize/guides/z3g8d2p/revision/1

Weight and Mass

Mass is the amount of matter there is in something. It is measured in kilograms, **kg.** An objects mass the same everywhere in the universe.

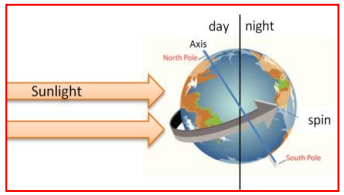
Weight is the force of gravity on an object. All forces including weight are measured in Newtons, **N.** Gravity is not the same everywhere. So, an object's weight depends on where in the universe it is.

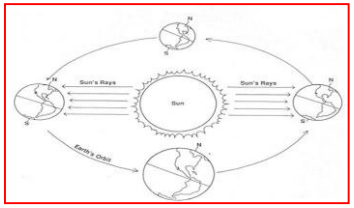
To work out the weight of an object we do some Maths. **Weight (N) = mass (kg) x gravitational field strength (N/kg)**

W = m x g

Day and Night

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





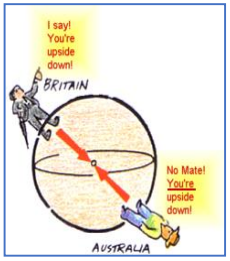
The Earth orbits the Sun ***once every 365 days***. Planets further out from the Sun travel more slowly and take longer to go round once. The Earth's axis is tipped over in space. In Britain we get different ***seasons*** because sometimes we are tilted towards the Sun and sometimes away.

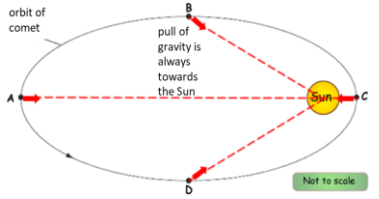
Gravity

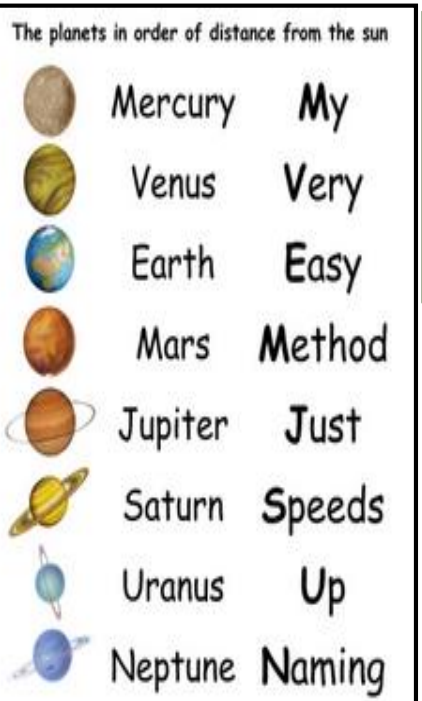
The planets are held in their orbits by the force of the **Sun's gravity**. The Moon is held in its orbit round the Earth by the Earth's gravity.

The Sun's gravity also holds dwarf planets and asteroids in their orbits. Comets orbit the Sun too. The Suns gravity pulls them in from beyond the orbit of Pluto. The **closer** they get to the Sun the **stronger the force of gravity** gets and the **faster they go.**

Gravity **always pulls things towards the centre** of the mass making the gravity. So on Earth it pulls down to the centre of the Earth.

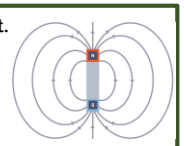


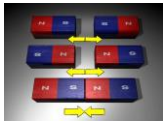




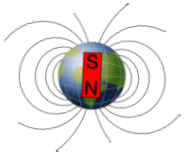
Magnetic material can be magnetised or will be attracted to a magnet. These metals are magnetic: ***iron, cobalt, nickel and steel.***

A magnet creates a **magnetic field** around it. The magnetic field is strongest at the poles, where the field lines are most concentrated.

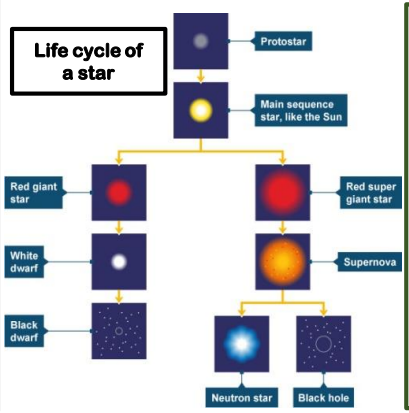




Unlike poles will **attract.**
Like poles will **repel.**



The ***Earth*** behaves as if it contains a giant magnet.



Earth Structure

Inner Core: Solid iron and nickel
Outer core: Liquid layer of iron and nickel
Mantle: classed as a liquid.
Crust: Land is made of **continental crust**, made mostly from ***granite.*** The layer beneath the ocean bed is made of **oceanic crust**, which is made mainly from ***basalt.***