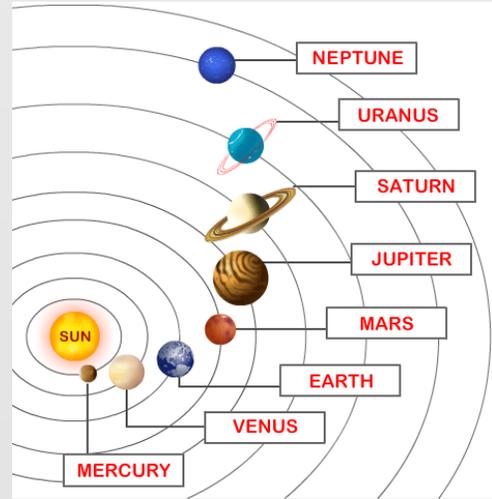


1) Our Solar System

- Solar system – where **planets orbit a star**
- The **Sun** is the **star** in our solar system



There are **8 planets** in our solar system.

Pluto is too small to be a planet and is now classed as a **dwarf planet**.

The force that holds objects in orbit is **gravity**.

Other things in our solar system:

- **Satellite** – an object that orbits a planet. Can be natural (e.g. a moon) or artificial (e.g. space station)
- **Asteroid** – huge lump of rock in orbit around a star that is not large enough to be classed as a planet
- **Comet** – a collection of ice, dust and small particles that have an elliptical orbit around a star

2) The Universe

- **Galaxy** – a collection of hundreds of billions of stars orbiting a supermassive black hole
- The **universe** contains about **100 billion galaxies**
- Our galaxy is called **The Milky Way** which has 100-400 billion stars
- Space is so big that we measure distance in **light years** and not miles or km.
- A light year is the **distance light travels in one year**
- 1 light year = 9.5 billion km

3) Mass and Weight

Mass – the **amount of matter** something is made of. It is measured in **kilograms (kg)**.

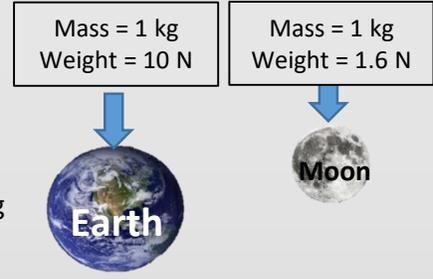
- Value of mass remains the same in all different locations

Weight – a downwards **force** acting on an object **due to its mass and the gravitational field strength**. It is measured in **Newtons (N)**.

- Value of weight changes if the gravitational field strength changes

$$\text{Weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/kg)}$$

For example: an object on Earth has a mass of 1 kg. The **gravity on Earth is 10 N/kg**. What is the object's weight?



- Weight = 1 kg × 10 N/kg
- Weight = 10 N

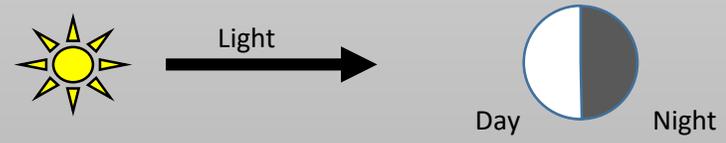
4) Investigating Craters

- **Independent variable** – what you **change**
- You can only change 1 variable at a time otherwise you won't know which one has affected your results
- **Dependent variable** – what you **measure**
- **Control variables** – what you **keep the same**
- **Repeatable** – if you do the same experiment again and you get similar results



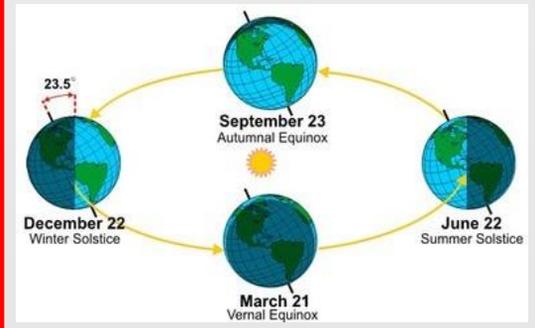
5) Day and Night

The Earth rotates on its axis once every 24 hours.



6) Seasons

The **Earth orbits the sun** once every **365 ¼ days**.

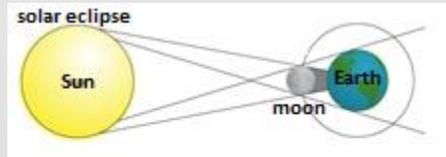


Seasons occur due to the **tilt** of the Earth on its axis.

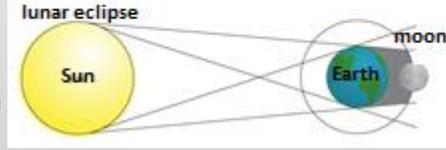
When the northern hemisphere is pointed towards the Sun it is summer in the UK. When the southern hemisphere is pointed towards the Sun it is winter.

7) Eclipses

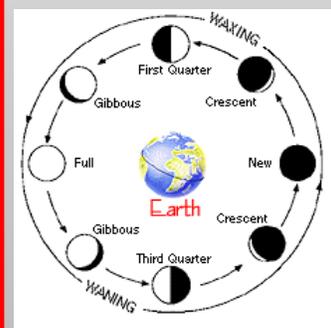
Solar eclipse – the moon blocks the sun and cast a shadow on the Earth.



Lunar eclipse – the Earth blocks the sun and casts a shadow on the moon.



8) Phases of the Moon



The moon does not produce its own light, it **reflects the light** from the Sun.

It takes the moon **28 days to orbit Earth**. We can't always see all of it, leading to phases of the moon.