



Year 3 Knowledge Organisers

Magnets and Forces

FORCES

Gravity – the force that pulls things to the ground. Gravity also holds Earth and other planets in their orbits around the sun.

Friction – friction is a force between 2 surfaces that are sliding or trying to slide across each other. Friction works in the opposite direction to which the object is moving. It slows down the moving object.

Smooth surfaces create less friction e.g. polished wood Rough surfaces create more friction e.g. carpet

DIFFERENT TYPES OF MAGNETS



U-shaped magnet



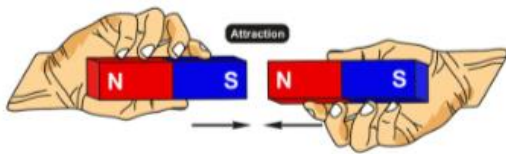
Bar magnet



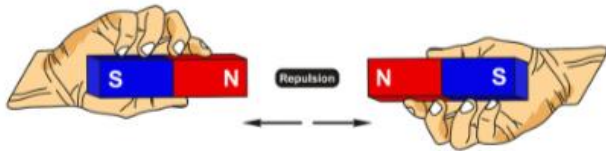
Ring magnet



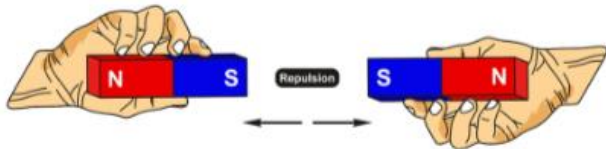
Horseshoe magnet



North and **South** attract.



North and **North** repel.



South and **South** repel.

Key vocabulary

Forces - Pushes or pulls.

Push - A push is a force that moves an object away.

Pull - When a force brings an object closer, that is a pull.

Attract - Attraction is a force that pulls objects together.

Repel - Repulsion is a force that pushes object away.

Magnet - An object that produces a magnetic force that pulls certain objects towards it.

Magnetic - Objects which are attracted to a magnet are magnetic.

Poles - North and south poles are found at opposite ends of a magnet.

Surface - The top layer of something

Friction - A force that acts between 2 surfaces or objects that are moving across each other

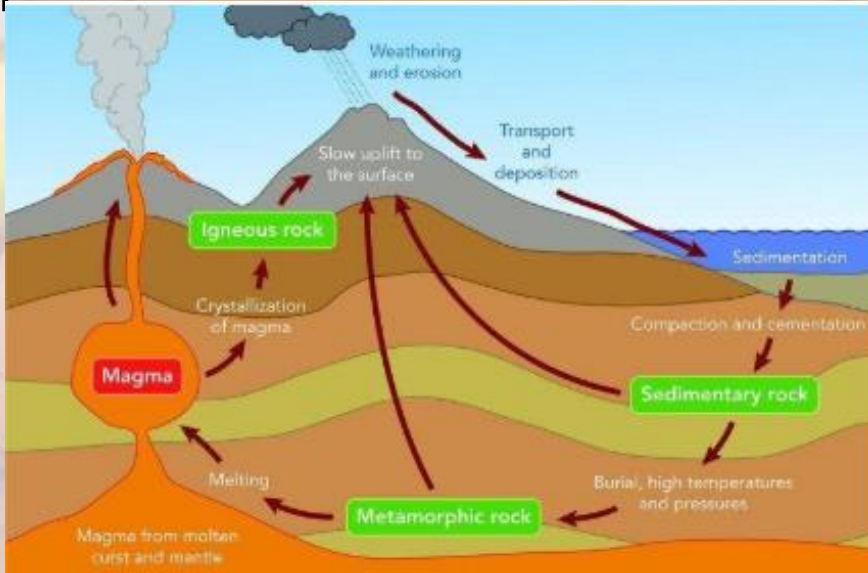
Rocks and Soils

Types of Rocks

Igneous rocks are very hard, dark and heavy. Examples: granite, basalt, obsidian.

Metamorphic rocks are rocks which have been changed over time by pressure or heat. Examples: slate, marble.

Sedimentary rocks are formed by sediment and compressed over a long period of time before it become solid layers of rock. Examples: sandstone, limestone, flint, chalk.



There are two main types of fossil:

Body fossils are the fossilised remains of a plant or animal.



Sedimentary	
sandstone 	limestone 
chalk 	Chalk is used for drawing because it is crumbly and soft.
Metamorphic	
quartzite 	slate 
marble 	Marble is good for gravestones because it does not rub away.
Igneous	
basalt 	pumice 
granite 	Granite is good for worktops because it is hard and does not absorb water.

Trace fossils are fossilised records of an animal's behaviour, for example a footprint.



Key vocabulary

Igneous - Rock that has been formed from lava or magma.

Sedimentary - Rock that has been formed by layers of sediment being pressed own hard and sticking together.

Metamorphic - Rock that started out as igneous or sedimentary rock but changed due to being exposed to extreme heat or pressure.

Magma - Molten rock that remains underground.

Lava - Molten rock that comes out of the ground.

Sediment - Natural solid material that is moved and dropped off in a new place by water or wind (e.g. sand).

Soil - The uppermost layer of the Earth. It is a mixture of: minerals; air; water; organic matter (living and dead plants and animals).

Permeable - Allows liquid to pass through it.

Impermeable - Does not allow liquid to pass through it (waterproof)

Fossil - The preserved remains or traces of a dead organism.

Fossilisation - The process by which fossils are made.

Palaeontology - The study of fossils.

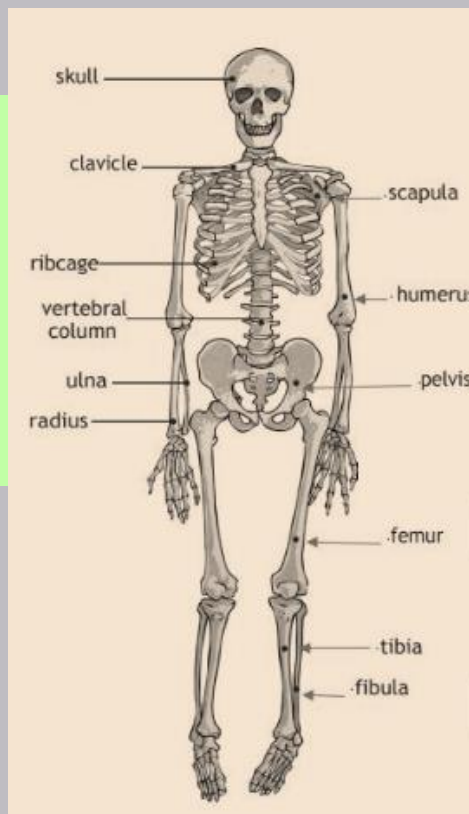
Skeletons and Muscles

Muscles

- Vertebrates are animals that have a **backbone**. These skeletons are called **endoskeletons** - this means that the skeletons are on the inside of the bodies. These skeletons grow with the bodies.



- When the **skeleton** exists outside the body, it is called an **exoskeleton**. An **exoskeleton** is a covering that supports and protects animals. These have to be shed and a new skeleton is grown.



Key vocabulary

Energy – created by food to keep cells in the body working.

Nutrition – substances found in food which sustain life.

Contract – the movement of a muscle when it moves part of the skeleton.

Skeleton – a structure made from bone which provides a rigid frame for the body.

Muscle – soft tissues which contract and relax to move the body.

Tendons – cords that join muscles to bones.

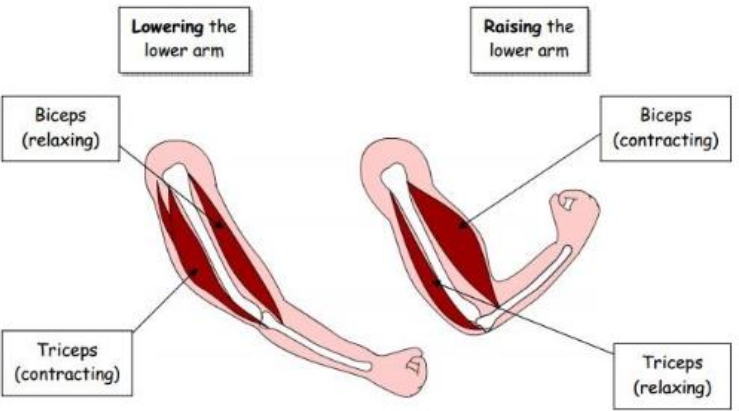
Joints – areas where two or more bones are fitted e.g. knee, elbow.

Healthy – when a living thing has all its basic survival needs met and is not unhealthy.

Basic survival needs – Animals, including humans, need water, food, and air to stay alive.

Exercise – activity like running and jumping which keeps animals, including humans, healthy.

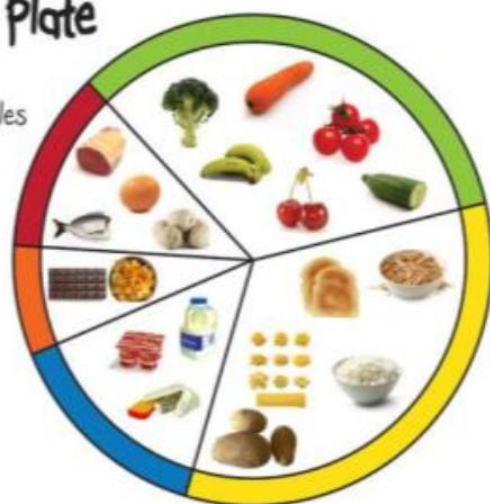
Food – substances which provide nutrients to keep a living thing alive. Plants can make their own food but animals, including humans, can't.



- Skeletons:**
1. Protect our organs
 2. Help us to move
 3. Support our bodies

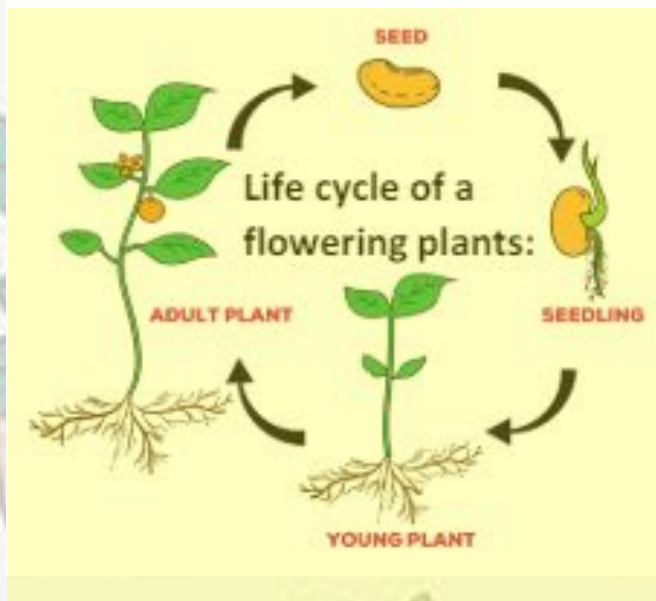
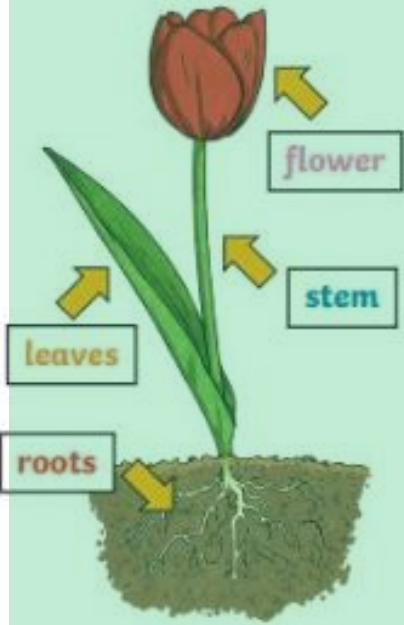
A Balanced plate

- Fruit and vegetables
- Grains, cereals and potatoes
- Dairy products
- Meat, fish, nuts and eggs
- Fats and sugars



Plants

Parts of a plant:



Key vocabulary

Roots - These anchor the plant into the ground and absorb water and nutrients from the soil.

Stem - This holds the plants up and carries water and nutrients from the soil to the leaves. A trunk is the stem of a tree.

Leaves - These make food for the plant using sunlight and carbon dioxide from the air.

Flowers - These make seeds to grow into new plants. Their petals attract pollinators to the plant.

Petal - The brightly coloured part of the flower that attracts insects to pollinate the plant.

Nutrients - These substances are needed by living things to grow and survive. Plants get nutrients from the soil and also make their own food in their leaves.

Dispersal - Spreading things out over an area. In the context of plants – how seeds moved from one place to another.

Pollination - When pollen (a fine powdery substance produced by a flowering plant) is moved from the male anther of a flower to the female stigma.

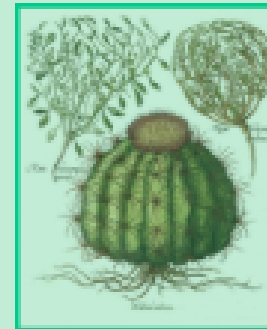
Germination - When a seed starts to grow.

Fertilisation - When the male and female parts of the flower have mixed in order to make seeds for new plants.

What does a plant need to grow?

1. Water is absorbed from the soil by the roots.
2. Water then moves up the stem to the leaves.
3. Water evaporates from the leaves.
4. Evaporation causes more water to be sucked up the stem.

- Water
- Light
- Nutrients from soil
- Air
- Room to grow



Light

Sources of light

Sources produce their own light that travels in straight lines.



Reflection

When light hits an object, it bounces off of it. The object **reflects** the light.

Shiny or light-coloured objects reflect more light than darker objects.



Light safety

The light from the sun produces **UV rays**. These can damage our eyes if we look directly at the sun.



We can protect our eyes by wearing sunglasses in bright light environments.

Shadows



Shadows are formed when the light from a light source is blocked by a opaque object.

Shadows change shape, direction and shade depending on the position of the light source or object.

Key vocabulary

Transparent – A material that allows light to pass through it.

Opaque - A material which is not able to be seen through because it absorbs light.

Translucent - A material which allows some light to pass through it, but through which shapes are not clear.

Reflection - An image seen in a mirror; it happens due to a change in direction of the light wave.

Fluorescent - A brightly coloured reflective surface - often used by cyclists.

Ultraviolet (UV) rays - Short light waves made by the sun, which are harmful to our skin.

Periscope - A long tube-like object which contains mirrors at certain angles so an object can be seen around corners.

Shadow - A dark shape made on a surface when an object blocks light.

Sun protection - Something which prevents or reduces the effect of the sun i.e. sun hat, sunglasses, sun cream.