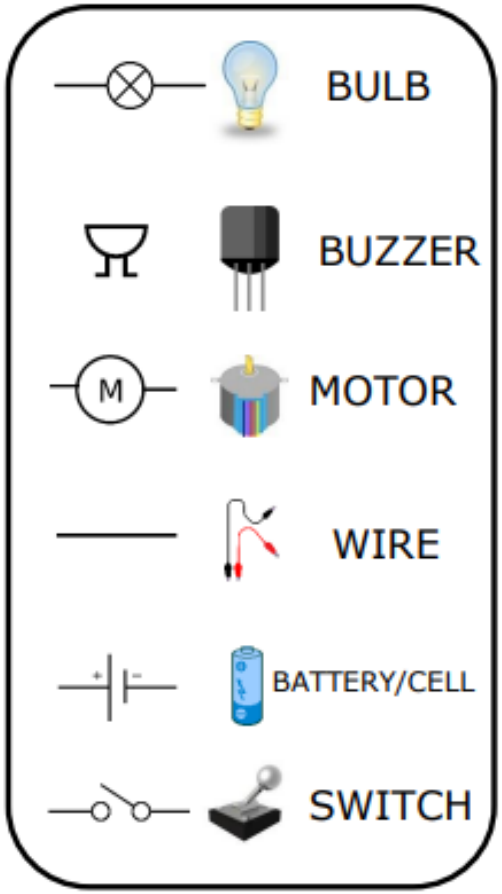

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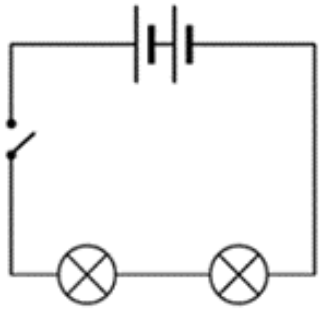
Electricity



This circuit will not work because the switch is open. A circuit must be complete to work. It must also always have a battery/cell .

An electrical <u>conductor</u> lets electricity pass through. They are often metals but it also includes water.

An electrical <u>insulator</u> does not let electricity pass through.

Mains vs Battery Powered Appliances

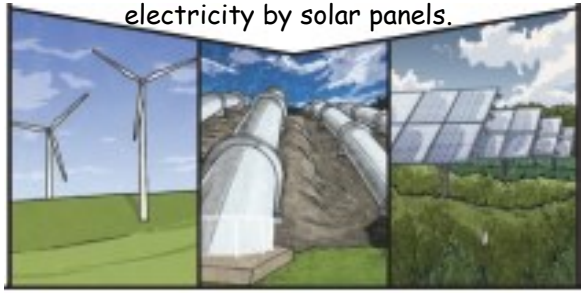
CIRCUITS

1.) If you make the wires longer, the bulb will get dimmer.

2.) If you add more bulbs, the bulbs get dimmer.

3.) If you add more batteries, the bulbs will get brighter.

Electricity can be generated from wind power used to turn windmills and hydroelectric power from water used in dams. The Sun's rays can be converted into electricity by solar panels.

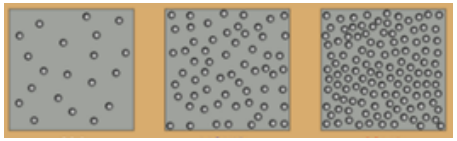


<u>DANGER! HIGH VOLTAGE!</u>
Electricity is everywhere so always be safe. Be careful of mains switches, open sockets and any signs to do with electricity. The human body is 80% water so it conducts electricity. If someone has had a shock always turn the electricity off first, then call for help!

VIBRATIONS

Sound is made when an object vibrates and therefore causes the air around it to vibrate too. These vibrations are carried to your ear for you to hear them.

Sound vibrations can travel through different materials:



Gases Liquids Solids

The louder the volume, the bigger the vibrations

Sounds travel in a <u>wave</u>. The vibrations make air particles closest to the object vibrate, which then passes the vibrations to the particle next to it and so on—like dominoes falling!

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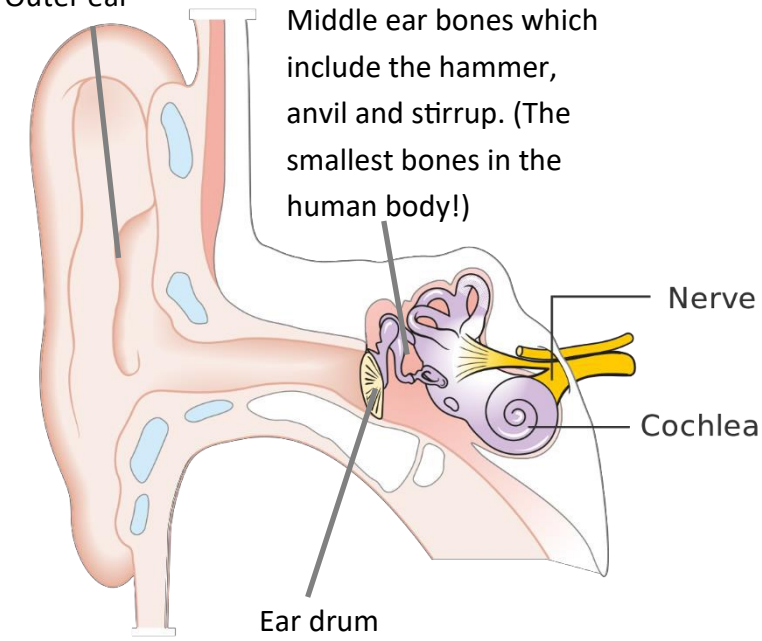
Sound



DID YOU KNOW?

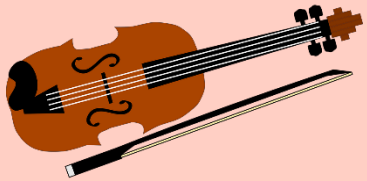
Sounds get fainter (quieter) as the distance from the sound source increases.

PITCH

The pitch of a sound is how high or how low it sounds. A high pitch has a high sound and a low pitch has a low sound.

Stringed Instruments

Tighter, thinner or shorter strings make higher pitches. Faster vibrations make pitches high and slower vibrations make pitches low.



Wind Instruments

The column of air inside the instrument causes it to vibrate. Shortening this makes a higher sound, lengthening it makes a lower sound.

Percussion Instruments

The surface is struck and it therefore vibrates. Smaller instruments have higher sounds (smaller keys of a xylophone, hand bells etc.). The tighter or thinner the skin on a drum, the higher the pitch.

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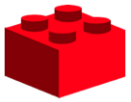
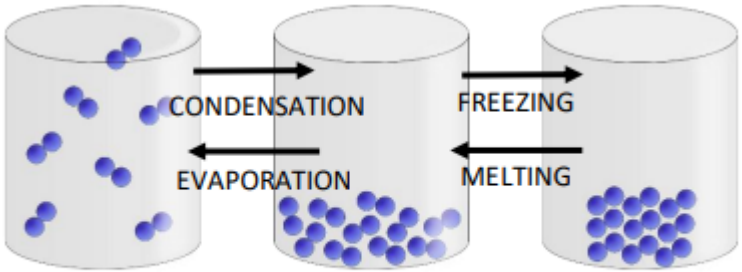
States of Matter

Melt	This is when a solid changes to a liquid.
Freeze	Liquid turns to a solid during the freezing process.
Evaporate	Turn a liquid into a gas.
Condense	Turn a gas into a liquid.
Precipitation	Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow .

Solid	Liquid	Gas
		
KEEPS it's shape	TAKES the shape of it's container	FILLS it's container

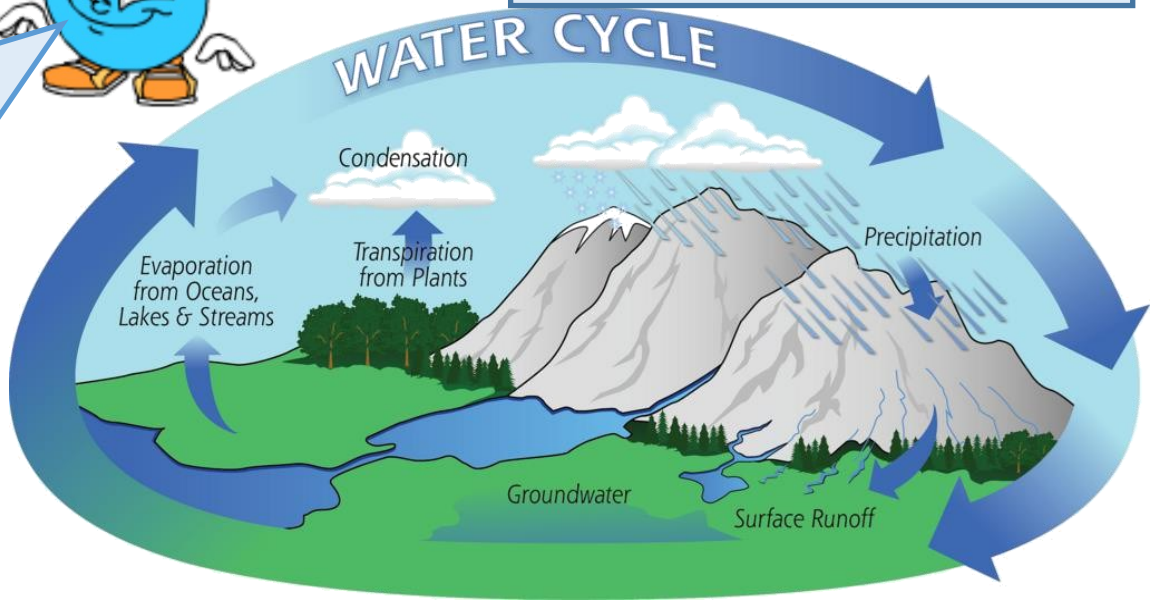


FEATURES

Solids hold their shape. (Salt, sand and sugar are tiny solids so they pour like a liquid but they pile up and are not wet.)

Liquids form a pool not a pile!

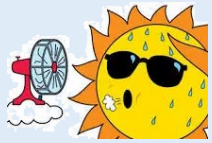
Gases escape from an unsealed container and fill the entire volume of space.



CHANGING STATES

Solids, liquids and gases are called the three states of matter. Materials can be changed from one state to another by heating or cooling.

Heating



If ice (solid) is heated, it changes to water (liquid). This change is called melting. Water (liquid) can change to water vapour (gas). This is called evaporation. • If water (liquid) is heated until it boils, it changes to water vapour (gas) very quickly. Water boils at 100°C.

Cooling

If water vapour (gas) is cooled, it changes to water (liquid). This change is called condensing. If water (liquid) is cooled, it changes to ice (solid). This change is called freezing. Water freezes at 0°C.

MRS NERG

M.R.S. N.E.R.G. is a useful way of remembering the necessary features of a living organism.

MOVEMENT

It can change its position.

RESPIRATION

It releases energy from a food source.

SENSITIVITY

It responds to things (e.g. light).

NUTRITION

It consumes chemical material / food.

EXCRETION

It can get rid of waste products.

REPRODUCTION

It can make copies of itself or produce offspring.

GROWTH

It can develop and get larger.

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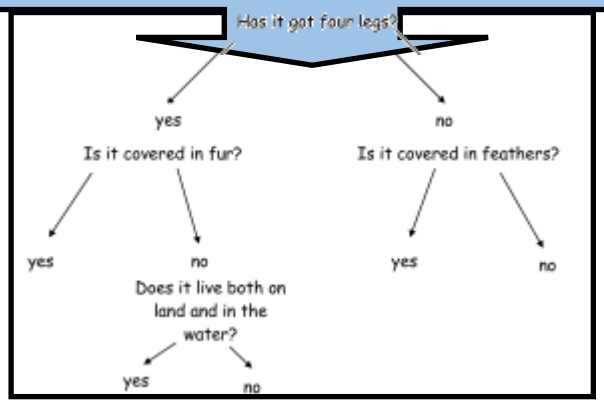
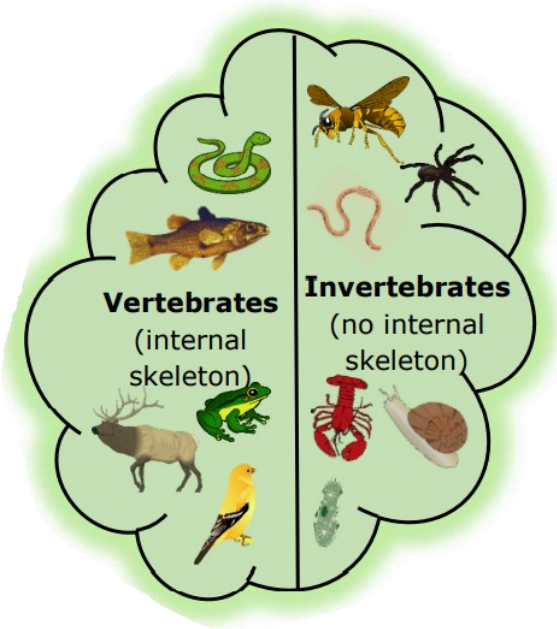
Classification

Classification keys are a series of questions that help us understand more information about an organism's physical characteristics.





Habitats can change over time, which can cause difficulties for animals and plants. This can be down to natural changes like seasonal temperatures and rainfall. Other habitat changes are man-made for example harvesting fossil fuels, dredging rivers and building on habitats by humans.

Man-Made Threats to the Environment

1.) Air pollution – Petrol and diesel used to power motor vehicles release carbon monoxide – a poisonous and harmful chemical. The burning of fossil fuels contribute to environmental damage too.

2.) Water pollution – Industrial waste and run-off from farming, which often uses fertilisers, can pollute rivers and streams.

3.) Deforestation – People have been cutting down trees for thousands of years. Experts estimate that about 1.3 million square kilometres of land is deforested every 10 years. There are many problems caused by deforestation including global warming, erosion and loss of habitat.

Groups of Living Organisms

Mammals - warm-blooded, have hair on their bodies, parents care for the young, females produce milk for their babies, breathe through lungs, most are terrestrial (live on land) though some are aquatic (live in sea).

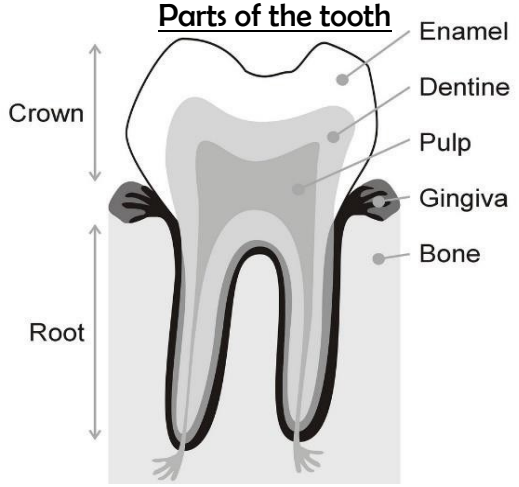
Birds - warm-blooded, most can fly, have feathers and wings, most build nests, hatch from eggs, most baby birds must be fed by parents and cared for until they can survive on their own (though some, like baby chickens and quail, can search for food a few hours after hatching)

Fish - aquatic animals, breath through gills, coldblooded, most have scales, most develop from eggs that the female lays outside her body

Amphibians - live part of their life cycle in water and part on land, have gills when young, later develop lungs, cold-blooded, usually have moist skin.

Reptiles - hatch from eggs, cold-blooded, have dry, thick, scaly skin .

Parts of the tooth



Enamel: The visible part of the tooth. It is harder than bone and protects the tooth.

Dentin: Found underneath the enamel and is similar to bone.

Pulp: Found in the centre of the tooth and is full of blood vessels and nerves. It supplies the tooth with nutrients.

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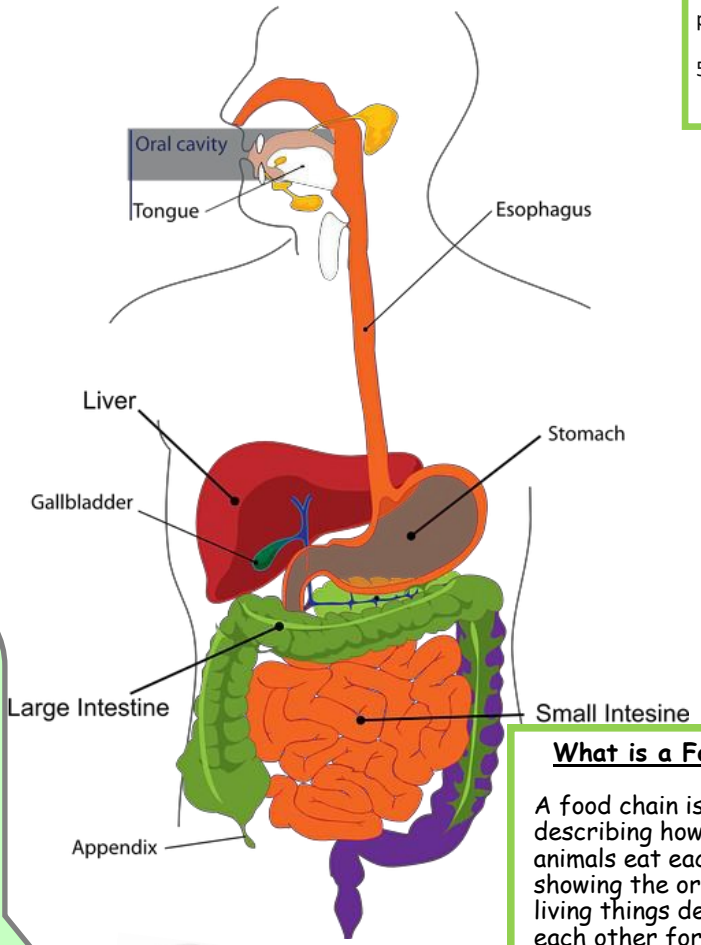
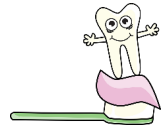
Teeth and the Digestive System



1.) Tooth decay is the destruction of your tooth enamel.

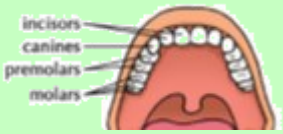


2.) It can be a problem for children, teens and adults.

3.) Plaque, a sticky film of bacteria, constantly forms on your teeth.

4.) When you eat or drink foods containing sugars, the bacteria in plaque produce acids that attack tooth enamel.

5.) Tooth ache and bad breath are symptoms of tooth decay.



INCISORS – At the front of the mouth and used for biting.

CANINES – Sharpest teeth. Next to incisors and used for tearing. Sharp and pointed in predators for killing prey.

PREMOLARS – Flat, wide and used for chewing towards the back of the mouth.

MOLARS – At the back of the mouth. Used for chewing and grinding food. Wide and flat in shape, including wisdom teeth at the back which appear in adulthood.

Parts of the Digestive System

Mouth – Where food first enters the body. It is chewed and mixed with saliva, then swallowed.

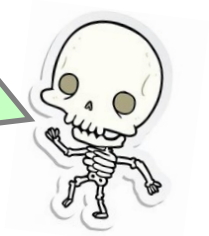
Teeth – Used to break food into smaller pieces making it easier to swallow.

Oesophagus – Tube of muscle which connects the mouth to the stomach.

Stomach – Food is mixed with stomach acid and broken down to form a liquid.

Intestines – Liquid from the stomach passes into the small and large intestines. This is where nutrients and water we need is passed into the blood stream and transported around our body

Rectum – Any waste we do not need is stored here until it is ready to leave the body.



What is a Food Chain?

A food chain is a sequence describing how different animals eat each other, showing the order in which living things depend on each other for food. There are four different categories of organisms in the food chain: **producers**, **consumer**, **prey** and **predators**.