

ANIMALS INCLUDING HUMANS

Circulatory system

The circulatory system is made up of the heart, veins, lungs, arteries and blood which transport substances around the body.

Blood carries water and nutrients from food that are used for energy, health and growth around the body.

The circulatory system pumps blood from the heart to the lungs, back to the heart and onto the rest of the body in a figure of 8 system.

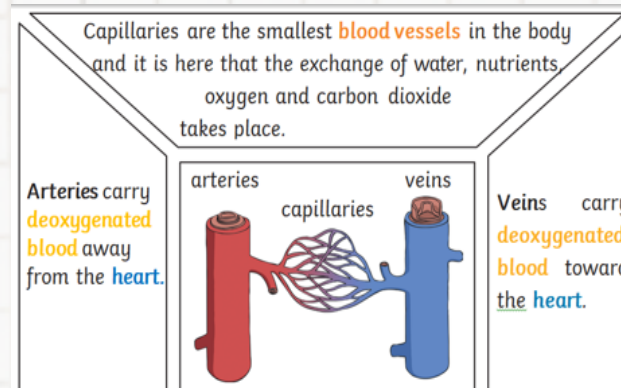
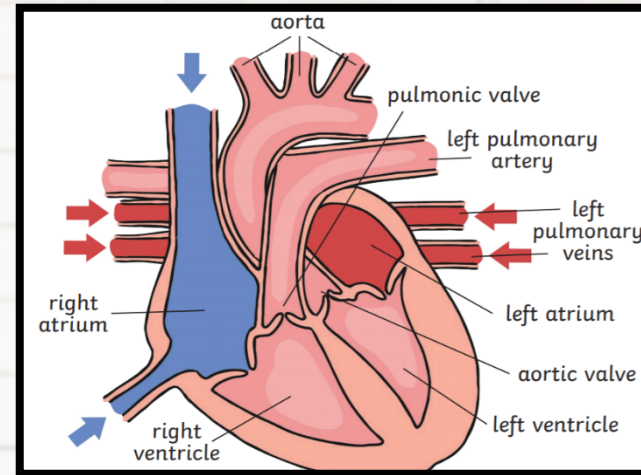
Blood passes through each side of the heart separately in one circuit.

The heart is a muscle.

It has two separate sides. One side pumps blood full of oxygen from the lungs, the other side pumps bloody with the oxygen used up from the body. There are four parts of the heart - valve, left ventricle, right ventricle and atrium.

Arteries are blood vessels that carry blood away from our heart.

Veins carry the blood from the rest of the body, back to the heart.



Blood vessels

Blood carries water and nutrients from food that are used for energy, health and growth around the body.

Muscles need oxygen to release food to do their work.

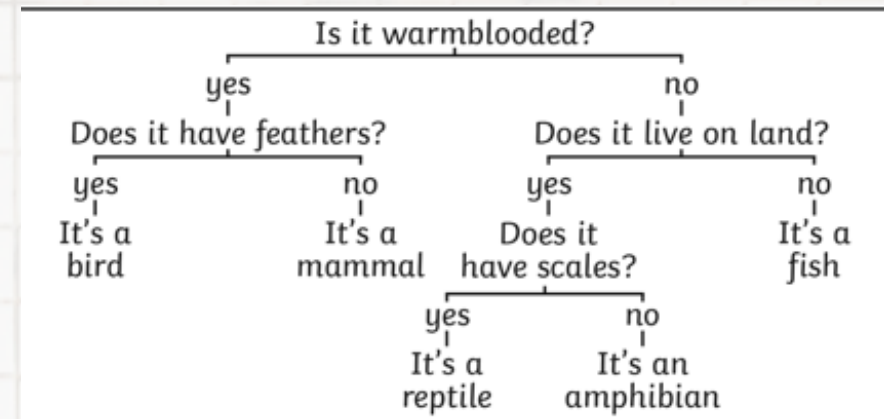
Oxygen is taken into the blood from the lungs. The heart pumps blood from the blood vessels to the muscles. The muscles take oxygen and nutrients from the blood. Blood vessels (veins and arteries) transport oxygen, water and nutrients around the body.

LIVING THINGS

Grouping living things

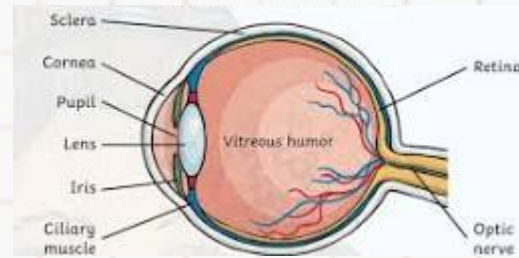
Living things can be grouped, classified and identified.

- *There are three kingdoms of living things: animals, plants, minerals.*
- *These kingdoms can be sorted into smaller groups or levels known as the Linnaean System: domain, kingdom, phylum, class, order, family, genus, species.*
- *The Linnaean system was created by Carl Linnaeus as a standard system for classifying animals.*
- *Taxonomy is the classification of living and extinct organisms.*



LIGHT

Functions of the eye



Cornea- (transparent) allows light to enter the eye.

Lens- focuses light onto the retina.

Pupil- a hole through which light passes to enter the eye.

Iris- contracts and relaxes to control the amount of light entering the eye.

Retina- the lining of the back of the eye which contains light receptors.

Ciliary muscle- can change the shape of the lens to help focus light on the retina.

Optic nerve- bundles of neurons which carry impulses from the eye to the brain.

How light travels

Light appears to travel in straight lines.

A shadow is always the same shape as the object that casts it. This is because when an object is in the path of light travelling from a light source, it will block the light rays that hit it, while the rest of the light can continue travelling.

Light travelling in straight lines can be used to explain why a shadow is the same shape as the object that casts it and how the shape of shadows can be changed.

How light is reflected

Light travels in a straight line at 160,000mps.

When light hits a shiny, polished surface it is reflected and bounces off.

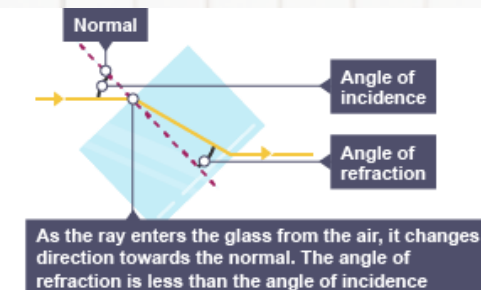
We can see a light source because some of the light from the source enters our eyes.

We can see objects because they reflect some of the light that falls onto them into our eyes.

Periscope- A simple periscope is a tube with a mirror at either end. The mirrors need to be positioned so that the light is reflected from the mirror at one end, down the tube to the other mirror, then out of the tube to the observer's eyes.

Refraction

Refraction is the bending of light and uses prisms, mirrors and rainbows.

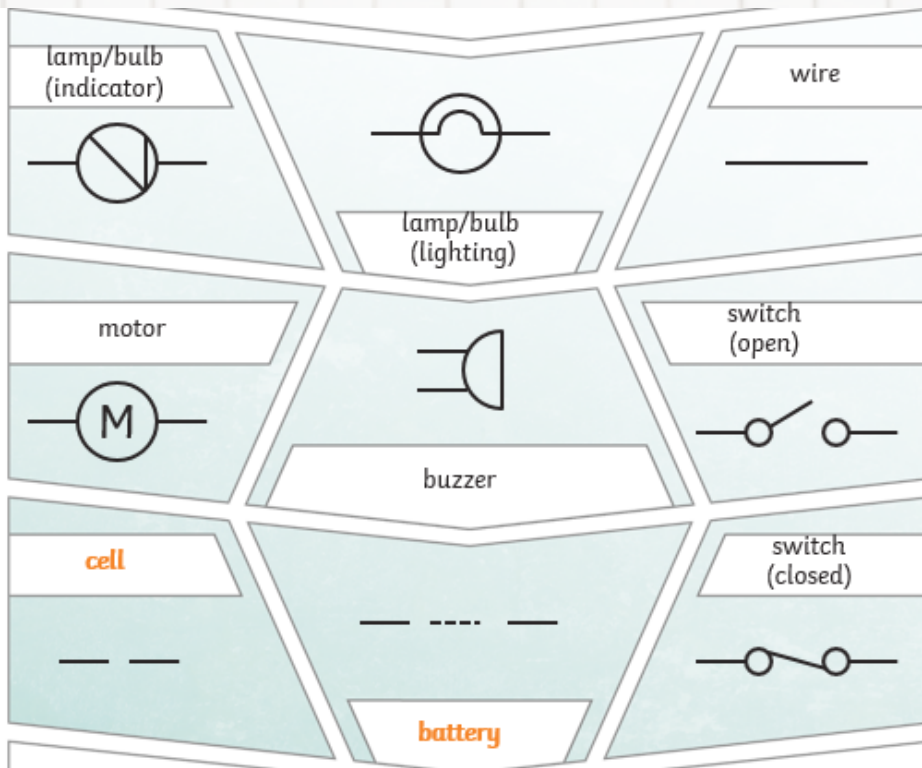


ELECTRICITY

Circuit components

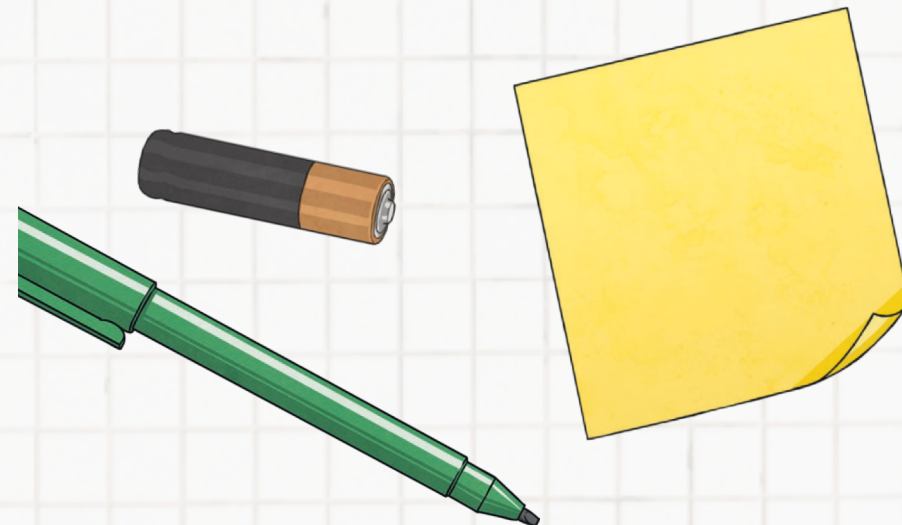
Batteries are a store of energy. This energy pushes electricity around a circuit.

A current is the steady flow of electrons.



Changing the brightness of the lamp and volume of the buzzer

- The number and voltage of cells in circuit links to the brightness of a lamp and the volume of a buzzer.
- The longer the wire the duller the buzzer noise would be.
- The more batteries used the brighter the lamp as it will push the electricity around faster.
- A lamp gets dimmer if thinner wires are used.
- When the battery's energy is gone it stops pushing. Voltage measures the push. Voltage is the force that makes the electrical current flow.



EVOLUTION AND INHERITANCE

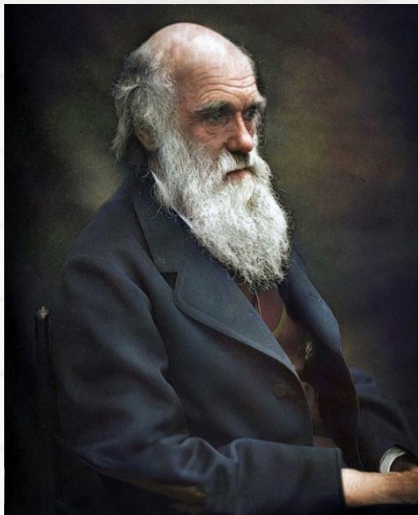
Inherited and environmental factors in offspring

- *Inheritance is the process of passing on characteristics from parents to offspring.*
- *Normally offspring are not identical to their parent-variation.*

Charles Darwin

Charles Darwin came up with theory of natural selection, noticing that every species in the world was competition with another.

Evolution is the way living things have changed over time.



Adapting to environments

Adaptation is how living things suit their environment. e.g. an African elephant lives in a large habitat and has large ears that it flaps to keep cool. A polar bear lives in a cold habitat and has thick fur to keep warm.

Plants also adapt as well as humans e.g. cacti adapt for survival in the desert. They have long roots which can store water for a long period of time.

Adaptation may link to evolution- the process where over time one species develops into another.

Evolution is the way living things have changed over time.

If all animals of the same species die out, then they become extinct.

Over time environments can change which can affect the animals living there. They need to change to suit their environment.

Fossils

Recognise that living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago.

