

VOCABULARY

Heart- the organ in your chest that pumps the blood around your body.

Blood vessels- the narrow tubes through which your blood flows include the arteries, veins and capillaries.

Blood- this is pumped by the heart and supplies the body with nutrients and oxygen.

Veins- blood vessels that carry blood to the heart.

Arteries- blood vessels that carry blood away from the heart.

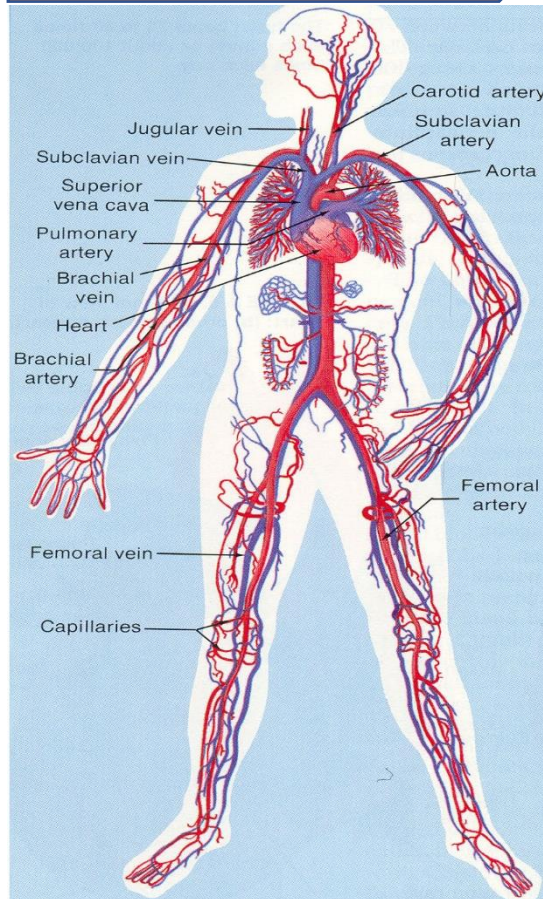
Capillaries- microscopic blood vessels found in the muscles and lungs.

Oxygen- a colourless gas that exists in large quantities in the air. All plants and animals need oxygen in order to live.

Lungs- two spongy organs inside the chest which fill with air when you breathe in.

Carbon dioxide- is a gas produced by animals and people breathing out.

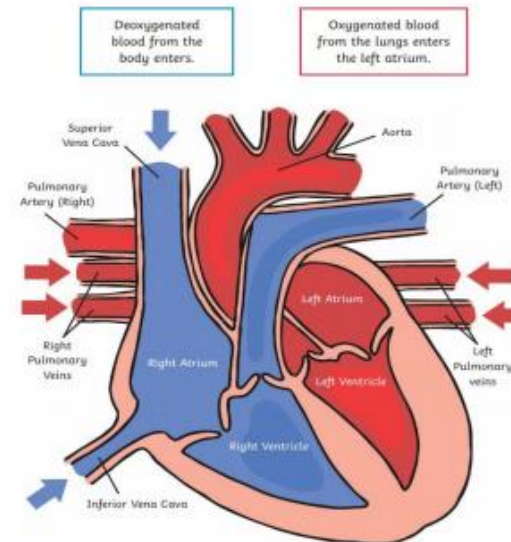
The Circulatory System



The circulatory system is the system that circulates blood through the body.



The Heart



It is about the size of your fist and located in the front and middle of your chest, behind and slightly left of your breastbone.

It works as a pump forcing blood around the body. The heart is mainly muscle and it works from the moment you are born until death. It works harder when you exercise.

- Deoxygenated blood flows into the heart from the body through veins.
- This blood is pumped out to the lungs through the pulmonary artery.
- Blood returns to the heart through the pulmonary vein.
- The oxygenated blood is then pumped out of the heart through the aorta.
- The blood travels around the body delivering oxygen and nutrients to the organs.

Year 6 Animals including Humans

Santorio Santorio
29. 03.1561 –
22.02.1636



Italian physiologist, physician and professor who was the inventor of many medical devices. He invented the clinical thermometer in 1612 and a pulse clock in 1602.

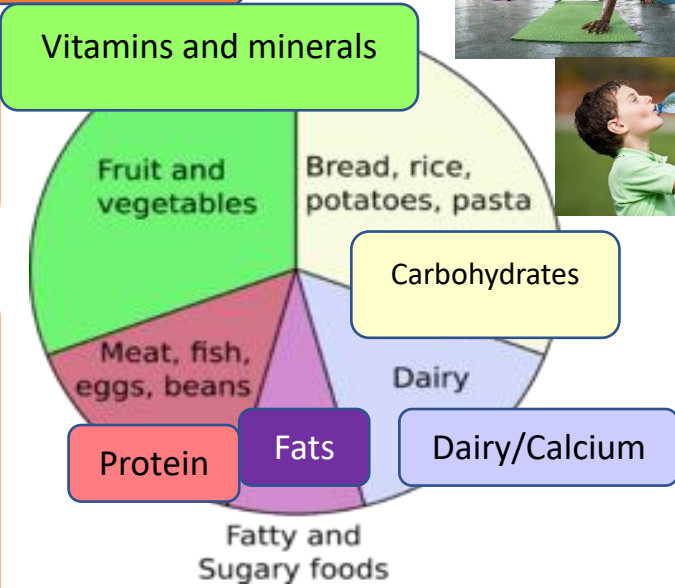
We measure our heart rate through our pulse. We record this at beats per minute.



Diet and Lifestyle

Fatty rich foods can clog arteries and veins, preventing blood from delivering what is needed.

Eating a balanced diet is important. Our diet is made up of five food groups; vitamins and minerals, carbohydrates, protein, dairy and calcium and fats. Eating too much or too little of a food group can make us ill.



Exercise, taking the correct medication, water, hygiene and sleep are all important for maintaining a healthy lifestyle.


Medicines and Drugs

How Does Smoking Affect the Heart and Lungs?

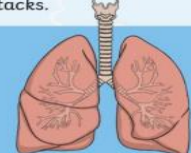
As there is less oxygen in the blood, the heart starts to beat faster to create more oxygen to pump round the body.

This means that the heart is working harder than it normally does (sometimes up to 30% harder).

The longer a person smokes, the more fatty deposits build up in their blood vessels. This can cause problems like heart attacks.



The poisons and smoke in cigarettes also cause problems for the lungs. These problems can be as simple as a chesty cough or as serious as cancer.



Alcohol and other drugs (not prescribed by the doctor) can affect the way the brain works. These disruptions can affect mood and behaviour and make it harder to think clearly and move with coordination. Alcohol goes straight into the blood stream and travels to your kidneys, lungs and liver.



VOCABULARY

Light- Light is a type of energy that makes it possible for us to see.

Source of light- The sun and other stars, fires, torches and lamps all make light are examples of light sources.

Reflection- Reflection occurs when a light ray hits a surface and bounces off.

Visible spectrum- The range of colours we can see with our eyes.

Prism- A prism is a 3d shape with identical ends, called bases and flat sides called faces. A prism allows us to see the visible spectrum.

Shadow- A dark area of shape produced by an object coming between rays of light and a surface.

Opaque- An opaque material does not let light through. It does not reflect light.

Translucent- A translucent material lets light pass through, but objects on the other side cant be seen clearly.

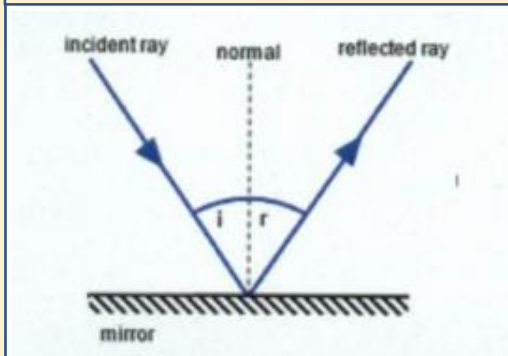
Transparent- Transparent materials allow you to see clearly through them.

Refraction- Light changes direction when passing through two different mediums.

Light

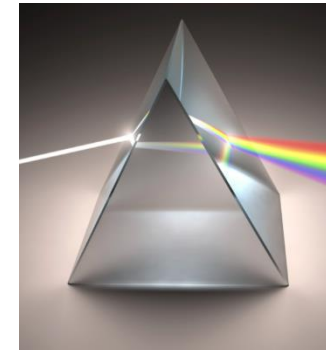
Light is a form of energy that enables us to see.

Reflection



Light travels in straight lines. It reflects off mirrors according to the law of reflection which states that the angle of incidence (i) = angle of reflection (r).

Prism

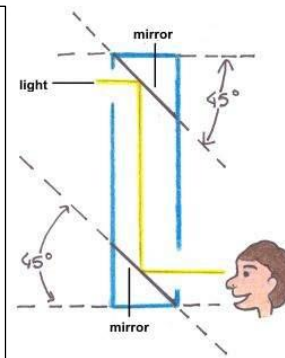


Light appears colourless (or white), when produced by natural light sources such as the sun or artificial light sources such as light bulbs or torches. White light is made up of a spectrum of colours with different wavelengths: red, orange, yellow, green, blue, indigo and violet.

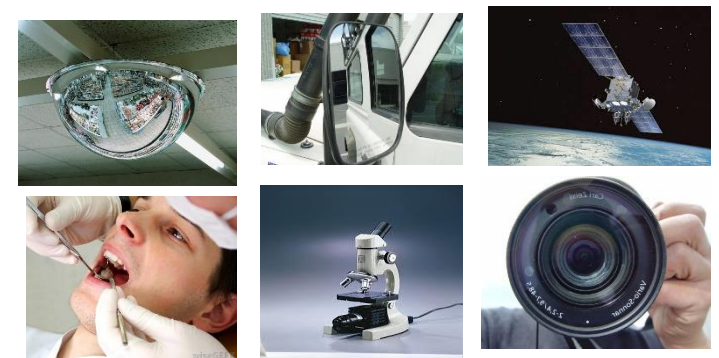
Periscopes



Light from an object strikes the top mirror at 45° and bounces off at the same angle. This sends light directly down the tube and onto the lower mirror. This mirror is also at 45° which reflects light into your eye.



Mirrors in real life.

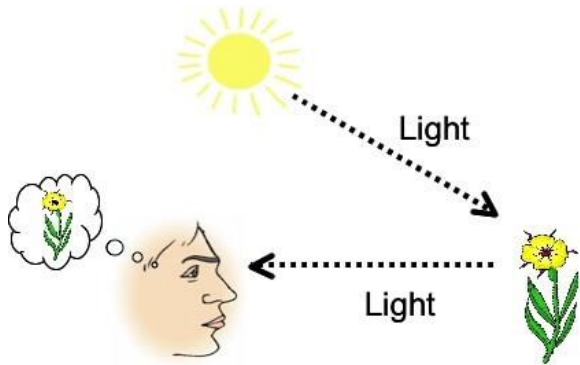
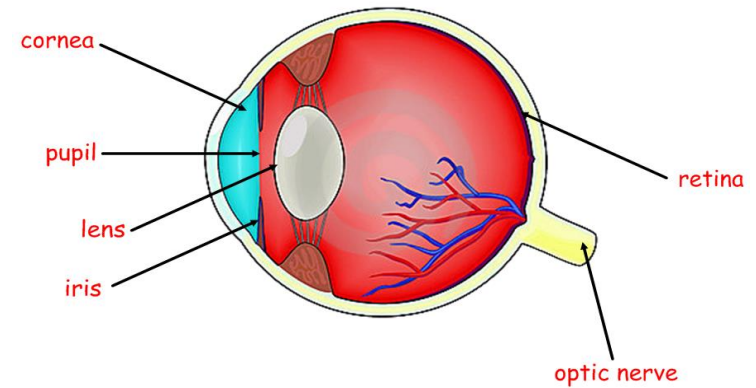


The Eye



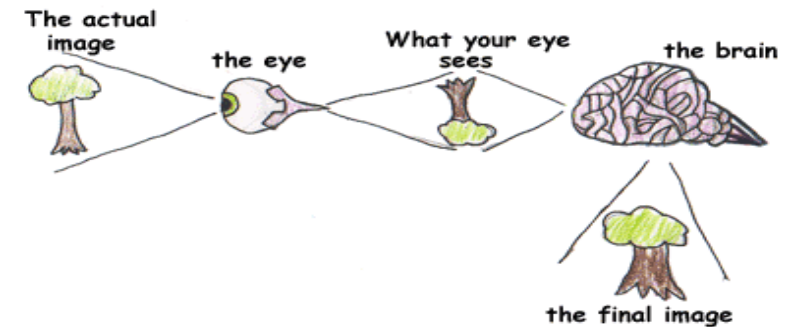
The little dark circle in the centre of each eye lets light in. It is called the pupil.

When you turn the light on from a dark room your pupil will dilate (get smaller)



How do we see?

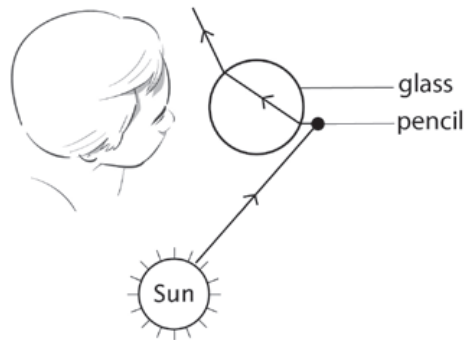
Light travels in straight lines. When light hits an object, it is reflected (bounces off) and enters our eye. This is how we see the object.



Refraction

Refraction is the change in the direction of a wave passing from one medium to another.

Refraction makes it possible for us to have optical instruments such as magnifying glasses, lenses and prisms.



Shadow

When an object passes in front of a beam of light, the light can be blocked making a shadow. Opaque objects let no light through. Translucent objects let some light through, and transparent objects let all the light through. The closer an object is to the light source the bigger the shadow.



VOCABULARY

Organism- An organic living system composed of cells.

Microorganism- organism of microscopic size.

Fungus- part of Fungi kingdom includes yeast, rust, molds and mushrooms.

Bacteria- small single cell organisms found everywhere on earth.

Virus- microscopic parasites generally smaller than bacteria.

Fish- aquatic gill bearing animals

Amphibian- cold blooded vertebrate animal.

Insect- small arthropod animal which has 6 legs and generally one or two pairs of wings.

Reptile- a vertebrate animal typically with dry scaly skin and lay soft shelled eggs on land.

Bird- warm blooded egg laying vertebrate animal with feathers, wings and a beak.

Arachnid- an arthropod e.g. spiders and scorpions.

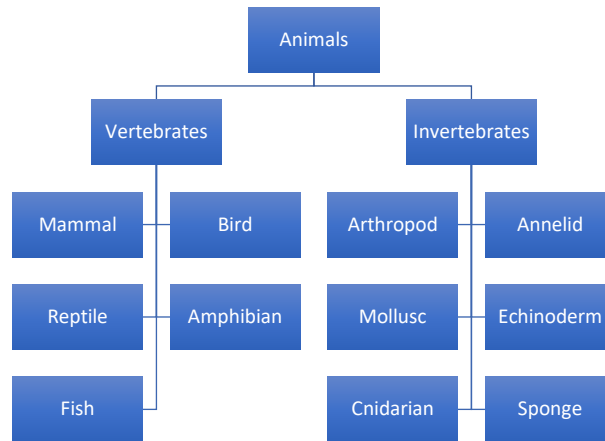
Mollusc- an invertebrate including snails, slugs, mussels and octopuses.

Vertebrate- animal with backbone

Invertebrate- animal without backbone.

Classification- To make smaller groups.

Classification



The Seven Level of Linnaeus' System

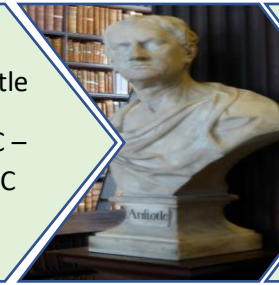
The Seven Levels of Linnaeus' System



Science Capital (Scientists)

Aristotle

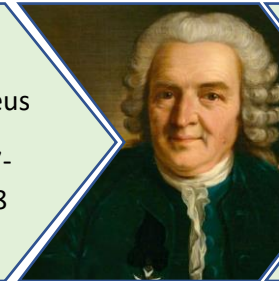
384BC – 322BC



Aristotle was the first person to try and classify living things into groups.

Carl Linnaeus

1707-1778



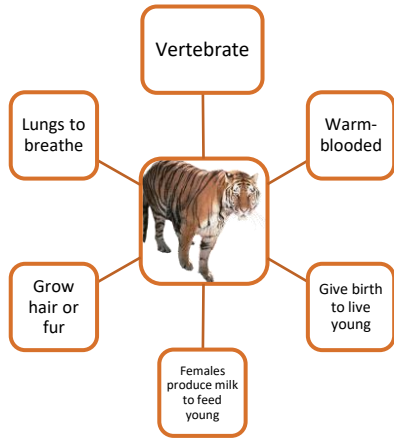
Carl Linnaeus was a Swedish scientist who believed it was a very important to have a standard system of classification.

Panthera leo (lion)



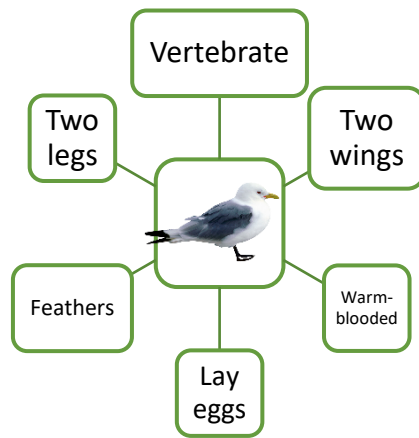
Mammals

(Phylum Chordata, Class mammalia)



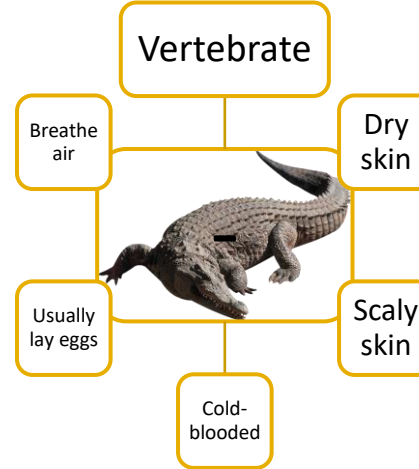
Birds

(Phylum Chordata, Class aves)



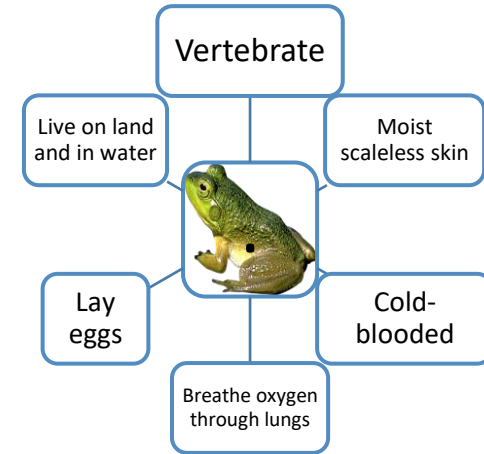
Reptiles

(Phylum Chordata, Class reptilia)



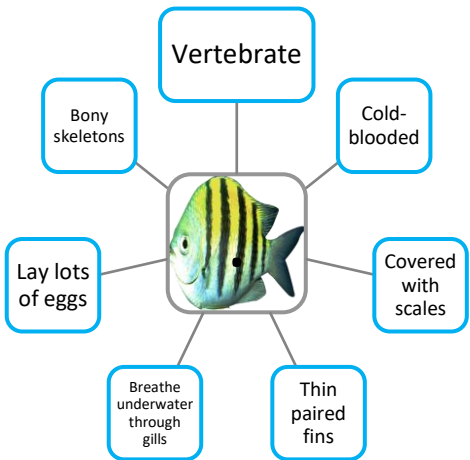
Amphibians

(Phylum Chordata, Class Lissamphibia)



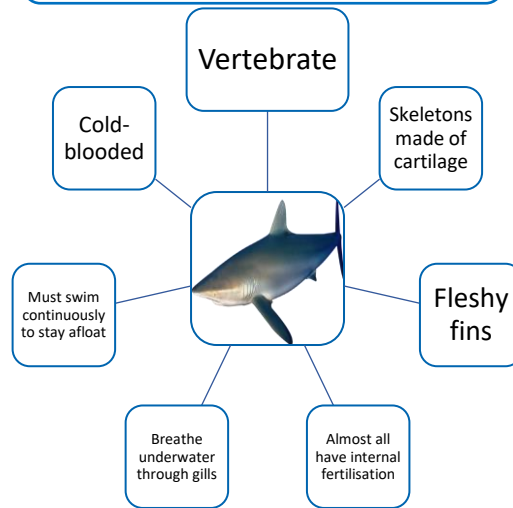
Fish

(Phylum Chordata, Class Osteichthyes)

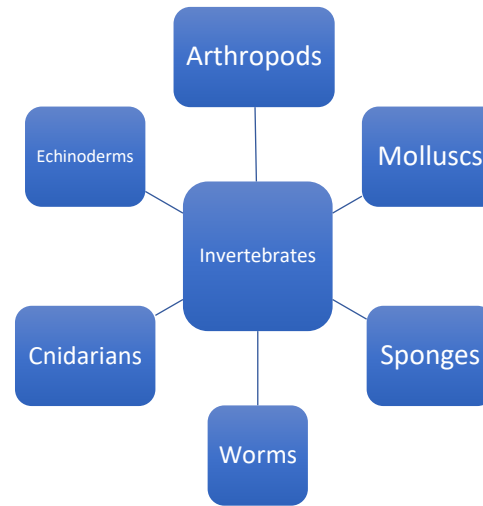


Cartilaginous Fish

(Phylum Chordata, Class Chondrichthyes)



Invertebrates



Microbes

Viruses:

Can make us sick and can pass from person to person.

Bacteria:

Some bacteria are helpful for cooking others can make you sick.

Fungi:

Can be found in air, water and on plants.
Mould growing on bread is a type of fungi.

Famous Scientists:

Edward Jenner: discovery of smallpox
Alexander Fleming: penicillin.



VOCABULARY

Circuit- A path that an electrical current can flow around.

Symbol- a visual picture that stands for something else.

Cell- A single unit battery that stores chemical energy.

Battery- A collection of cells which stores chemical energy.

Current- The flow of electrons, measured in amps.

amps- How electric current is measured.

Voltage- The force that makes the electric current move through the wires. The greater the voltage the more current will flow.

Resistance- the difficulty that the electric current has when flowing around a circuit.

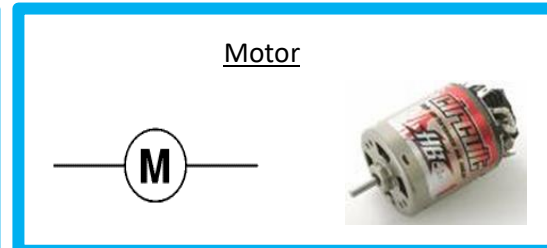
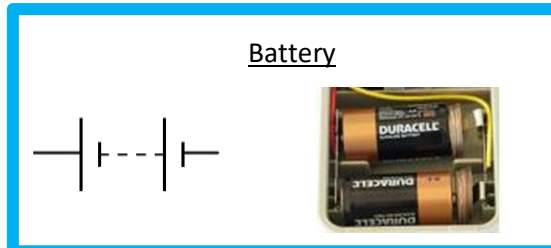
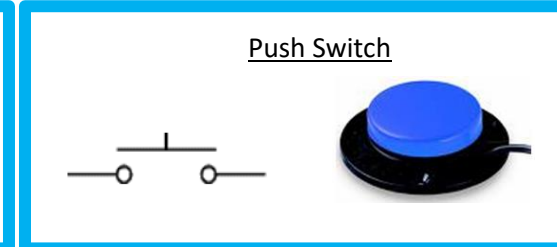
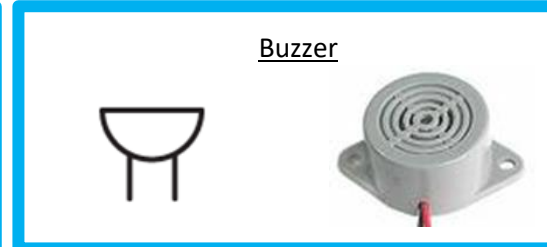
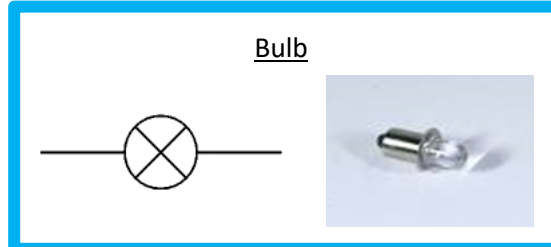
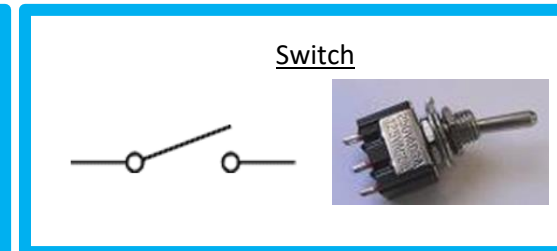
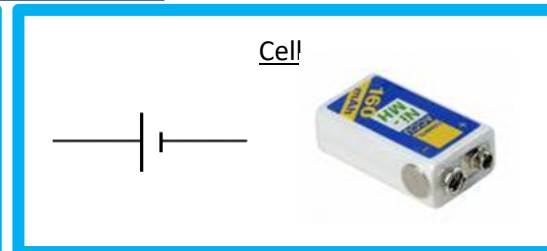
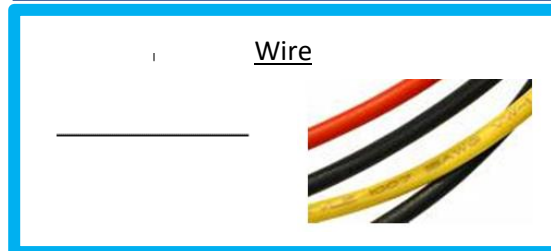
Electrons- Very small particles that travel around an electrical circuit.

Alessandro
Volta.
1745-1827



Italian physicist, chemist and pioneer of electricity and power. He is credited as the inventor of the electric battery and discovered methane.

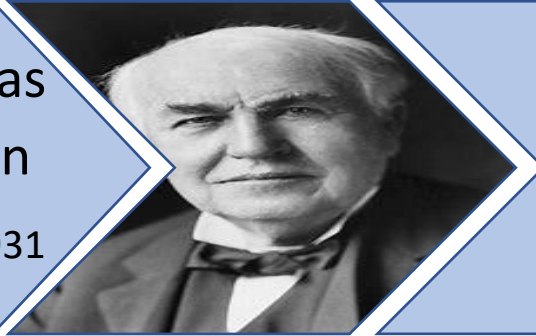
Components of a circuit



These symbols can be used to complete an electrical circuit.



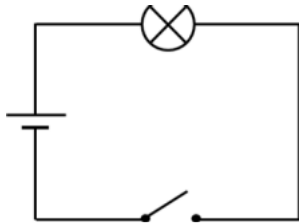
Thomas Edison
1847-1931



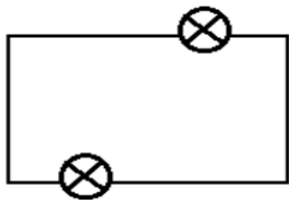
Lived in New Jersey in USA. Known as one of the greatest inventors in history. He invented the lightbulb, the phonograph (record and play sound) and an early video camera.

Electrical Conductors	Electrical Insulators
Copper	Rubber
Iron	Wood
Steel	Plastic
Silver	Paper
Gold	

Series Circuits



The light will not light until the switch is closed to complete the circuit.



This circuit will not work as there is no battery to provide energy.

Electrons flow through the circuit to make the circuit work.

Light is measured in Lux.

Voltage is measured in Volts. Using a volt metre.

The current is measured in amps using an ammeter.

Watt is a unit of power. (Rate of which energy is consumed).

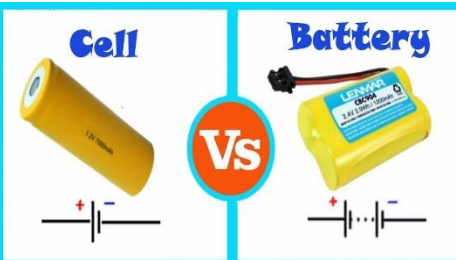


Common Electrical Hazards

1. Overloading a plug extension socket
2. Exposed wires.
3. Damaged wall sockets.
4. Wires left along the carpet for people to trip over.
5. Placing metal into electrical appliances or open sockets.
6. Electrical appliances and wires near water.

NOTE: Water can be an excellent electrical conductor so it can be very dangerous to have electrical devices near water.

What is a battery?



Difference between Cell and Battery

A cell is a single unit that stores energy. A battery is a collection of cells that store energy.

Batteries have voltage which is the amount of force that makes the electrical current move through the wires. The voltage can be found on the battery.

One end of a battery is an anode and the other a cathode. Electrolytes (liquid) are found in a battery which ions flow through.

Renewable Energy

Renewable energy is **useful energy that is collected from renewable resources, which are naturally replenished on a human timescale.**



Solar



Wind



Hydro



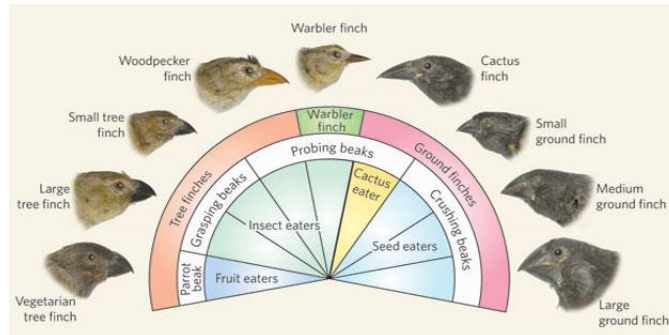
Biomass



VOCABULARY

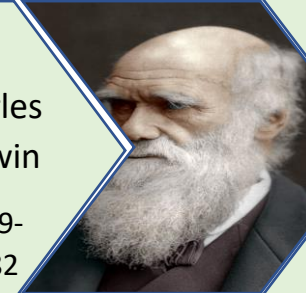
- Offspring-** children or young of a particular parent
- Adapted-** to adjust or modify fittingly
- Survival-** the act of surviving, especially under adverse or unusual circumstances
- Sexual reproduction-** method of producing plants and animals in which male seed and a female egg join
- Environment-** the air, water and land in or on which people, animals and plants live.
- Evolution-** the way in which living things change and develop over millions of years.
- Variance-** the fact that two or more things are different or the amount by which they are different.
- Inherited-** received by transmission of hereditary traits.
- Genetics-** the study of how, in all living things, the characteristics and qualities of parents are given to their children by their genes.
- Characteristics-** a typical or noticeable quality of someone or something.
- Species-** a set of animals or plants in which members have similar characteristics to each other and can breed with each other.
- Living thing-** an organism which: moves, breathes, sensitive to environment, nutrients, excretes, reproduce and grows.

Darwin's finches



Science Capital (Scientists)

Charles Darwin
1809-1882



English naturalist, geologist and biologist, known for his contributions to the science of evolution. He transformed the way we understand the natural world.

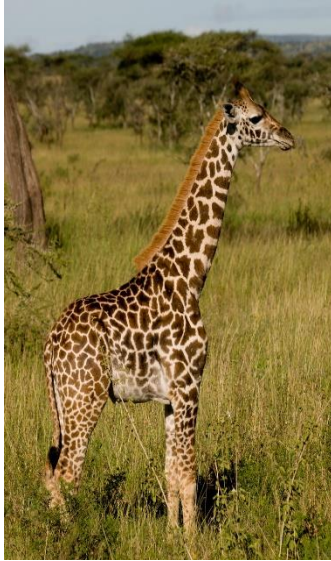
Natural selection



What is natural selection?

The process in which populations of living things adapt and change. Individuals in the population of an organism have traits which are better suited to the environment in which they live and are therefore more likely to survive. These individuals then pass the desirable traits to their offspring and over time these become more common within the population.





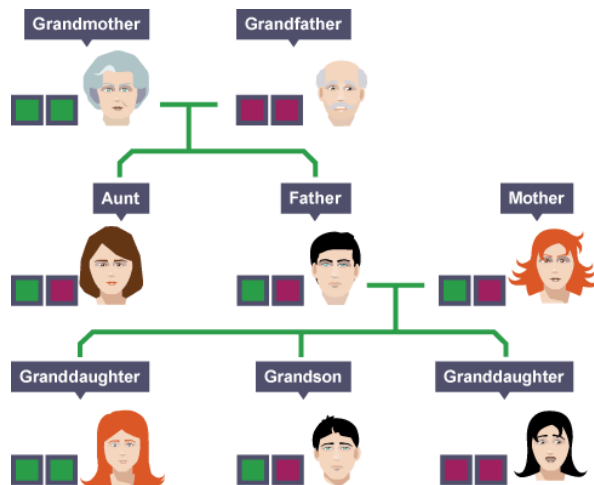
Giraffes have long necks because their ancestors' necks became longer as they stretched to reach leaves high in trees.

This indicates a change can occur within a lifetime of an organism which of course it cannot. Charles Darwin proposed that instead of an ancestor having a long neck, there would have been several species of giraffe living at the same time. Due to some sort of event such as a drought that caused a reduction of flora nearer the ground, the shorter-necked giraffes would have died out due to over feeding and sources of food being scarce.

Evolution

The theory of evolution is the story of all life. Through the process of evolution, living things have changed and adapted over time to live all over our planet. The theory of evolution describes how all living things make up one large family tree that stretches back over 3 billion years. We are all descended from a single common ancestor, with modern humans only appearing around 200,000 years ago.

Inheritance



Offspring can inherit characteristics from their parents through genetics. Genes determine what eye colour, hair colour, height and even things like ear lobe shape. These are called **inherited characteristics**. Some inherited characteristics can be altered such as dying your hair or having plastic surgery.

Acquired characteristics are not inherited they involve changes to the structure or function of a living thing during its lifetime. They could include making muscles stronger by going to the gym or an injury which causes a change.

