Year 4 Red Kites

Science

Summer 2

Electricity

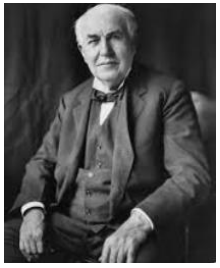
Key Vocabulary	Definition
appliance	An electrical device or machine that does a job such as cleaning or cooking.
battery	A container of one or more cells in which chemical energy is converted into electrical energy used as a source of power.
bulb	The glass part of an electric lamp which gives out light when electricity passes through it.
buzzer	Electrical device that is used to make a buzzing sound.
cell	A single unit used for converting chemical or solar energy into electricity.
circuit	A complete route which an electric current can flow around.
component	The parts that something is made of.
conductor	A substance that heat or electricity can pass through or along.
current	The flow of electricity through a wire or circuit.
electricity	A form of energy that can be carried by wires and is used for heating, lighting and power.
electric shock	When electricity flows through the human body, causing a shock which can be fatal.
energy	Power from sources such as electricity that makes devices work, provides heat or light.
insulator	A non-conductor of electricity or heat.
mains	Where the supply of water, electricity or gas enters a building.
motor	Device that uses electricity or fuel to produce movement.
switch	Small control for an electrical device, used to turn it on or off.
wire	Long, thin piece of metal that is used to carry an electrical current.

Electrical Safety

Electricity can be dangerous if not used properly. It can cause shocks, burns and even death. There are electrical dangers both in the home and outdoors.

Significant Scientist: Thomas Edison

Thomas Edison (1847 – 1931) is best known for inventing 'domestic' lightbulbs to go in houses, and the electric power system that allows them to work. He came up with over 1000 successful inventions in his lifetime.



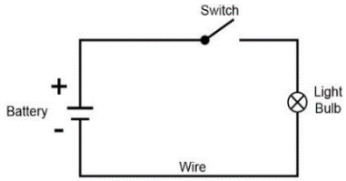
Electrical Appliances

Common appliances that use electricity are: toasters, lamps, kettles, laptops, games consoles, phones, torches, TVs, washing machines and irons. Some appliances use batteries and some use mains electricity. Batteries can vary greatly in size, shape and power.

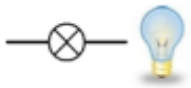
How does a circuit work?

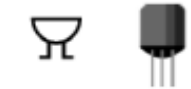
In a series circuit all the components are joined together and the electricity can only flow in one direction. Switches can be used to open and close circuits. However, a circuit will not work properly if:

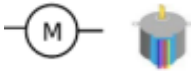
- the cells aren't connected correctly (+ to - not ++ or - -)
- a component isn't working or there's no bulb;
- the circuit has gaps
- one of the components acts as an insulator.



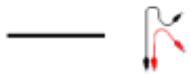
Symbols Used in Circuits

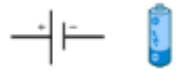

BULB

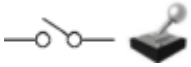

BUZZER



MOTOR


WIRES


BATTERIES/ CELL


SWITCH

Conductors and Insulators

Electrical Conductors

These let electricity pass through. They are often metal (e.g. iron, copper and gold) but also include carbon and water. As our bodies are 18% carbon, electricity is very dangerous to us and because water is a very good conductor of electricity, we mustn't use electrical appliances near it!

Electrical insulators

These don't let electricity pass through, e.g. wood, leather and plastic. Plastic is used to cover electrical wires because it is a good insulator.