Electricity

Y3/4 objectives

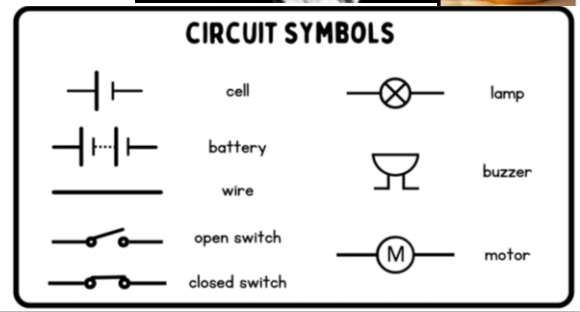
Identify common appliances that run on electricity.
Identify whether or not a lamp will light in a simple series circuit.
Construct a simple series electrical circuit, identifying and naming cells, wires, bulbs, switches and buzzers.
Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Linked to D & T)
Recognise some common conductors and insulators, and associate metals with being good conductors

Y5/6 objectives

Use recognised symbols when representing a simple circuit in a diagram.
Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.

Scientist: Alessandro Volta (1745-1827)

He was known for his most famous invention, which was the battery. He was a physicist, chemist and a pioneer of electrical science. Volta continued to work in the field of electricity for the rest of his life. In 1801, he invented the electrometer, a device for measuring the amount of electricity present in an object.

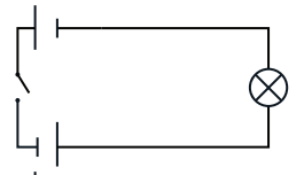


Scientific Terminology

Conductor is a material that **allows** electricity to pass through it easily.
Current is a flow of electrons in a circuit.
Electrons are small particles that travel around an electric circuit and carry energy. These are negatively charged.
A **filament bulb** is a light bulb that contains a thin wire, or **filament**, that heats up and emits light when an electric current passes through it.
Insulator is a material that **does not** allow electricity, heat, light, or sound to pass through it easily.
Resistance A measure of the difficulty of passing an electric current through a conductor. The more resistance in a circuit, the less electricity will flow through.
Static electricity a stationary electric charge, typically produced by friction, which causes sparks, crackling or the attraction of dust or hair.
Voltage is a measure of how strong the current is in a circuit. It is what "pushes" the current through the circuit to a device.

Questions

1) How can we make a bulb brighter in a circuit?
2) What is the name of the units used to measure electricity?
3) What happens to the bulbs if we add more bulbs to a simple circuit?
4) What happens to a bulb's brightness when the number of batteries is increased?
5) The more batteries in a circuit, the _____ the volume of the buzzers.
6) Name the components.



7) Draw a complete circuit using symbols.
8) Is the circuit complete or incomplete? Explain.
9) How does voltage in a circuit affect the brightness of a bulb?