



Year 4 Electricity

Strand: Physics

Big idea: Energy, which cannot be created or destroyed, comes in many different forms. Electricity is a form of energy.

Big questions: Does electricity flow easily through all objects?

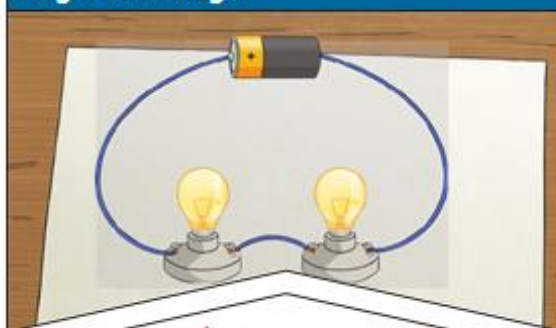
COMMON APPLIANCES



Topic vocabulary

circuit	A pathway that electricity can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.
appliance	designed to perform a particular job powered by electricity
electron	Small particles with an electric charge.
current electricity	The flow of an electric current or charge through a material

Key Knowledge



Electricity can only flow around a complete **circuit** that has no gaps. There must be wires connected to both the positive and negative end of the power supply/battery.

Switches can be used to open or close the **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electrons**. When the switch is on, the **circuit** is complete and the **electrons** are able to flow around the **circuit**.



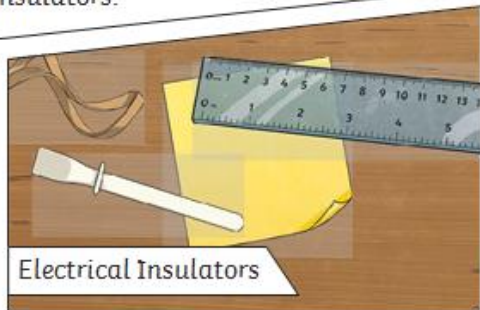
André Marie Ampère
1775 - 1836

Was the first scientist to suggest the idea of the electron

A conductor of **electricity** is a material that is made up of free **electrons** which can be made to move in one direction, creating an electric current. Metals are good conductors. Electrical insulators have no free **electrons** and so no electric current can be made. Wood, plastic and glass are good insulators.



Electrical Conductors



Electrical Insulators

- 1.) If you make the wires longer, the bulb will get dimmer. This is because there is more resistance.
- 2.) If you add more bulbs, the bulbs get dimmer. This is because there is also more resistance.
- 3.) If you add more batteries, the bulbs will get brighter. This is because there is less resistance and a greater current.

DANGER! HIGH VOLTAGE!

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!