Science - Electricity and circuits

Electrical appliances

Electrical appliances are found all around us.





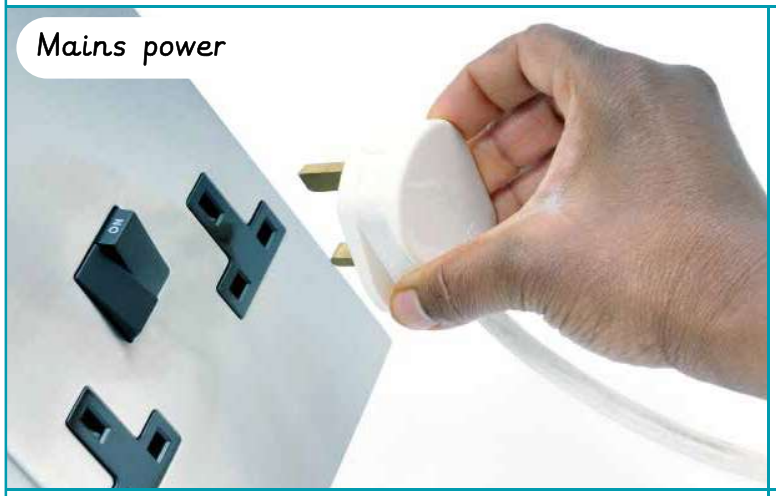

An electrical circuit is the pathway through which electrical charge flows in an appliance.

For a circuit to work, it must include:

- A power source.
- A complete pathway.
- A device or component, such as a bulb.

Power source: something that transfers electrical energy to make an appliance work.

Mains power



- Provides high power for larger appliances.
- Requires access to an electrical socket.
- Appliances are fixed in place.

Batteries

- Allows an appliance to be portable and used anywhere.
- Allows an appliance to be used where no electrical sockets are available.
- Batteries run out and need replacing.
- Batteries are harmful and must not go to landfill.

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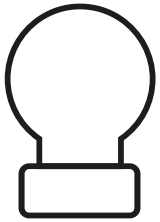
A **component** is a part of an electrical circuit.

Symbols are often used to represent the components so they are easy to draw and recognise.

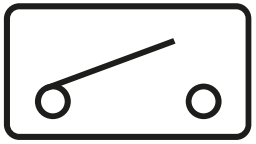
battery/cell

wire

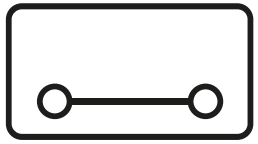
bulb



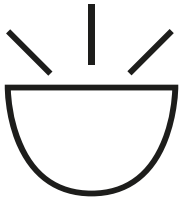
open switch



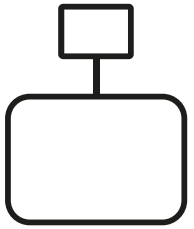
closed switch



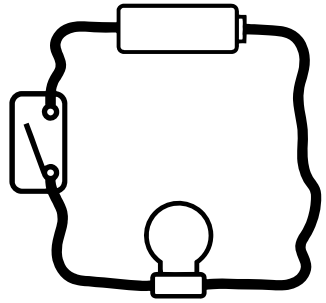
buzzer



motor



A **circuit diagram** is a simple line drawing that represents how the components in an appliance join together.



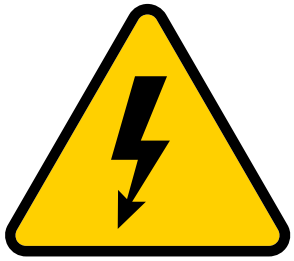
Electrical conductors are materials that allow electrical charge to flow through quickly.

Metals are good electrical conductors.

Electrical insulators are materials that do not allow electrical charge to flow easily.

Plastics are good electrical insulators.

Electrical safety



- Do not use electrical appliances or switches with wet hands.
- Do not put anything other than a plug in an electrical socket.
- Let an adult know if electrical appliances or wires appear damaged.
- Do not leave electrical wires laying across the floor or on hot surfaces.