

Science - Electricity and circuits

Electrical appliances

There are many examples of electrical appliances around us.



An **electrical circuit** is the pathway electrical charge flows around in an appliance.

For a circuit to work, it must have:

- 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.
- Access to an electrical socket is needed to use the appliance.
- The appliance will be fixed in place.

batteries



- Allows an appliance to be portable (move anywhere).
- Can use an appliance where there are no electrical sockets.
- Batteries run out and need replacing.
- Batteries are harmful and must not go to landfill.

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



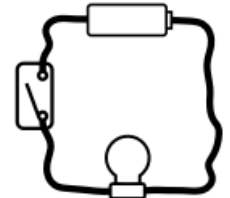
wire



bulb



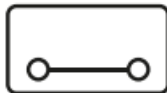
A **circuit diagram** is a simple line drawing that represents how the components in an appliance join together.



open switch



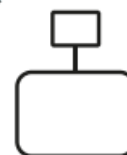
closed switch



buzzer



motor



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



Metals are good electrical conductors.

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



Plastics are good electrical insulators.

Electrical safety



- Do not use wet hands when using electrical appliances or switches.
- 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 across the floor or hot surfaces.