

What? (Key Knowledge)

Lightning and static **electricity** are examples of electricity occurring naturally but for us to use electricity to power **appliances**, we need to make it.

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. Electrical insulators have no free **electrons** and so no electric current can be made.

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**.

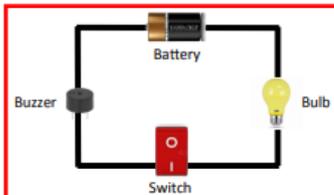
Switches can be used to open or close the **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electrons**. When the switch is on, the **circuit** is complete and the **electrons** are able to flow around the **circuit**.

Mains **electricity**: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.

Battery electricity: **batteries** store chemicals which produce an electric current. Eventually, even rechargeable batteries will stop producing an electric current.

Diagrams and Symbols

Will the bulb light in the circuit?

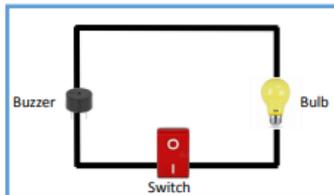


Will the bulb light?

Yes

Why?

The circuit has a battery and a bulb and is complete.

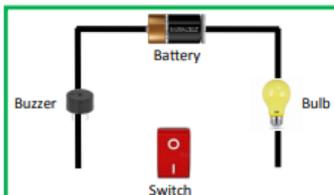


Will the bulb light?

No

Why?

The circuit has no battery to provide the electrical power.

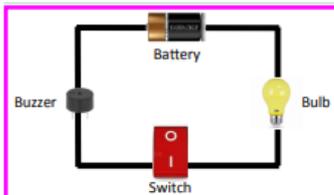


Will the bulb light?

No

Why?

The circuit is not complete.



Will the bulb light?

No

Why?

The switch is in the off (0) position.

Key Vocabulary

Definition

electricity

The flow of an electric current or charge through a material.

generate

To make or produce.

renewable

A source of electricity that will not run out.

non-renewable

This source of energy will eventually run out.

appliances

A piece of equipment or device designed to perform a particular job, such as a washing machine or mobile phone.

battery

A device that stores electrical energy as a chemical.

circuit

A pathway that electricity can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.

electrons

Small particles with an electric charge.