

# Electricity

## Knowledge

### Electricity

I can identify common appliances that run on electricity

I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers

I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery

I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit

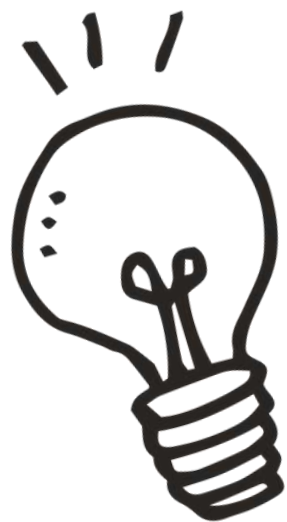
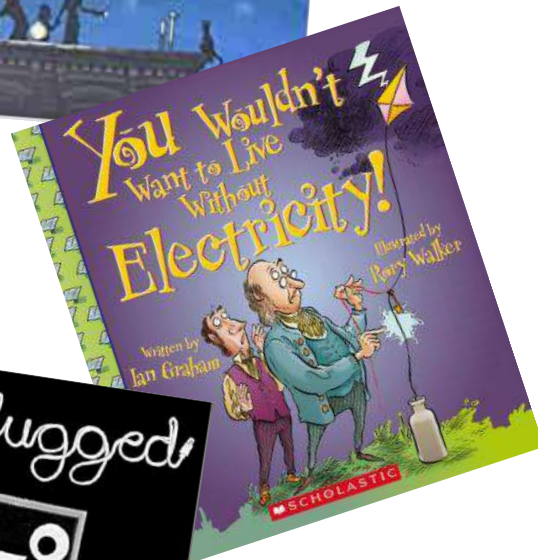
I can recognise some common conductors and insulators, and associate metals with being good conductors.

## Working Scientifically

Observing patterns, for example, that bulbs get brighter if more cells are added

Metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.

## Hook into a Book



## Future Learning

### KS2

- I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- I can 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
- I can use recognised symbols when representing a simple circuit in a diagram.

## Key Vocabulary

<b>electricity</b>	The flow of an electric current through a material, e.g. from a power source through wires to an <b>appliance</b> .
<b>generate</b>	To make or produce.
<b>renewable</b>	A source of <b>electricity</b> that will not run out. These include solar, geothermal, hydro and wind.
<b>non-renewable</b>	This source of energy will eventually run out and so will no longer be able to be used to make <b>electricity</b> . These include fossil fuels – coal, oil and natural gas.
<b>appliances</b>	A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.
<b>battery</b>	A device that stores electrical energy as a chemical.
<b>circuit</b>	A pathway that <b>electricity</b> can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.

Investing in

the **UNIQUENESS**

of each individual

"I Am Fearfully And Wonderfully Made"  
– Psalms 139 v14

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



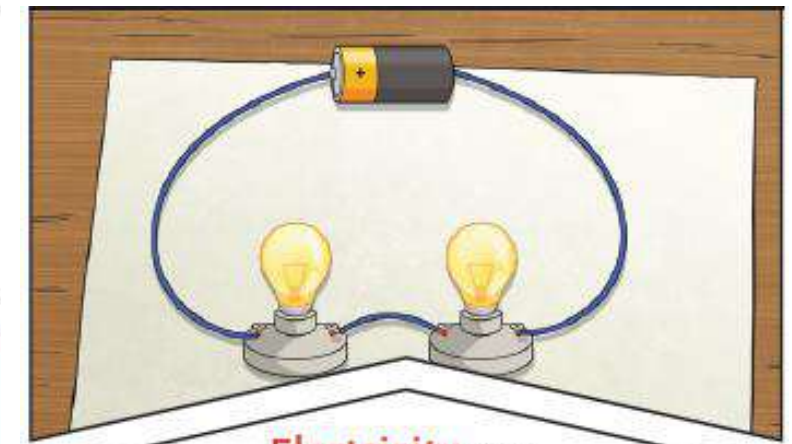
Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to **generate electricity**.

**Electricity** can be **generated** from wind power used to turn windmills and hydroelectric power from water used in dams. The Sun's rays can be converted into **electricity** by solar panels.

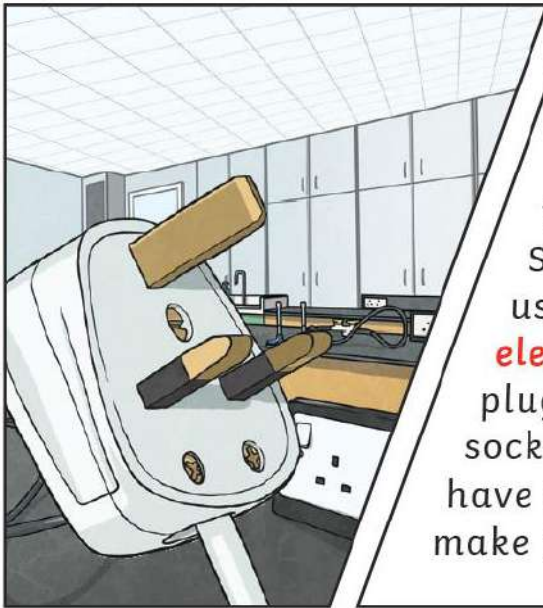


Nuclear energy is created when atoms are split. This creates heat which can be used to **generate electricity**. Geothermal energy is heat from the Earth that is converted into **electricity**.

Switches can be used to open or close a **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electricity**. When on, a switch 'completes' the circuit and allows the **electricity** to flow.



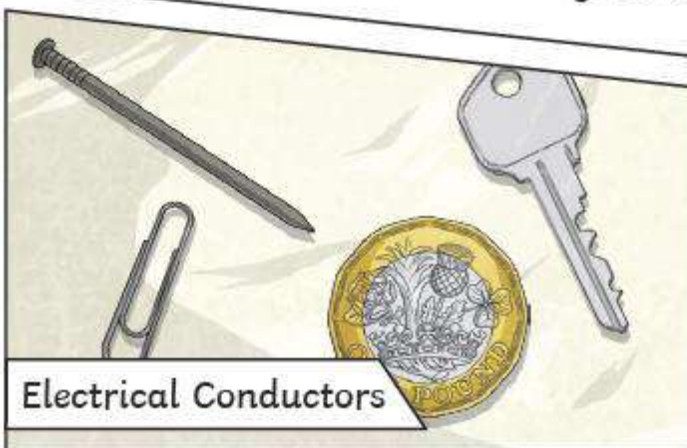
**Electricity** can only flow around a complete **circuit** that has no gaps. There must be wires connected to both the positive and negative end of the power supply/**battery**.



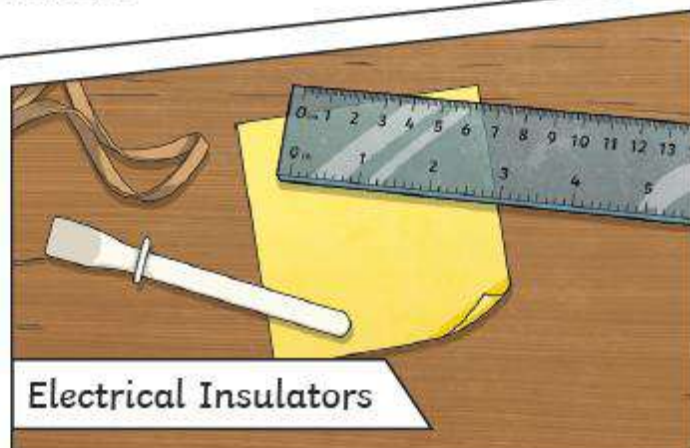
Many everyday **appliances** rely on **electricity** for them to work. Some appliances use mains **electricity** (are plugged into a socket) and others have a **battery** to make them work.



A conductor of **electricity** is a material that will allow **electricity** to flow through it. Metals are good conductors. Materials that are electrical insulators do not allow **electricity** to flow through them. Wood, plastic and glass are good insulators



Electrical Conductors

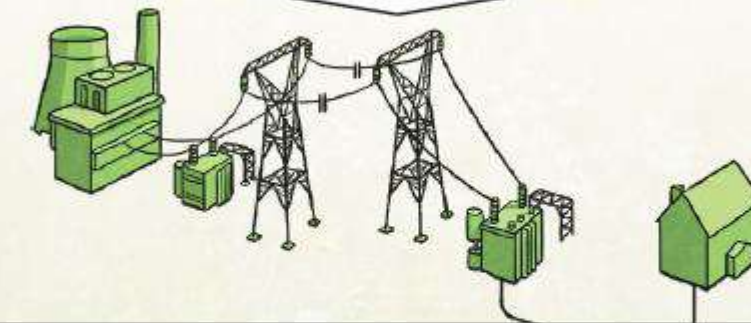


Electrical Insulators



There are two types of electric current.

**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.

