


### End points

- To construct a simple series circuit and be able to name its basic parts.


### Facts

**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.

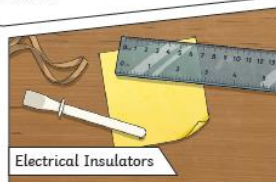
Switches can be used to open or close a **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electricity**. When on, a switch 'completes' the circuit and allows the **electricity** to flow.



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.



### Working Scientifically Skills

- I can suggest improvements and raise further questions.
- I can ask my own questions.
- I can use different ways to answer them.
- I can set up my own simple tests.
- I can make careful observations.
- I can use different equipment to measure accurately in standard units.
- I can gather, record, classify and present data in different ways including drawings, labelled diagrams, keys, bar charts and tables.
- I can explain what I have found out using speaking and writing.
- I can draw simple conclusions and make predictions for new values.
- I can use relevant scientific language.

Year 4 

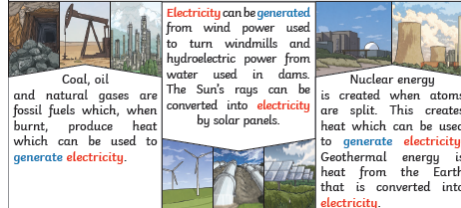
## Electricity

### Key questions

- How is electricity generated?
- Which appliances run on electricity?
- What are the parts of a circuit called?
- Which materials are conductors or insulators?
- What is a scientist?
- What is science?

Appliances	A piece of equipment or a device designed to perform a particular job.
Electrical circuit	A pathway that electricity can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.
Battery/ Cell	A device that stores electrical energy as a chemical.
Wire	A long, thin and flexible piece of metal.
Bulb	A device made of rounded glass used to create electric light.
Buzzer	An electric signalling device that makes a buzzing sound.
Danger	A chance or likelihood that something bad or harmful may happen
Metal	Minerals like iron or lead that are found underground in rocks.
Non-metal	A chemical element that does not have the properties of a metal.
Water	The liquid that comes from the clouds as rain and forms streams, lakes, and seas.
Open	To change or move from a shut condition
Closed	Shut
Component	A part of something.
Connect/ connections	To join together.
Loose connection	An imperfect electrical connection
Short circuit	A problem in an electrical circuit where two or more wires that are not supposed to come in contact with each other touch.
Crocodile clip	Toothed clips on the ends of electric wires.
Symbol	A drawing, shape, or object that represents an idea, object, or amount of something.

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

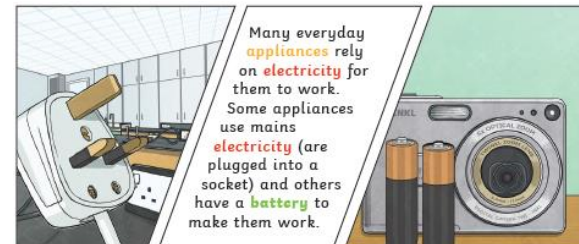


Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to generate **electricity**.

**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**.

### Facts



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.