

Key Learning

1. To identify common appliances that run on electricity
2. To know how electricity can be dangerous
3. To know that batteries push electricity around a circuit and to name the parts of a circuit
4. To recognise conductors and insulators and recognise how a switch can open and close a circuit
5. To conduct electrical circuit and identify whether a bulb will light or

Science – Y4

Electricity

Knowledge

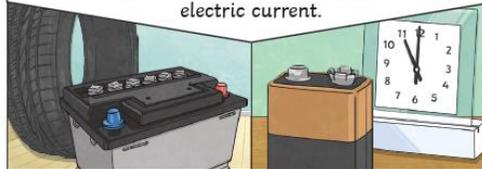
Organiser

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.



Key vocabulary

Key Word	Definition
series circuit	A looped circuit where the electricity flows from the positive to negative terminal of the battery.
circuit diagram	Electrical components shown in a picture by using standard symbols.
parallel circuit	A circuit with two or more pathways for the current to flow through.
conductor	Materials which allow electricity to flow through them with ease.
insulator	Materials that do not allow electricity to pass through them with ease.
loop	A complete circuit.
switch	A toggle which is changed by someone as way of controlling an electrical circuit or system.
resistance	A measure of how much an object opposes the flow of electrons.

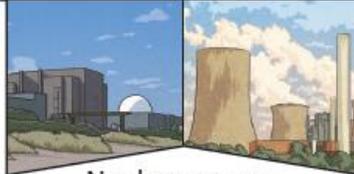
Key Knowledge

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

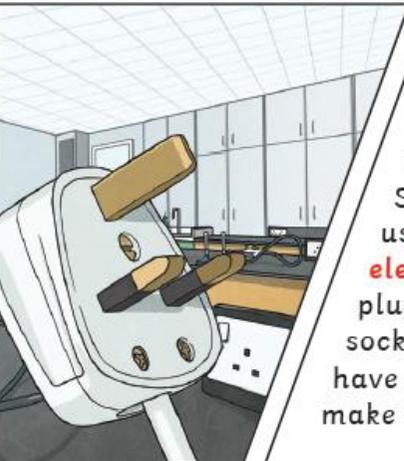


Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to **generate electricity**.

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.



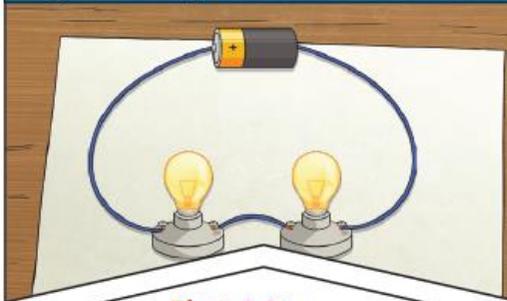
Nuclear energy is created when atoms are split. This creates heat which can be used to **generate electricity**. Geothermal energy is heat from the Earth that is converted into **electricity**.



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.



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**.

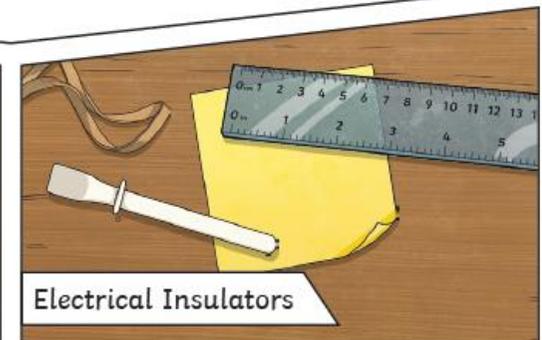
Switches can be used to open or close a **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electricity**. When on, a switch 'completes' the circuit and allows the **electricity** to flow.



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