Electricity

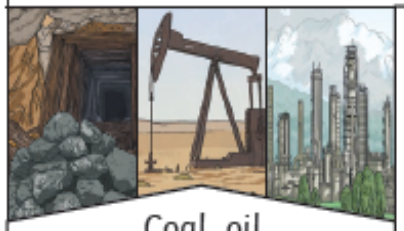
Year 4

Key Vocabulary

electricity	The flow of an electric current through a material, e.g. from a power source through wires to an **appliance**.
generate	To make or produce.
renewable	A source of **electricity** that will not run out. These include solar, geothermal, hydro and wind.
non-renewable	This source of energy will eventually run out and so will no longer be able to be used to make **electricity**. These include fossil fuels – coal, oil and natural gas.
appliances	A piece of equipment or a 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.

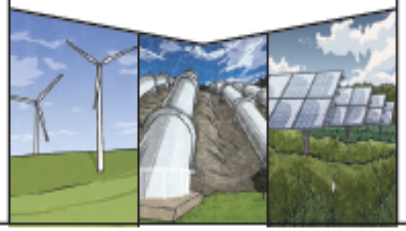
Key Knowledge

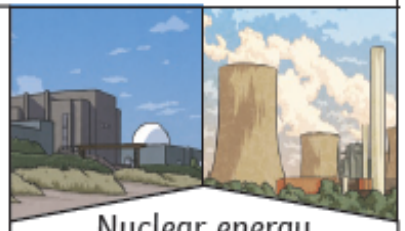
Lightning and static **electricity** are examples of **electricity** occurring naturally but for us to use **electricity** to power **appliances**, we need to make it.



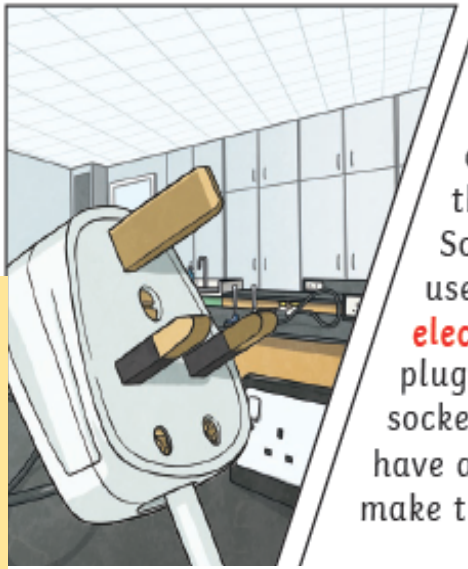
Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to **generate electricity**.

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.

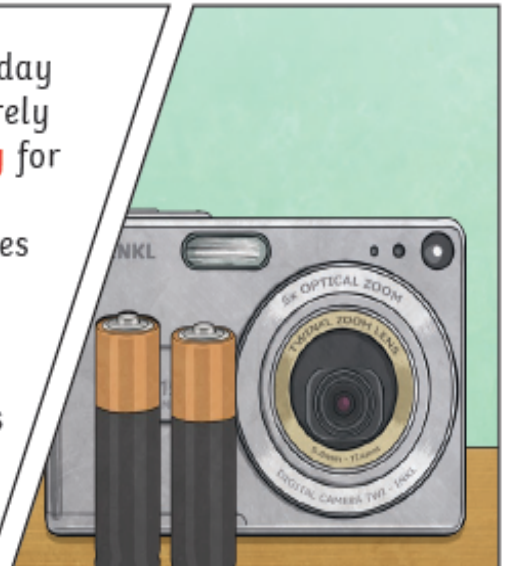




Nuclear energy is created when atoms are split. This creates heat which can be used to **generate electricity**. Geothermal energy is heat from the Earth that is converted into **electricity**.



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 questions…

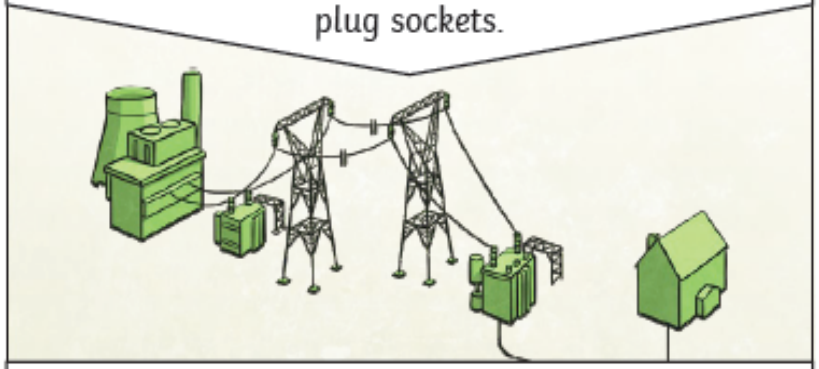
1. What is electricity?
2. What causes electricity?
3. List 3 precautions we must take around electricity
4. What are 3 electrical appliances that humans use?
5. What are 4 basic components of an electrical circuit?
6. What is an insulator?
7. What is a conductor?
8. Design a circuit including a power source, switch and conductor

Key Vocabulary

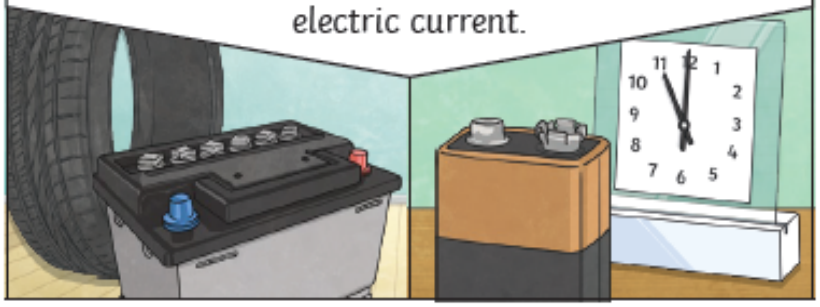
circuit	A pathway that **electricity** can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.

There are two types of electric current.

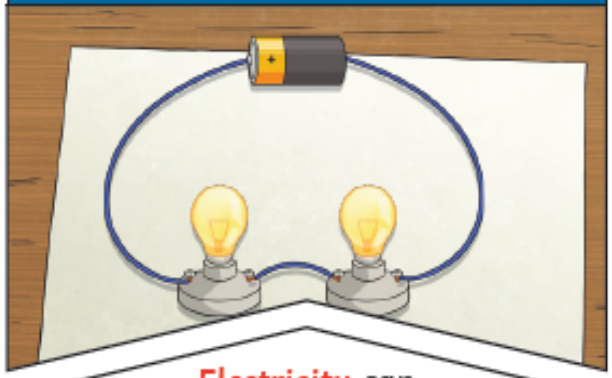
Mains **electricity**: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.



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



Key Knowledge

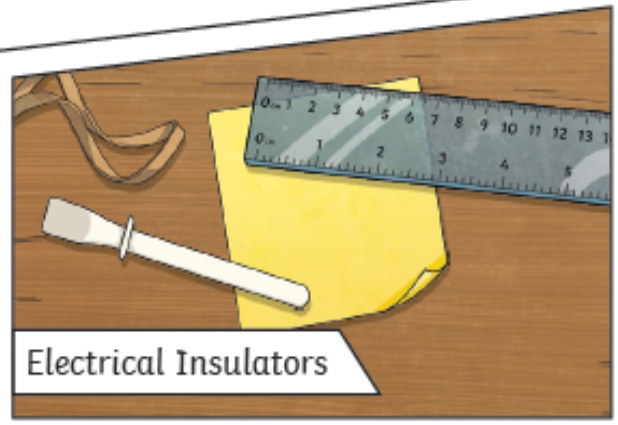


Electricity can only flow around a complete **circuit** that has no gaps. There must be wires connected to both the positive and negative end of the power supply/**battery**.

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