Electricity - Knowledge Organiser

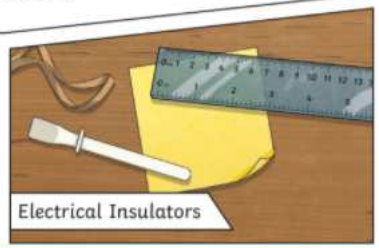
Key Knowledge

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

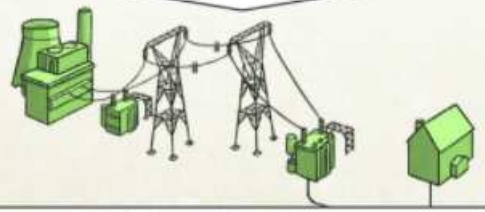
Electrical Conductors



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.



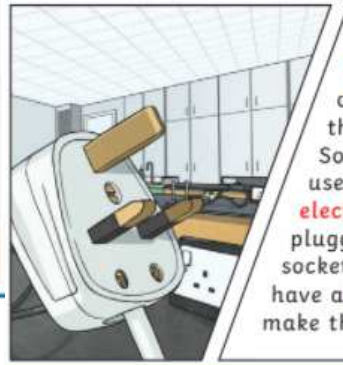
Battery electricity: batteries store chemicals which produce an electric current. Eventually, even rechargeable batteries will stop producing an electric current.

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

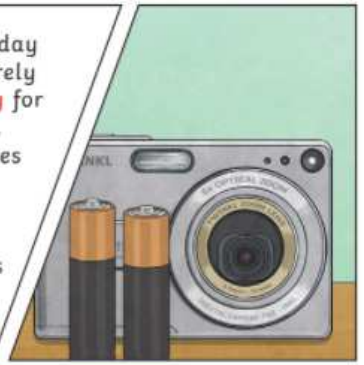
Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to generate electricity.

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 VOCABULARY

Electricity (the flow of electric current through a material)

Appliances (equipment/device designed to perform a particular job)

Battery (a device that stores electrical energy as a chemical)

Electron (a particle which flows to create electrical current)

Cell (another name for a battery)

Component (e.g a light bulb, buzzer, motor etc)

Positive and negative (two poles of a battery)

Short circuit (a low resistance path for the current to follow)

Bulb, switch, buzzer, motor (components in a circuit)

Circuit (a closed path which allows electricity to flow through it)

Series circuit (a circuit in which electricity has only one path)

Current (the amount of electrons flowing)

Voltage (the size of the push from a power source e.g. battery)

Conductor (see above)

Insulator (see above)