

# Electricity knowledge organiser

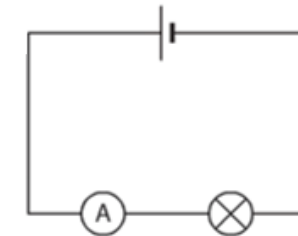
Keyword	Definition
<b>Ammeter</b>	instrument to measure current, placed in series
<b>Battery</b>	more than one cell joined together
<b>Chemical cell</b>	a source of electricity
<b>Component</b>	a device in an electrical circuit with a particular function
<b>Current (I)</b>	rate of flow of electrical charge (electrons), measured in Amps (A)
<b>Electrical circuit</b>	a closed loop through which current can flow continuously
<b>Electrons</b>	negatively charged particles that can transfer/move
<b>Fuse</b>	a resistor with a low resistance that will deliberately break with large currents
<b>Parallel circuit</b>	a circuit with branches/more than one loop
<b>Potential difference (V)</b>	difference in energy per charge between two points, measured in Volts (V)
<b>Resistance (R)</b>	how difficult it is for charge to pass through a component, measured in Ohms ( $\Omega$ )
<b>Scientific model</b>	a way of representing a complicated scientific idea that helps us understand it
<b>Series circuit</b>	a circuit where everything is connect in one loop, one after another
<b>Static electricity</b>	the transfer of electrons from one object to another causing the objects to become charged
<b>Voltmeter</b>	instrument to measure potential difference, placed in parallel to the component being measured

## Components

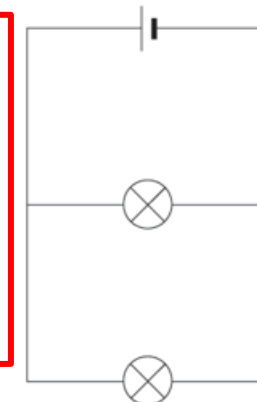
cell	
bulb	
switch	
electrical lead	
ammeter	
voltmeter	
resistor	
fuse	



Series circuit – A circuit in which there only is one loop. If one of the components doesn't work, then current cannot flow and the circuit doesn't work.



Parallel circuit – A circuit in which there is more than one loop. Current is split across each loop and therefore if one component doesn't work, the circuit can still work.

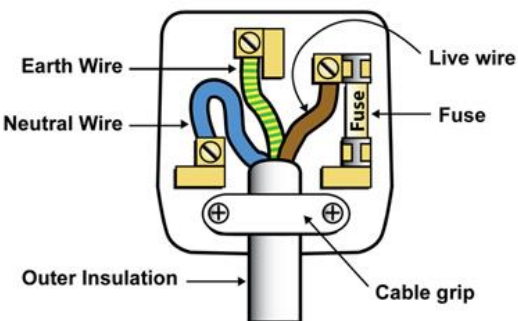


$$\text{Potential difference} = \text{current} \times \text{resistance}$$

$$V = I R$$

For a given potential difference: if resistance increases, current decreases. If current increases, resistance decreases.

For a given resistance: if potential difference increases, current increases. If current increases, potential difference increases



The **wires** in home appliances are made from **copper** because copper is a **good electrical conductor**. Wires that come out from the plug are covered in **plastic**, which is a **good insulator**, so we do not get **electric shocks** when we touch the wire. **Plugs** have **safety features** too. The **earth pin** (which connects to the **earth wire** in the plug) is longer than the **live and neutral** pins so it makes contact first when you plug it into the wall. Also, plugs contain a **fuse** – a thin electrical wire – that is designed to **break** easily. This prevents the appliance from breaking if there is a **surge in current** – the fuse breaks instead, and it can be easily replaced