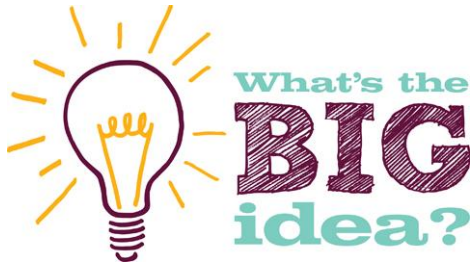


You need to know the content of this sheet. 100%

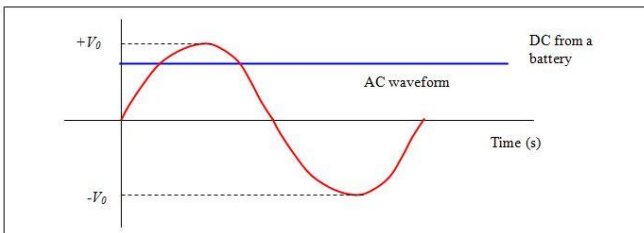
# 100% Sheet

## Using electricity safely



### Electromagnetism

Electric charge is a fundamental property of matter everywhere.



Alternating current changes direction and is mains electricity. Direct Current does not and is from a battery.

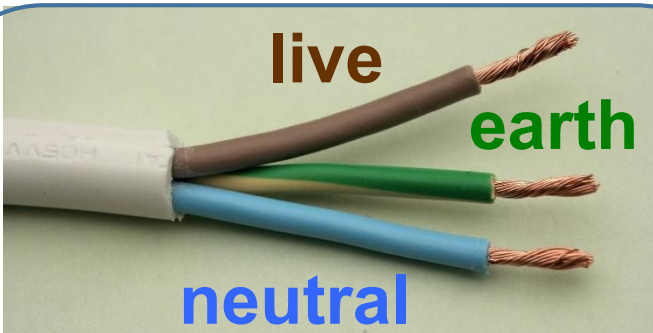


You must know the names, colours and where they go in a plug



A fuse is a wire with a high resistance. If too much current flows through the fuse wire,

- 1) the fuse wire gets hot
- 2) it melts
- 3) it breaks the circuit and stops electricity flowing



The earth cable is only needed in metal appliances.

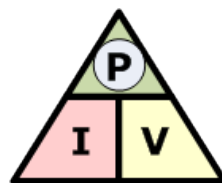
If the live wire accidentally touched the metal casing it could cause an electric shock.

The earth cable is attached to the metal casing and transfers the electricity safely to the ground, preventing an electric shock.

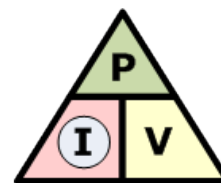
P = Power, with the unit of Watts (W)

I = Current, with the unit of amps (A)

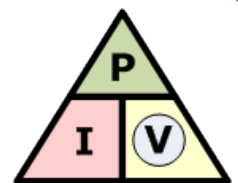
V = Voltage or potential difference, with the unit of volts (V)



$$P = I \times V$$



$$I = \frac{P}{V}$$



$$V = \frac{P}{I}$$

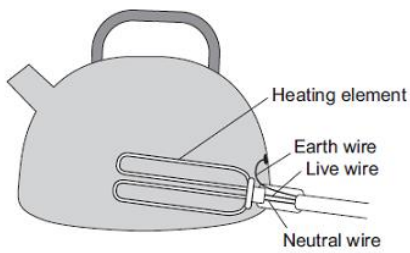
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# 100% Sheet

## Using electricity safely

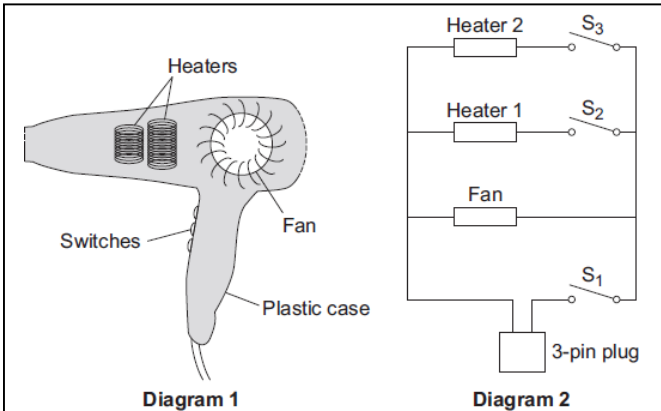


**Electromagnetism**  
 Electric charge is a fundamental property of matter everywhere.



If a fault makes the metal case live, the earth wire and the fuse inside the plug protect anyone using the kettle from an electric shock.

Explain how.



Which switches need to be switched on to make:

- 1) Just the fan work
- 2) Heater 2 work

	Current in amps
Fan only	1.0
Fan and heater 1	4.4
Fan and both heaters	6.5

What is the maximum power of the hairdryer? Remember the domestic supply is 230V. Show your working.