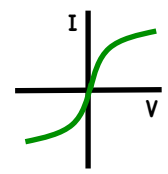
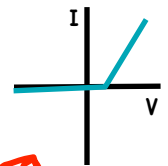


TOPIC 2: ELECTRICITY



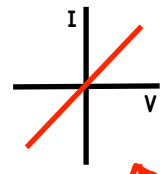
As temperature increases, resistance increases

Filament Lamps



Current can only flow in one direction

Diodes



Resistance stays constant

Resistors

Current is directly proportional to Potential Difference

Ohmic Conductors

Applies at constant temperature

Measured in Volts

Potential Difference (V)

I-V Characteristics

Rubbing insulating materials together rubs electrons off one material and onto the other

Static Electricity

Material gaining electrons becomes negatively charged

Charged object produces an electric field around itself

Field lines point from positive to negative

Mains Electricity

Earth Wire

Green and yellow stripes

Prevents appliance from becoming live

Neutral Wire

Blue

Completes the circuit

Live Wire

Brown

Mains electricity voltage is 230V

KEY
'Physics only' written in clouds.

AQA

TOPIC 2: ELECTRICITY

Electrical Quantities & Conductors

Current (I)

The rate of flow of charge

$$V = I R$$

Measured in Amps

Power (W)

Measured in Watts

$$E = P t$$

Rate of energy transfer

Resistance (R)

How hard it is for current to flow

Measured in Ohms

$$P = I^2 R$$

$$P = I V$$

$$E = Q V$$

$$Q = I t$$

Charge (Q)

Measured in Coulombs

Can only flow if there is a source of Potential Difference

Direct Current

Current flows in one direction

$$R = R_1 + R_2$$

Current is constant

Series Circuits

Circuit Arrangements

Alternating Current

Direction of current flow continually changes

Parallel Circuits

Current is split between branches

Potential Difference across each branch is the same

$$1/R = 1/R_1 + 1/R_2$$

National Grid

Power Lines

Transports current at very high voltages

Higher voltage reduces energy loss

Step-Down Transformers

Voltage decreases

Used between power lines and houses

Step-Up Transformers

Voltage increases

Used between power stations and power lines

AQA

