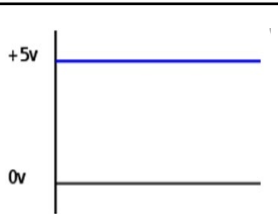


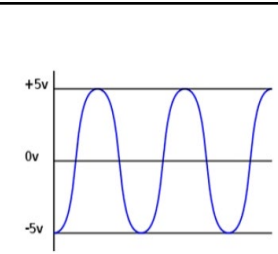
**AQA P2b Electricity in the home**  
**Higher Combined - Physics**

There are no RPs in this topic



**Direct current (D.C.)**

Current flows in one direction. Batteries and solar cells produce p.d. and so direct current in a circuit with a fixed p.d.



**Alternating current (A.C.)**

Current repeatedly changes direction. How often these changes happen is called frequency. UK mains electricity has an alternating current of 230V and a frequency of 50Hz

**National grid**

- Is the cables and transformers that connects the power stations to the consumers (houses etc)

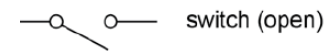
**Step up transformers**

Increase p.d. ( and decrease the current) in cables. Increases efficiency as it reduces energy lost as heat from cables.

**Step down transformers**

Decrease p.d (and increases current) so it is safer to use in homes etc.

**Appliances** – Power is energy transferred per second. Devices with high power ratings transfer energy faster than lower power devices. Devices designed to produce heat have high power ratings.



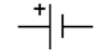
switch (open)

Breaks circuit; stopping the current



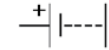
switch (closed)

Completes circuit; allows current to flow



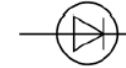
cell

Store of chemical energy



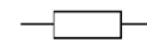
battery

Two or more cells



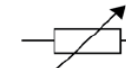
diode

Only allows current to flow one way



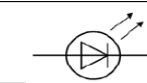
resistor

Fixed resistance reduces current



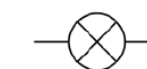
variable resistor

Changeable resistance reduces current



LED

Emits light



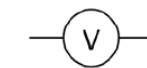
lamp

Emits light



fuse

Breaks circuit when current too high



voltmeter

Measures potential difference



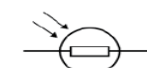
ammeter

Measures current



thermistor

Resistance decreases as temperature increases



LDR

Resistance decreases as light intensity increases

wire	colour	p.d.	function
Live	brown	230V	Carries current from power supply.
Neutral	blue	0V	Completes the circuit
Earth	Green and yellow	0V	Safety wire – stops device from becoming live.

**Potential difference and current**

Potential difference causes a current to flow. Power supplies provide a p.d. Current will always flow from a high p.d. to a low p.d.

**Electric shocks**

If you touch something with a high p.d., current will pass through you into the ground (0V p.d.)

Symbol equation	Word equation
$P = I V$	Power= current x potential difference
$P = I^2 R$	Power = current <sup>2</sup> x resistance
$E = P t$	Energy transferred = power x time
$E = Q V$	Energy transferred = charge x potential difference

Knowledge required from previous topic

**resistance** The amount an object reduces the current. Measured in ohms ( $\Omega$ )

<b>charge</b>	The number of electrons. Measured in coulombs (C)
<b>current</b>	Flow of charge (the speed of electrons). Measured in amps (A)
<b>potential difference</b>	Energy per electron . Measured in volts (V)