P5: Electricity In The Home Knowledge Organiser PT26.1

Direct current , d.c.	•Current that flows in one direction only in a circuit. •Current from a battery is usually d.c.
Alternating current, a.c.	•Current that repeatedly flows in one direction then the other (reverses) •Mains electricity is a.c. • Mains a.c. has a frequency of 50 cycles per second or 50 Hz. •Frequency of an a.c. supply = 1 ÷ the time taken for one cycle
Live wire	•The brown wire in a plug •In mains electricity, it carries a p.d. that alternates between -325V and +325V
Neutral wire	•The blue wire in a plug •Carries 0V p.d.
Earth wire	•The green and yellow striped wire in a plug •Connected to the longest pin •Stops the metal case of an appliance becoming live
Fuse	•Melts if too much current passes through it which breaks the circuit •A safety device •Can be 3A, 5A or 13A depending on the appliance •To decide what fuse to use, divide the power of the appliance by the p.d.
Power, P	•The energy in Joules transferred to a device per second •Measured in Watts, W •Can be calculated in many different ways! →
Charge, Q	•The electrons that flow in a circuit •Measured in Coulombs, C •Charge flow through a resistor causes it to become hotter because the electrons collide with the ions in the resistor. The ions gain KE and so vibrate faster. This increases their thermal energy store.

Electrical work	•The battery does work in a circuit to make the electrons move. •The work done by the battery is equal to the energy transferred to the resistor
Oscilloscope	•A device that shows how an alternating p.d. changes with time. •The Y-gain control changes how tall the waves are •The time base control changes how many waves fit on the screen. •The peak p.d. is the difference in volts between the highest and the middle level of the waves. If the p.d. of an a.c. Supply is higher, the waves (peak p.d.) get higher.

Key Equations To Learn	
Energy, E	Energy = Charge x Potential Difference $E = Q \times V$
Charge, Q	Charge = Current x Time $Q = I \times t$
Power, P	Power = Energy ÷ Time $P = E \div t$
Power, P	Power = Current x Potential Difference $P = I \times V$
Power, P	Power = Current^2 x Resistance $P = I^2 \times R$