

Review P2.4 Mains electricity and power

<i>Can you...?</i>	😊	😐	😞
P2.4.1 Household electricity			
Understand the principles of safe practice and recognise dangerous practice in the use of mains electricity			
Explain the difference between direct current (d.c.) and alternating current (a.c.)			
Compare and calculate the potential differences of d.c. supplies and the peak potential difference of a.c. supplies from diagrams of oscilloscope traces			
(HT) Determine the period and therefore the frequency of a supply from diagrams of oscilloscope traces			
Remember the frequency and peak potential difference of the UK mains electricity supply			
Describe the structure of two-core and three-core electrical cable			
Evaluate and explain the need to use different cables for different appliances			
Describe the structure and materials used in a three-pin plug and explain how to wire one safely			
Describe the role of fuses or circuit breakers in disconnecting circuits if an electrical fault causes the current to become too great			
Explain how a fuse disconnects a circuit if the current exceeds the rating of the fuse			
Compare the uses of fuses and circuit breakers			
Remember that residual current circuit breakers (RCCBs) work by detecting a difference in the current between the live and neutral wires			
Describe how the earth wire and fuse together protect the wiring of the circuit in appliances with metal cases (unless they are double insulated)			
P2.4.2 Current, charge and power			
Describe the effect of electrical charge flowing through a resistor, and use this idea to explain why filament bulbs waste so much energy			
Consider the factors involved when making a choice of electrical appliances, including efficiency and power			
Explain that the power of an electrical appliance is the rate at which it transforms energy			
Calculate the rate of energy transfer, or power (P) from the energy transferred (E) and time (t)			
Calculate power (P) from current flowing through (I) and potential difference across (V) an appliance			
(HT) Calculate energy transferred (E) from potential difference (V) and charge (Q)			