

Name _____ Class _____ Date _____

Lesson	Aiming for 4		Aiming for 6		Aiming for 8	
P5.1 Alternating current	I can state that the UK mains supply is a high-voltage alternating current supply.	<input type="checkbox"/>	I can describe the characteristics of the UK mains supply.	<input type="checkbox"/>	I can explain the process of half-wave rectification of an a.c. source.	<input type="checkbox"/>
	I can state simple differences between a.c. and d.c. sources.		I can compare a.c. traces in terms of period and amplitude (voltage).	<input type="checkbox"/>	I can analyse a.c. traces with an oscilloscope to determine the voltage and frequency.	<input type="checkbox"/>
	I can describe how the trace on an oscilloscope changes when the frequency or amplitude of the signal is changed.		I can operate a cathode ray oscilloscope to display an a.c. trace.	<input type="checkbox"/>	I can compare and contrast the behaviour of electrons in a wire connected to d.c. and a.c. supplies.	<input type="checkbox"/>
P5.2 Cables and plugs	I can identify the live, neutral, and earth wires in a three-pin plug.	<input type="checkbox"/>	I can discuss the choices of materials used in cables and plugs in terms of their physical and electrical properties.	<input type="checkbox"/>	I can explain why it is not necessary for some appliances to be earthed.	<input type="checkbox"/>
	I can identify the key components of a typical three-pin plug and socket.		I can describe why a short circuit inside a device presents a hazard.		I can explain when there will be a current in the live, neutral, and earth wires of an appliance.	
	I can identify simple and obvious hazards in electrical wiring.		I can identify a variety of electrical hazards associated with plugs and sockets.		I can discuss in detail the hazards associated with poor electrical wiring.	
P5.3 Electrical power and potential difference	I can state that the power of a device is the amount of energy transferred by it each second.	<input type="checkbox"/>	I can calculate the power of systems.	<input type="checkbox"/>	I can measure and compare the power of electrical devices and explain variations in readings.	<input type="checkbox"/>
	I can describe the factors that affect the rate of energy transfer by a current in a circuit.		I can calculate the power of electrical devices.	<input type="checkbox"/>	I can calculate the electrical heating caused by resistance.	<input type="checkbox"/>
	I can explain why different fuses are required electrical devices in simple terms.		I can select an appropriate fuse for a device.	<input type="checkbox"/>	I can combine a variety of calculations to analyse electrical systems.	<input type="checkbox"/>

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P5.4 Electrical currents and energy transfer	I can state that an electric current consists of a flow of charge (electrons in a wire).	<input type="checkbox"/>	I can calculate the charge transferred by a current in a given time.	<input type="checkbox"/>	I can perform calculations involving rearrangement of the equations $Q = It$ and $E = VQ$.	<input type="checkbox"/>
	I can identify the factors that affect the energy transfers in a circuit.	<input type="checkbox"/>	I can calculate the energy transferred by a charge passing through a potential difference.	<input type="checkbox"/>	I can explain how energy is conserved in terms of current and p.d. during energy transfers by an electric current.	<input type="checkbox"/>
	I can state that a battery or power supply provides energy to a current whereas a resistor causes a transfer of energy to the surroundings.	<input type="checkbox"/>	I can apply the law of conservation of energy in a circuit.	<input type="checkbox"/>	I can use algebra to combine the equations $Q = It$ and $E = VQ$ to form the relationships $E = VIt$ and $P = IV$.	<input type="checkbox"/>
P5.5 Appliances and efficiency	I can describe the factors that affect the cost of using various electrical devices.	<input type="checkbox"/>	I can calculate energy transfer in kilowatt-hours.	<input type="checkbox"/>	I can convert between relevant units during calculations of energy transfer.	<input type="checkbox"/>
	I can calculate energy transfer in joule.	<input type="checkbox"/>	I can convert between efficiencies stated in percentages and those stated in decimal forms.	<input type="checkbox"/>	I can analyse the use of a variety of electrical devices to determine their costs of operation.	<input type="checkbox"/>
	I can state that energy transfer can be measured in kilowatt-hours.	<input type="checkbox"/>	I can calculate the power rating of a device from the energy transferred and the time of operation.	<input type="checkbox"/>	I can compare a range of electrical devices in terms of efficiency using calculations to support any	<input type="checkbox"/>