



SP10 Electricity and circuits

Personal learning checklist | 1 of 2

GCSE Edexcel Separate Sciences | Physics Paper 2

Name _____ Class _____ Date _____

Tick one box for each statement. Red: need help. Amber: partly confident.
Green: can do independently.

I can	Red	Amber	Green
Charge and circuit measurements			
Describe charge carriers, conventional current, complete circuits and standard circuit symbols.	☐	☐	☐
Connect ammeters in series and voltmeters in parallel and explain appropriate circuit measurement.	☐	☐	☐
Explain current as charge flow and calculate charge, current or time.	☐	☐	☐
Explain potential difference as energy per charge and calculate voltage, energy or charge.	☐	☐	☐
Series and parallel			
Apply series current, voltage and resistance rules to calculate circuit values.	☐	☐	☐
Apply junction and branch-voltage rules and explain why parallel additions reduce total resistance.	☐	☐	☐
Compare series and parallel lamp failures and explain independent household branches.	☐	☐	☐
Resistance and components			
Calculate resistance using voltage and current and explain effects of wire length, thickness and temperature.	☐	☐	☐
Interpret resistor, filament lamp and diode current-voltage curves and relate them to changing resistance.	☐	☐	☐
Describe LDR and NTC thermistor responses and use them in sensing circuits.	☐	☐	☐

My next revision priority _____



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Circuit investigations			
Plan safe current-voltage and series/parallel investigations using paired measurements, suitable ranges, controls and repeats.	☐	☐	☐
Heating, energy and power			
Explain electrical heating through electron-lattice collisions and distinguish useful from unwanted heating.	☐	☐	☐
Explain how low-resistance wires reduce unwanted energy transfer (Higher).	☐	☐	☐
Calculate electrical energy using voltage, current and time and interpret appliance energy transfers.	☐	☐	☐
Calculate power using energy/time, current-voltage and current-squared resistance and interpret power ratings.	☐	☐	☐
Mains supply and safety			
Distinguish DC from AC and describe UK mains voltage, frequency and repeated direction changes.	☐	☐	☐
Describe live, neutral and earth functions, colours and potentials.	☐	☐	☐
Explain earthing, fuses, breakers, live-wire switching and live-earth shock risks.	☐	☐	☐
Explain appropriate fuse ratings and double insulation and compare protective-device operation.	☐	☐	☐

My next revision priority _____