Electric current

Specification reference	Checklist questions	
3.5.1.1	Can you explain electric current as the rate of flow of charge?	☐
3.5.1.1	Can you explain potential difference as work done per unit charge?	☐
3.5.1.1	Can you use the formulae $I = \frac{\Delta Q}{\Delta t}$ and $V = \frac{W}{Q}$?	☐
3.5.1.1	Can you define resistance as $R = \frac{V}{I}$?	☐
3.5.1.2	Can you recognise and use ohmic conductors, semiconductor diodes, and filament lamps?	☐
3.5.1.2	Can you explain Ohm's law as a special case where $I \propto V$ under constant physical conditions?	☐
3.5.1.2	Can you interpret characteristic graphs where I or V is on the horizontal axis?	☐
3.5.1.3	Can you explain resistivity and use the equation $\rho = \frac{RA}{L}$?	☐
3.5.1.3	Can you describe the effect of temperature on the resistance of metal conductors and thermistors?	☐
3.5.1.3	Can you describe application of thermistors as temperature sensors?	☐
3.5.1.3	Can you describe and sketch how resistance varies with temperature for a metal wire and for a thermistor?	☐
3.5.1.3	Can you describe superconductivity as a property of certain materials that have zero resistivity at/below a critical temperature which depends on the material?	☐

12 Electric current Checklist

Specification reference	Checklist questions	
3.5.1.3	Can you describe some applications of superconductors, including their use in the production of strong magnetic fields and the reduction of energy loss in transmission of electric power?	☐
3.5.1.3	Have you carried out a practical to determine resistivity of a wire using a micrometer, ammeter, and voltmeter?	☐