

Capacitance

Specification reference	Checklist questions	
6.1.1 a	Can you explain capacitance, $C = \frac{Q}{V}$?	<input type="checkbox"/>
6.1.1 a	Can you define the unit farad?	<input type="checkbox"/>
6.1.1 b	Can you describe charging and discharging of capacitors in terms of the flow of electrons?	<input type="checkbox"/>
6.1.1 c	Can you demonstrate the total capacitance of capacitors in series, $\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$?	<input type="checkbox"/>
6.1.1 d	Can you demonstrate the total capacitance of capacitors in parallel, $C = C_1 + C_2 + \dots$?	<input type="checkbox"/>
6.1.1 e i	Can you describe an analysis of circuits containing capacitors?	<input type="checkbox"/>
6.1.1 e ii	Can you understand an investigation of circuits containing capacitors?	<input type="checkbox"/>
6.1.2 a	Can you understand p.d.–charge graphs for capacitors?	<input type="checkbox"/>
6.1.2 b	Can you describe how energy is stored by capacitors?	<input type="checkbox"/>
6.1.2 b	Can you demonstrate that $W = \frac{1}{2} QV = \frac{1}{2} \frac{Q^2}{C} = \frac{1}{2} V^2 C$?	<input type="checkbox"/>
6.1.2 c	Can you describe the use of capacitors to store energy?	<input type="checkbox"/>
6.1.3 a i	Can you describe discharging a capacitor through a resistor?	<input type="checkbox"/>
6.1.3 a ii	Can you investigate the charge and the discharge of a capacitor?	<input type="checkbox"/>

Specification reference	Checklist questions	
6.1.3 b	Can you explain the time constant CR of a capacitor–resistor circuit?	<input type="checkbox"/>
6.1.3 c	Can you demonstrate $x = x_0 e^{-\frac{t}{CR}}$ and $x = x_0 (1 - e^{-\frac{t}{CR}})$ for capacitor–resistor circuits?	<input type="checkbox"/>
6.1.3 d	Can you demonstrate the modelling of the equation $\frac{\Delta Q}{\Delta t} = \frac{-Q}{CR}$ for a discharging capacitor?	<input type="checkbox"/>
6.1.3 e	Can you explain exponential decay and the constant-ratio property of decay graphs?	<input type="checkbox"/>