Capacitance

Checklist statement	✓
I can define capacitance.	☐
I can apply $C = \frac{Q}{V}$, define all terms and know their standard units.	☐

Parallel Plate Capacitor

Checklist statement	✓
I can describe the effect of a dielectric in a capacitor.	☐
I can define relative permittivity and dielectric constant.	☐
I can apply $C = \frac{\varepsilon_0 \varepsilon_r A}{d}$, define all terms and know their standard units.	☐
I can describe how a simple polar molecule behaves in an electric field.	☐

Energy Stored by a Capacitor

Checklist statement	✓
I can interpret the area under a graph of charge against potential difference.	☐
I can apply $E = \frac{1}{2}QV$, define all terms and know their standard units.	☐
I can apply $E = \frac{1}{2}CV^2$, define all terms and know their standard units.	☐
I can apply $E = \frac{Q^2}{2C}$, define all terms and know their standard units.	☐

Capacitor Charge and Discharge

Checklist statement	✓
I can describe charging and discharging of a capacitor through a resistor.	☐
I can interpret graphs of charge, potential difference and current against time during charging and discharging.	☐
I can interpret gradients and areas under capacitor graphs where appropriate.	☐
I can define the time constant, RC.	☐
I can calculate time constants from circuit data and from graphs.	☐
I can apply the time-to-halve relationship $T_{1/2} = 0.69RC$, define all terms and know their standard units.	☐
I can apply $Q = Q_0 e^{-t/RC}$, define all terms and know their standard units.	☐
I can apply the corresponding equations for potential difference and current during capacitor discharge.	☐
I can apply $Q = Q_0(1 - e^{-t/RC})$, define all terms and know their standard units.	☐
I can describe a required practical investigating capacitor charge and discharge and determining the time constant.	☐