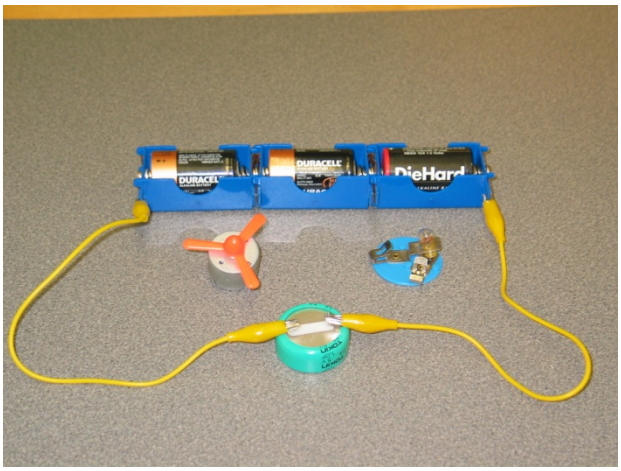
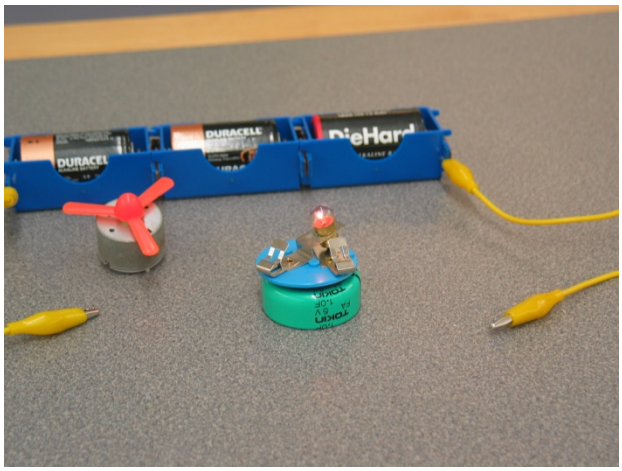
Storing Energy in a Capacitor





Purpose: To show that when voltage from batteries is applied across the terminals of a capacitor the resulting current charges the capacitor, thereby storing energy.

Location: Room 146; shelf M2 (more batteries on B2)

First, show that the light bulb does not light, nor does the fan spin when connected to the terminals of an uncharged 1 farad capacitor. Then connect 3 size D batteries (in holders) in series, and connect the end posts to the terminals of a 1 farad capacitor as shown (left). Let the capacitor charge for about 10 – 15 seconds.

Disconnect the capacitor then show that it can run the fan motor or light the bulb (right) as it discharges, without help from the batteries. Since the current from the capacitor can be used to do work or generate heat and light, it must be that it stores energy.

You can use a voltmeter (A4) or voltage probe (C4) to show the changing voltage across the capacitor terminals as it discharges.