IEEE's Hands on Practical Electronics (HOPE)

Week 4: Capacitors

Objective:

Learn about an important use of capacitors.

Warnings:

Depending on the size of the capacitor, when you discharge there may be sparks.

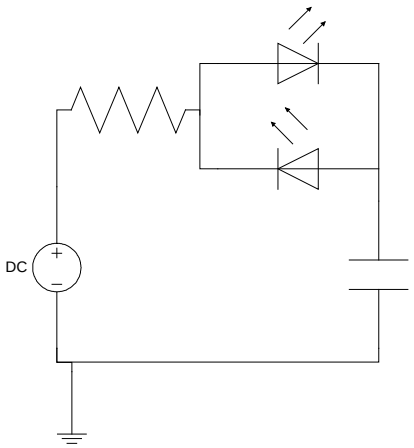
Hints:

If you twist the wires together, current will still flow between them.
You can untwist it and remove the resistor so you can re-use the same capacitor.
Otherwise you will need three capacitors.

Materials:

1 Breadboard
1 9V Battery
2 1kΩ Resistors
1 μF Capacitor

Build the circuit shown below.



Questions:

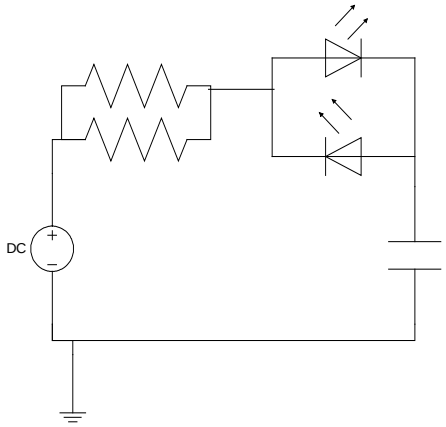
1. When you attach the battery and the current starts flowing, which LED turns on?

Now disconnect the battery and short the resistor to ground.

2. Which LED turns on now?

Part 2:

Now try building this circuit.



3. Compared to the previous circuit, which capacitor charged faster?

4. Can you explain why?