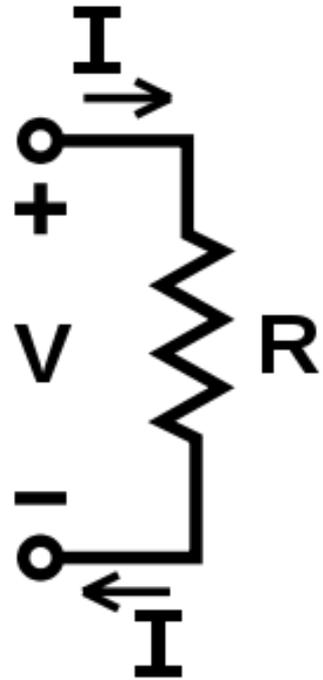


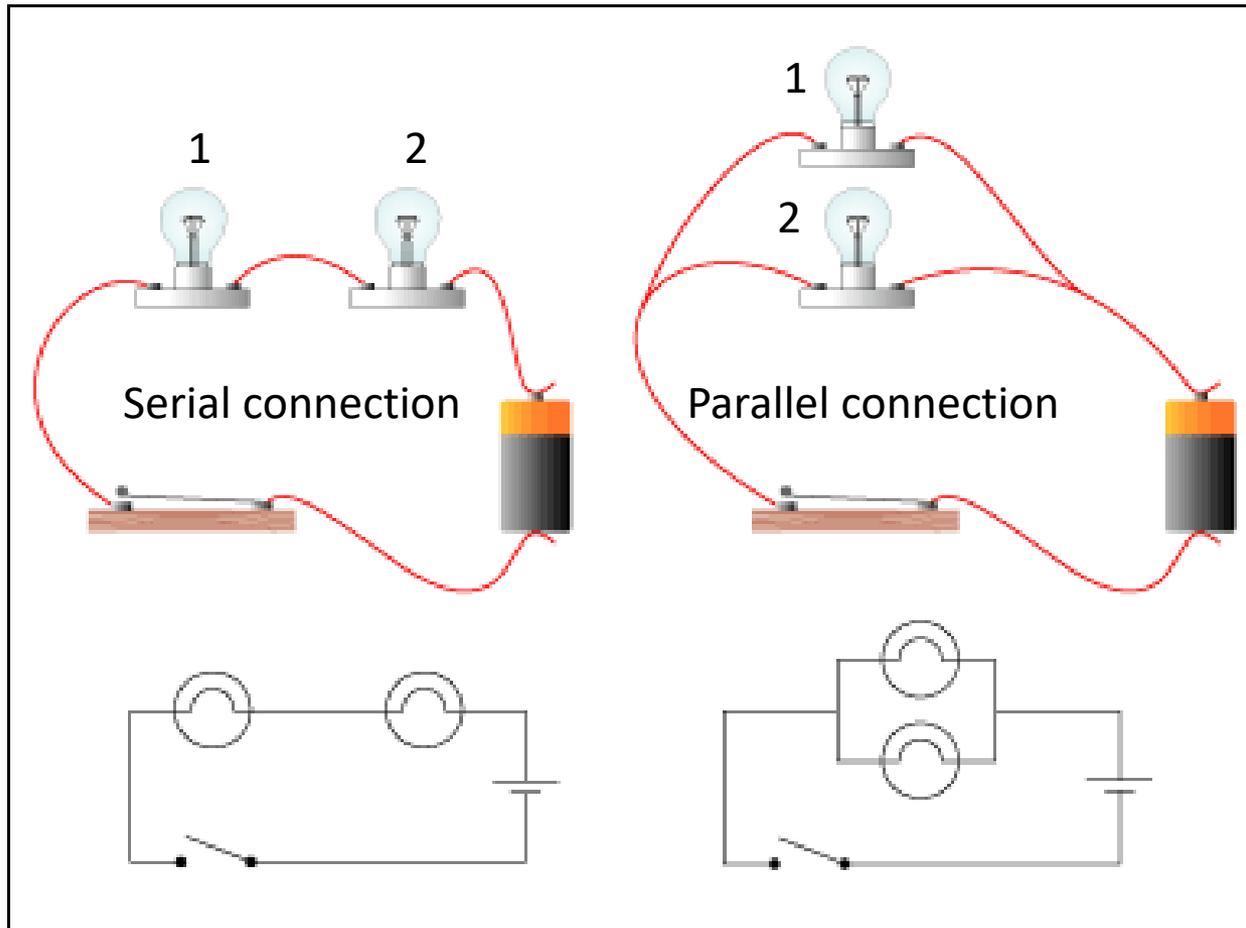
Ohm's Law

$$V = I \cdot R$$

- **V** is **Voltage Drop**, the **Potential Difference** between two ends of a wire (or resistor, light bulb etc). Measured in **Volts [V]**
- **I** is **Electric Current**, the total charge flowing through the wire in 1 sec. Measured in **Amperes [A]** (Coulomb per second) : **1A=1C/s**
- **R** is **Resistance** of the wire. Measured in **Ohms [Ω]**. **1Ω=1V/A**



Serial and Parallel Circuits



Serial connection:

- Currents are the same: $I_1 = I_2$
- Voltage is added: $V = V_1 + V_2$

Homework

Problem 1

An electric heater is made out of a piece of wire with resistance $R = 10 \Omega$, plugged into a standard 110V outlet. Find the current through this wire.

Problem 2

Two resistors, 10Ω and 20Ω are connected to a 1.5V battery in series. Sketch the circuit and find the total current flowing via the battery.

You want to replace these two resistors with a single one, so that the current through the battery stays the same. How large should be its resistance?