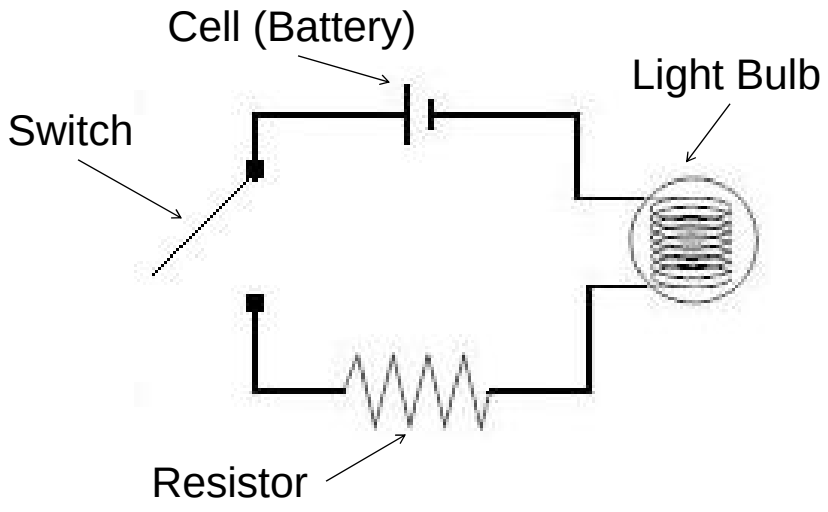
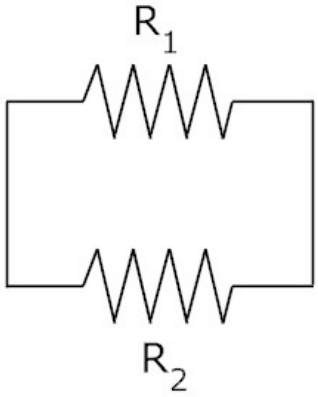
Electric Circuits

Circuit Diagram



Series

Parallel



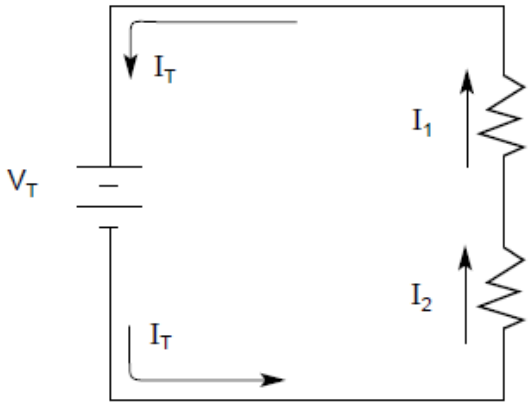
Cells in Series and Parallel

- Series
  - Potential differences (Voltages) add together
    - Three 1.5 V batteries in series would provide 4.5 V
- Parallel
  - Potential difference (voltage) does not change, but the cells are able to provide more current
    - Three 1.5 V batteries in parallel would still provide 1.5 V, but more current can be supplied to the circuit

Resistors in Series

$$V_T = V_1 + V_2$$

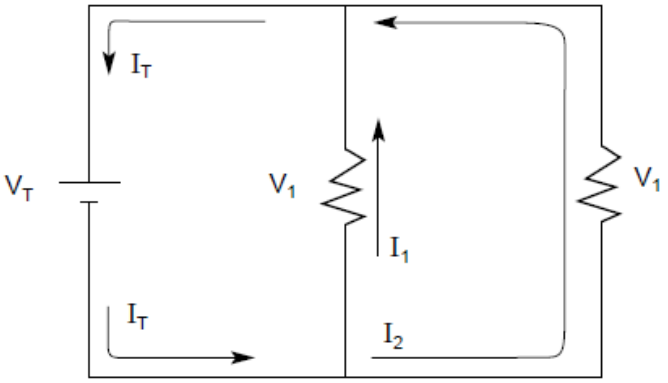
$$I_T = I_1 + I_2$$



Resistors in Parallel

$V_T = V_1 = V_2$

$I_T = I_1 + I_2$



Current, Voltage, and Resistance

- In an electrical circuit with constant voltage, the current depends on the amount of resistance
  - High resistance, low current
  - Low resistance, high current

- In an electrical circuit with constant resistance, the current varies with the voltage
  - High voltage, high current
  - Low voltage, low current