Coulombs, Current, Potential Difference and Power

A Coulomb is a measure of charge (how much charge you have). It is equivalent to 6.25×10^{18} electrons. If you think of a coulomb as being like a group of electrons, it will work.

Current: The amount of charge that passes a given point in a specified time.

$$I = \frac{Q}{t}$$

Q = charge (coulombs C)

t = time (seconds s)

I = current (amperes A such that A = C/s)

Potential Difference (a.k.a. "Voltage"): The amount of energy per coulomb.

$$V = \frac{E}{Q}$$

V = potential difference (voltage) (volts V)

E = energy (joules J)

Q = charge (coulombs C)

Power: measure of energy use in a specific time

$$P = \frac{E}{t}$$

P = power (watts W)

E = energy (joules J)

t = time (seconds s)

Alternate equation for power:

$$P = \frac{E}{t}$$

$$P = \frac{E}{Q} \times \frac{Q}{t}$$

$$P = V \times I$$

P = power (watts W)

V = potential difference (volts V)

I = current (amperes A)

Power: