

Current Notes

Current - amount of charge moving through a conductor in an interval of time.

- scalar - symbol = I - units = $\frac{C}{s}$
= Ampere
= Amps (A)

$$I = \frac{\Delta q}{\Delta t}$$

My vacuum uses 8 Amps of current, how much charge passes through it in 2 minutes?

$$I = 8 A$$

$$t = 120 s$$

$$q = ?$$

$$\Delta q = I \Delta t = 960 C$$

There's two types of current:

DC - Direct Current

- flows at a constant pace

- battery
 - AC - Alternating Current
 - reverses its flow at a certain frequency.
 - US $f = 120\text{Hz}$
 - generators
-

Current flows from high voltage to low voltage.

Conventional current - flow of $\oplus$ charges to the negative side of the battery.

- In reality, electrons move from $\ominus$ to $\oplus$.

When a battery has both $\oplus$ and $\ominus$ connected by a wire, charges move.

Circuit - path of conducting material that allows charges to flow (current).

Circuit diagrams:

wire = —

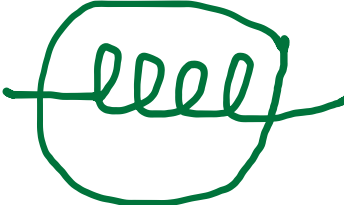
battery =  2 Batteries 

AC source = 

switch = 
open

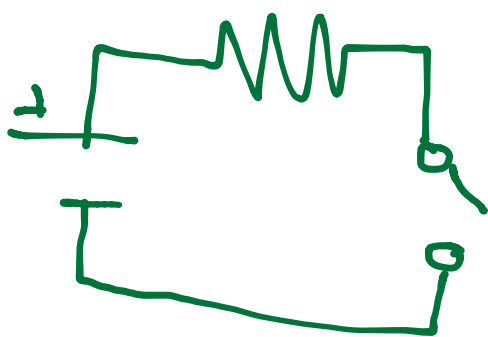

closed

resistor = 

light bulb = 

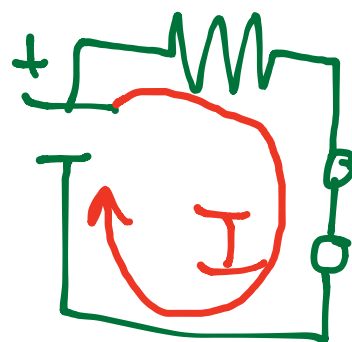
Circuits can be categorized as:

Open



No
current

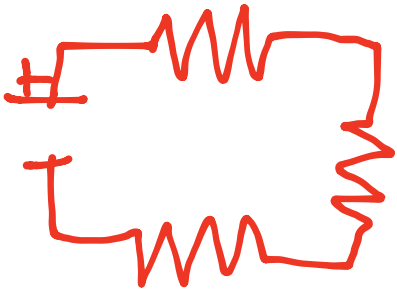
Closed



Yes,
current!

Series

- only one path for current to travel through.

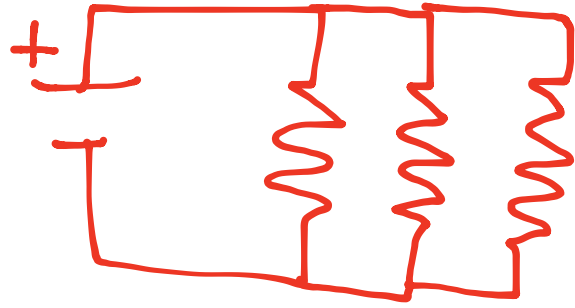


Pro: Cheap + easy to make

Con: no redundancy
- not very complex

Parallel

- multiple paths carrying current.



Pro: redundant
more complex

Con: more expensive