

What is electricity?

Electricity always takes the-

How Electricity flows through something depends on whether it is a conductor or an insulator

- Conductor- Electricity flows through easily-
- Insulator- Electricity does not flow through easily-

AC-

DC-

Parallel Circuit-

Series Circuit-

Characteristics of Electricity (3)

- Voltage (V)(volts): voltage can be thought of as electrical pressure, it is the force that causes electrical charge to move or flow through a system.
- Current (I)(amps): electric current is measured in amperes, and is defined as the rate at which electric charge travels through a conductor.
- Resistance (R)(ohms): the rate at which electricity flows through a circuit. Increased resistance results in a decrease in the amount of current that will flow through the wire. Light bulb filament uses resistance to make light.
  - 4 factors affect resistance

Ohm's Law

- Mathematical formula that is used to describe the relationship between voltage (V), current (I), and resistance (R). Ohm's law can be written as follows:

Sample Problems

### Electricity when compared to water/river

- Volts/Voltage-
- Amps/Current-
- Resistance/Ohms-
- Wide river with lots of water moving very fast=
- Narrow river with little water moving very slow=
- Wide river with lots of water moving very slow=
- Narrow river with little water moving very fast=

### Electricity compared to vehicles

- High voltage-
- Low voltage-
- High Current-
- Low Current-
- High resistance-
- Low resistance-

### Electrical Power( )

- Power = current x voltage
- Watts = amps x volts
- $W = I \times V$
- $I = W / V$
- $V = W / I$

### Calculate the cost

- Kilo =
- Kilowatt =
- Kilowatt-hour = 1000 watts power used for one hour
- Kilowatt-hour costs about
- A microwave uses 1000 watts, if you ran the microwave for 1 hour it would cost 8 cents.