

# Volts, Ohms, Amperes, Henries, and Farads? Oh My!

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# Electromotive Force

- The force behind electron flow
- Symbol is 'E'
- Measured in Volts, 'v'
- Measured by a voltmeter
- Measurement is made in parallel with the circuit
- May also be called “electric potential’

# Current ... The Flow of Electrons

- The symbol for current is 'I'
- The amount of current flowing is measured in 'Amperes', denoted by an 'A'
- Current is measured by an 'ammeter'
- Measurement is made in series with the circuit
- Current flowing in one direction is called "direct current"
- Current flowing in one direction and then the other is called "alternating current"
- The number of times per second that the direction changes is the "frequency" and is measured in Hertz (cycles per second)

# Power

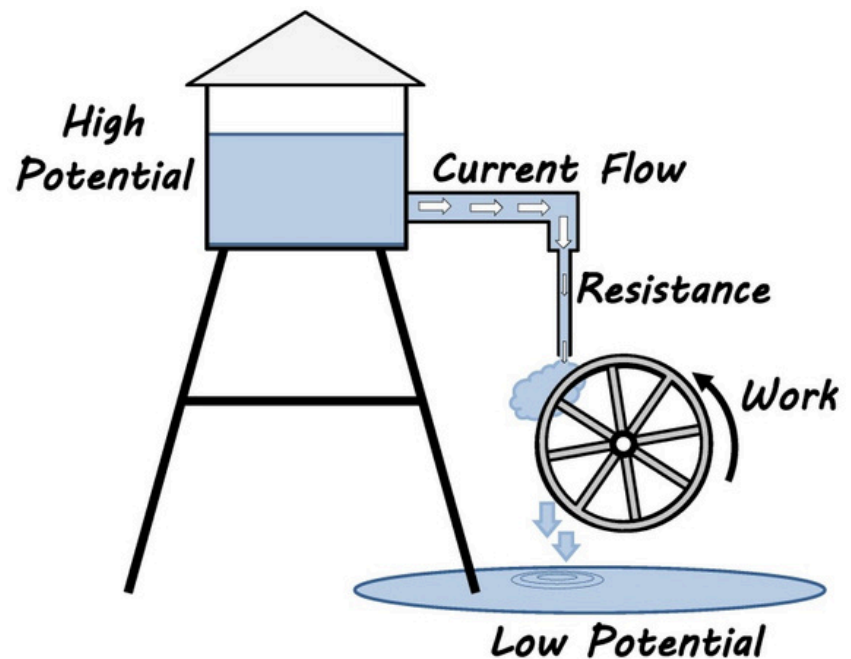
- The rate at which electrical energy is being used
- Measured in Watts

# Resistors Oppose the Flow

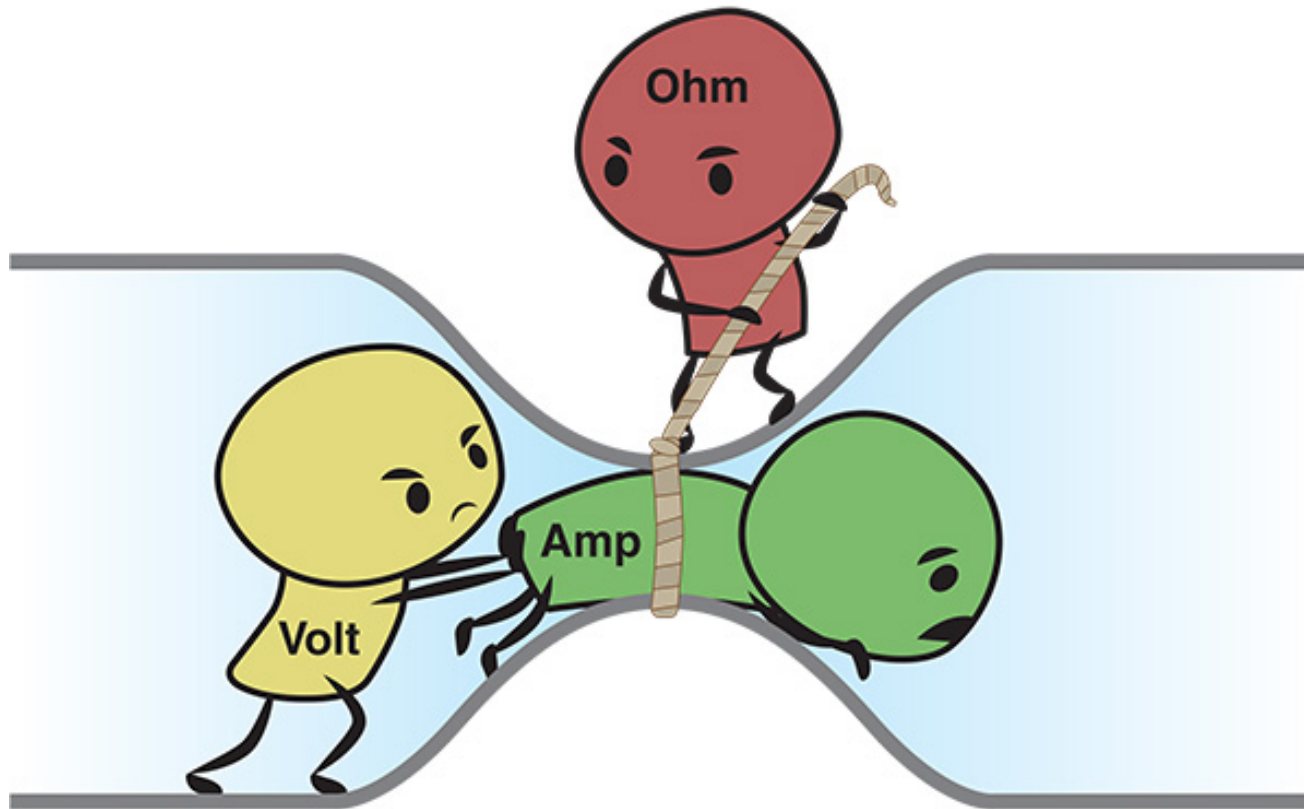
- Resistance is measured in ‘ohms’
- The symbol for ohms is the Greek letter ‘ $\Omega$ ’
- Resistance is measured by an ‘ohmmeter’
- The resistance in a circuit usually cannot be directly measured, but can be calculated
- The current that doesn’t pass is dissipated as heat

# The Water Analogy

- Electromotive Force = water pressure
- Current = the water flow
- Resistance = the constraints in the plumbing

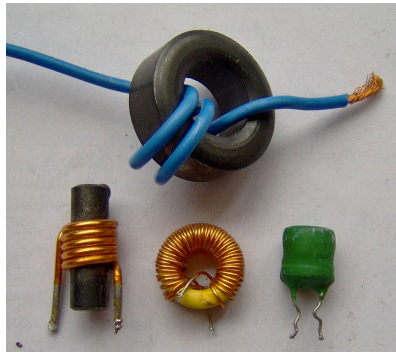


# Volts, Amps, Ohms



# Henries and Farads

- Inductance is produced by a coil of wire that opposes the flow of current, storing some of the energy in a magnetic field
- Inductance is measured in 'Henries'
- The symbol is the letter 'H'



- Capacitance is produced by two conductors separated by an insulator, storing energy in an electrical field
- Capacitance is measured in Farads
- The symbol is the letter 'F'





**Jot down any questions  
you may have to ask  
during the online meeting**