Resistance

Name: _____ Date: _____

Resistance:

How much energy does it take to push one Coulomb of charge through a wire?

- It depends on the resistance of the wire

Factors that affect resistance of a wire:

Length of Wire	
Diameter of Wire	
Material of Wire	
Temperature of Wire	

You can <u>calculate</u> the **resistance** of any load by measuring the **potential difference (voltage)** across a load (using a Voltmeter), measuring the **current** (using an ammeter) and applying **<u>Ohm's Law</u>**.

Ohm's Law

$$R = \frac{V}{I}$$

Where,

- **V** = potential difference - measured in Volts (V)
- **I** = current - measured in Amps (A)
- **R** = resistance - measure in Ohms (Ω)

Example 1: A current of 12.5 A runs through a heating coil plugged into a 120 V wall outlet. Calculate the resistance of the coil.

Example 2: A resistor has a resistance of 23 Ohms. A potential difference of 5 V is measured across the resistor. Calculate the current going through the resistor.