Voltage, Current, and Resistance in a circuit are related by Ohm's law

Ohm's Law

- The electrical potential difference between two points in a circuit is equal to the current ______ the resistance between those two points.
- Formula:

_____: electrical potential difference (voltage) in volts (V)

_____: current in amperes (A)

_____: resistance in ohms (Ω)

Using Ohm's Law

• You can rearrange the variables in Ohm's law to calculate any of the other variables if you know the value of the other two.

V = IR

- To find resistance: R = _____
- To find current: I = _____

Using Ohm's Law: Sample Problem

- The filament of a light bulb has a resistance of 20 Ω. A 5.0 V battery is used in the circuit. What is the current?
- 1) Rearrange Ohm's law (V = IR) into the formula to find current (I).

V = IR

I = V/R

2) Substitute the values for R and V into the formula:

- *l* = _____V / _____Ω
- I = _____

The current is _____

Discussion Questions

- 1. List the three symbols used in Ohm's law. Explain what each symbol represents and give the units for each of the variables.
- Activity: Looking at Current, Voltage and Resistance

