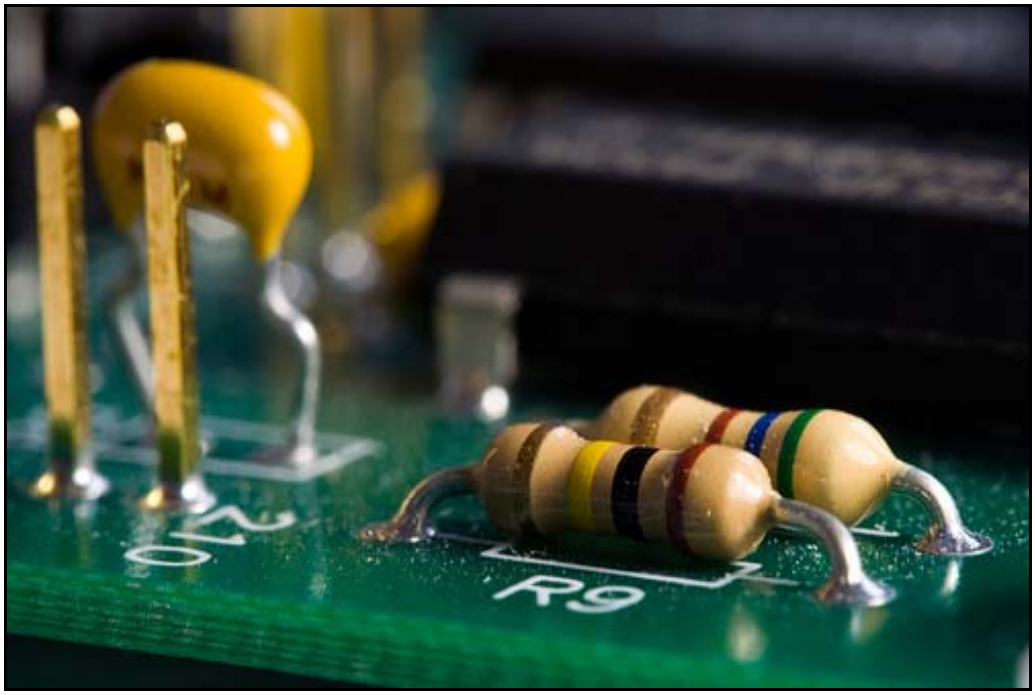
EXPERIMENT 2 SUPPLEMENTAL LAB

Ohm's Law



Produced by the Physics Staff at Collin College

Name: _____ **Section:** _____

Ohm's Law

In its simplest form, Ohm's law states that the current in an electrical circuit is directly proportional to the applied voltage and the resistance of the circuit. This can be expressed as I=V/R where I=current, V=Voltage, and R=Resistance.

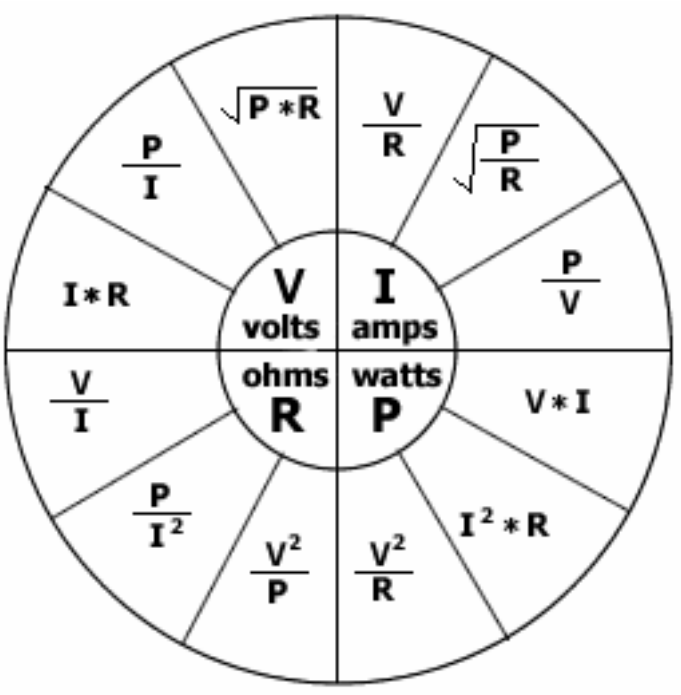
The electrical power of a circuit can be expressed as P=VI, and with a little algebra we can use Ohm's Law to express the power 3 ways:

(1) P=VI

(2) $P=I^2R$

(3) $P=V^2/R$

In this experiment you will confirm each of these three equations. The figure to the right is a convenient way to summarize the 12 basic formulas for Ohm's Law.



Procedure:
You will use the same equipment that you used in the regular Ohm's Law lab. Select a resistor and create a circuit with the power supply. Using the appropriate meters, measure the current through the resister and voltage across it. Record your readings below.

Resistance: _____ **Current:** _____ **Voltage:** _____

Next, plug your numbers into each of the 3 power equations and verify that each expression yields the same power. Show your work below:

Questions:

1. Discuss how your power calculations compare to one another.

2. Power equals the rate of energy usage. What happens to the electrical energy used by the resistor in this experiment?