**Resistors**

**Review:**

**Load:** Any device that converts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into another form of \_\_\_\_\_\_\_\_\_.

A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in an electrical circuit resists, or opposes, the flow of electrical current. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ **is the load** in a circuit and converts electrical energy to another form of energy, such as light energy or heat energy.

**Resistor:** The load in a circuit that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of electrical current.

Examples:

**Circuit Diagram Symbol for Resistors**:

**Resistance** **(R):** The measure of how much a resistor will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the flow of electrical current.

Resistance is measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Resistance usually follows a normal set of rules. If I want to **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** my resistance, I should make the resistor **\_\_\_\_\_\_\_\_\_\_\_\_\_** and \_\_\_\_\_\_\_\_\_\_\_\_\_\_**.** If I want to **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** my resistance I should make my resistor **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.** This is much like drinking a milkshake. It is difficult to drink through a long, thin straw. But a short wide water tube will allow you to drink easily. (ex. Straw vs. wide tube)

**How to Read the Resistance off a Resistor:**

Most all carbon resistors have three or four coloured bands on them to help us identify what the approximate resistance is.

The first two bands represent the first two digits of the resistance. The third band represents the number of zeros that follow the two digits.

Example 1:

A resistor has a blue, orange and black band (in order). What is the resistance of this resistor?

Example 2: What is the resistance of the following resistor?



While a source, like an electric cell or battery, gives energy to electrons, pushing them onward through the circuit, a resistor takes energy from the electrons in a circuit. A resistor will reduce the current flowing through a circuit. The more resistance, the less the current.

**Ohm's Law**

The resistance of a component was defined as the ratio of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ across a component to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ flowing through the component. In other words the resistance of an object is the voltage (energy per coulomb used) in it divided by the current flowing through it. Or:

Example 1: A single resistor circuit was measured to have 1.2 V and 0.5 A. What is the resistance of the resistor?

Example 2: A resistor of 150 Ω has 430 mA of current running through it. What is the voltage across the resistor?

Example 3: A 4 V voltage is measured across a resistor with bands red, black, brown. What is the current through the resistor?