**Model 10 - Current Electricity**

**Worksheet 1**

1. Compare and contrast the terms potential difference, current, and resistance and their relationship to moving charges.
2. Explain the differences and give examples of alternating and direct current.
3. Use Ohm’s law to describe mathematically how potential difference, current, and resistance are related to each other.
4. Use your knowledge of electrical power to describe mathematically how potential difference, current, and resistance are related to electrical power.
5. How much current flows through a light bulb that has 7 ohms of resistance when 110 volts are applied to it?
6. How much current flows through a heating element that has a resistance of 50 ohms when 230 volts are applied to it?
7. How much current flows through an electric toaster that has a resistance of 32 ohms when 120 volts are applied to it?
8. What is the resistance of a 60 Watt light bulb that allows 0.500 A to flow when 120 V is applied to it?
9. What is the resistance of a heating element that allows 15 amps to flow when 440 V is applied to it?
10. What battery voltage would cause .075 amps to flow through a 300 ohm resistor?
11. How much voltage is required to make 15 amps flow through a 7.5 ohm resistance?
12. A battery causes 250 mA to flow when it is applied to a light bulb with a resistance of 50 ohms. How much current would flow if the same source were applied to a 12 ohm resistor?
13. A 160 ohm load is connected to a 325 volt source. If the source voltage increases to 425 volts, what value must the load resistance be changed to keep the current flow the same?
14. A 100 W light bulb draws 833 mA when the rated voltage is applied. What is the rated voltage?