Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_/\_\_\_/\_\_\_

**Answer Key: Electrical Power**

**Lab #3 – Determine the Function of Fuses and Resistor Power Rating**

(**NOTE:** The teacher may want to conduct this lab as a demonstration.)

**Equipment and materials**

* Variable power supply (minimum 10 V, 1-amp capability)
* 1,000-ohm, ½-watt resistor
* 10-ohm, ½-watt resistor (expendable)
* One ½-amp fuse (expendable)
* DC ammeter (1-amp capability)

**Procedure**

1. Connect the power supply, switch, 1,000-ohm resistor, ammeter, and ½-amp fuse in a series as shown in Figure 1.



FIGURE 1

1. Turn on the power supply.
2. Adjust to 10 volts.
3. Turn on switch.

 10 mA

1. Read and record the current indication on the ammeter. \_\_\_\_\_\_\_\_\_\_\_\_
2. Turn the power supply to zero.
3. Open the switch.
4. Replace the 1,000-ohm resistor with the 10-ohm resistor.

(CAUTION: Set range switch, if applicable, to 1 ampere or more)

1. Close the switch.
2. Adjust the power supply to 10 volts.
3. Observe the fuse and record what you observe. The fuse should blow because I = 1 A
4. Connect a wire across the fuse and observe the 10-ohm resistor, and record what you observe. The 10 ohm resistor should overheat and burn up without the fuse showing that the fuse protects the circuit.