Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Lab: What Affects Resistance Ω ?**

1. Google circuit construction kit and click on the 1st link: Circuit construction kit (DC only)
2. Click run now and allow Java to run
3. Construct a simple series circuit containing one of each of the following: battery, lightbulb, switch, ammeter



1. Close the switch and record what the **current** in the circuit is in Amps \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Click on the voltmeter tool. Place the red wire to the left of the battery and the black wire on the right. Record the **voltage** in the circuit in Volts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Calculate the resistance in ohms of this circuit. R=voltage/current \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Now, add another light bulb to the circuit. What happens to the current in the wire?

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1. What happened to the voltage in the circuit? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Again calculate the resistance in ohms of this circuit using these new values

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1. How did this new resistance compare to the 1st resistance calculated?

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1. So because another light bulb was added \_\_\_\_\_\_\_\_\_\_\_\_\_\_ decreased which caused \_\_\_\_\_\_\_\_\_\_\_ to increase. This means that it is harder for electrons to flow through the circuit.
2. What happened to the brightness of the original light bulb when the 2nd one was added?

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1. How does this verify what was said in question 11? *(hint: think about speed)*

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1. Now disconnect one of the light bulbs and add another battery to the circuit.
2. What happened to the current in the circuit? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What happened to the voltage in the circuit? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Calculate the resistance of this new circuit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. How does this compare to the resistance you calculated in question 9?

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1. What does this mean about the speed/ability of electrons to flow through the circuit?

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1. Add the other light bulb back in and calculate the new resistance: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Did the resistance increase or decrease? Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Give a brief summary of the relationship between voltage, current, and resistance.

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