Name_____

Series and Parallel Circuits: They're Electrifying!!

Problem: How do the behavior of series and parallel circuits compare?

Research:

Hypothesis:

Materials

2 brads	3 light bulbs	2 batteries	2 battery holders
index card	1 paperclip	9 pieces insulated wire	

Procedure ~ Series Circuit

1. Using a battery, a light bulb, and wires, light up the bulb. Draw a diagram showing the flow of the current.

2. Construct a ***series circuit*** that contains a power source (1 battery), a resistor (light bulb), wires, and a switch. Draw a diagram ***showing*** the flow of the current, when the switch is *open* and when it is *closed*.

3. Repeat step 3 adding another resistor and another battery. Diagram your circuit ***showing*** the flow of current, when the switch is *open* and when it is *closed*.

4. Repeat step four adding one more resistor. Diagram your circuit ***showing*** the flow of current, when the switch is *open* and when it is *closed*.

5. In the circuit with three bulbs, remove one of the lights.

Series Circuit Conclusion ~ *Answer in COMPLETE sentences!!!*

a. Explain what happens when the switch is opened and why. When the switch is closed?

b. What happened to the brightness when you added resistors to the series circuit?

c. In the series circuit, what happens when the first bulb is unconnected? Why?

d. In the series circuit, what happens when the second bulb is unconnected (with the first one reconnected)? Why?

Procedure ~ Parallel Circuit

1. Construct a ***parallel circuit*** that contains a power source (1 battery), 2 resistors (light bulbs), wires, and a switch. Draw a diagram ***showing*** the flow of the current, when the switch is *open* and when it is *closed*.

2. Repeat step 7 adding another resistor and another battery. Diagram your circuit ***showing*** the flow of current, when the switch is *open* and when it is *closed*.

3. In the circuit with three bulbs, remove one of the lights.

Parallel Circuit Conclusion ~ *Answer in COMPLETE sentences!!!*

a. Explain what happens when the switch is opened and why. When the switch is closed?

b. What happened to the brightness when you added resistors to the parallel circuit?

c. In the parallel circuit, what happens when the first bulb is unconnected? Why?

d. In the parallel circuit, what happens when the second bulb is unconnected (again with the first one reconnected)? Why?

Conclusion ~ *Answer in COMPLETE sentences!!!*

1. In which circuit did the two light bulbs appear brighter?

2. How do you know that you had a complete circuit?

3. What type of circuits do you think are in your house? Why?

4. Draw a diagram of a circuit that has both a series and a parallel circuit. If you have time, construct this circuit.