

Series Circuits – One Path

Directions:

Name: _____

Using the materials on your desk, create the following circuits:

Series Circuits: Once your circuit is working, have your teacher check the circuit. Using the symbols above, draw the circuit you created.

<p>a. Using one bulb, batteries and some wires, make one light bulb turn on.</p>	<p>b. Now make 2 light bulbs turn on with batteries and some wire.</p>
<p>c. Using 3 bulbs, batteries, and some wires, make 3 light bulbs turn on.</p>	<p>What do you notice about the brightness of the bulbs in each circuit?</p>
<p>After you have made 3 light bulbs light, unscrew one bulb and record what happens.</p> <p>Screw the bulb back on, what happens?</p>	<p>d. Using one light bulb and a switch, make one bulb turn on and off with the switch.</p>

<p>e. using 2 bulbs, batteries, 1 switch, and some wires, make 2 light bulbs light up and turn off at the same time with the switch.</p>	<p>f. using 3 bulbs, batteries, and 1 switch, make 3 light bulbs light up and turn off at the same time with the switch.</p>
<p>g. With 3 light bulbs and a switch, can you make 1 or 2 light bulbs light up and not the other(s)? Why/Why not?</p>	<p>Explain what makes a circuit closed or open.</p>

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Parallel Circuit – Multiple Paths

Parallel Circuits: Remember to draw your circuits after your teacher has checked to see if your circuit works.

h. Using 2 bulbs, batteries, and some wires, **make 2 light bulbs light up.** After they are lit, unscrew one bulb, what happens? If both lights go out, try the circuit again.

i. Make 3 light bulbs light up. Unscrew one bulb, what happens to the other 2? Unscrew 2 bulbs, what happens to the 3rd bulb?

j. Make 2 light bulbs **turn on and off** at the **same time** with a switch.

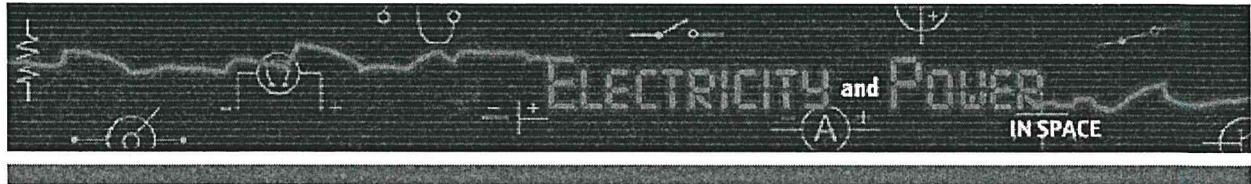
k. Make 1 light bulb **turn on and off** with a **switch** while the other bulb stays lit.

Name _____

Date _____

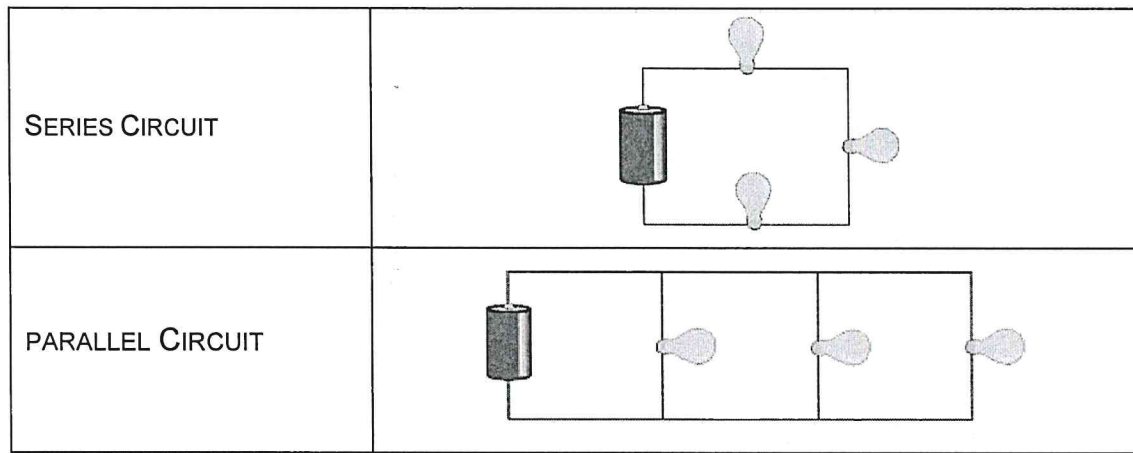
Teacher _____

Period _____



HANDS-ON ACTIVITY 4 – BUILDING SERIES AND PARALLEL CIRCUITS

QUESTIONS



1. Which bulbs are brighter?
 - a. The three bulbs wired in series.
 - b. The three bulbs wired in parallel.
 - c. They're the same.
2. What happens to the brightness as you add bulbs in series?
 - a. The bulbs get brighter.
 - b. The bulbs get dimmer.
 - c. The bulbs stay the same.
3. What happens to the brightness as you add bulbs in parallel?
 - a. The bulbs get brighter.
 - b. The bulbs get dimmer.
 - c. The bulbs stay the same.
4. What do you think these lighting differences suggest about the voltage across the bulbs in series circuits?
 - a. The voltage across each bulb is less each time a similar bulb is added.
 - b. The voltage across each bulb is more each time a similar bulb is added.
 - c. The voltage across each bulb stays the same each time a similar bulb is added.
5. What do you think these lighting differences suggest about the voltage across the bulbs in parallel circuits?
 - a. The voltage across each bulb is less each time a similar bulb is added.
 - b. The voltage across each bulb is more each time a similar bulb is added.
 - c. The voltage across each bulb stays the same each time a similar bulb is added.

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