

www.simbucket.com -> simulations -> DC Circuit Builder

Part I: Build a Simple Circuit


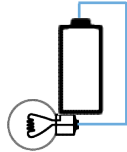
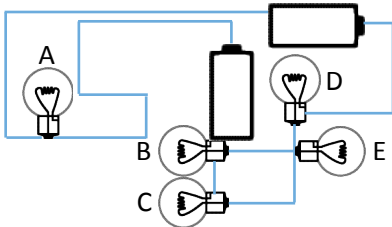
1. Using a battery, some aluminum foil, and a light bulb, figure out a way to light the bulb. Have your teacher verify that you were successful.

Light bulb lit satisfactorily? _____

2. Once you have figured this out, use the “DC Circuit Builder” simulation to create a circuit with a lit bulb. Draw or paste a screenshot of your circuit below:

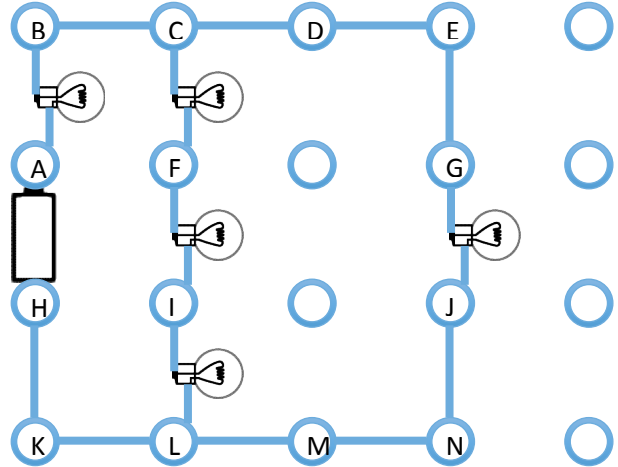
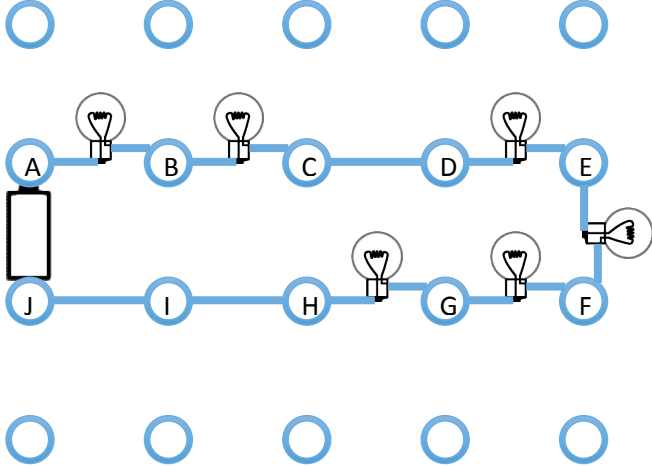
3. What are the requirements for the bulb to light? List all that you can think of:

4. Which bulbs will light in each circuit? Circle (O) the bulbs that will light and cross out (X) the bulbs that will stay unlit.

<p>a.</p>  <p>If this bulb lights, why does it light? If it doesn't light, why not?</p>	<p>b.</p>  <p>If this bulb lights, why does it light? If it doesn't light, why not?</p>	<p>c.</p>  <p>Which bulbs won't light, and why not?</p>
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Part II: Using a Voltmeter

Create the 2 circuits below in DC Circuit Builder.



5. Using the voltmeter, determine how much the voltage drop across each set of test points. Use this data to complete the tables below.

Circuit 1	
Voltage Difference Between Test Points A and C	_____ V
Voltage Difference Between Test Points E and H	_____ V
Voltage Difference Between Test Points A and J	_____ V

Circuit 2	
Voltage Difference Between Test Points B and G	_____ V
Voltage Difference Between Test Points C and L	_____ V
Voltage Difference Between Test Points E and N	_____ V

6. In a real circuit, the voltage values of every piece of metal aren't conveniently displayed like they are for this simulation. What information does a real voltmeter provide if it is used on a real circuit?

Part III: Using an Ammeter

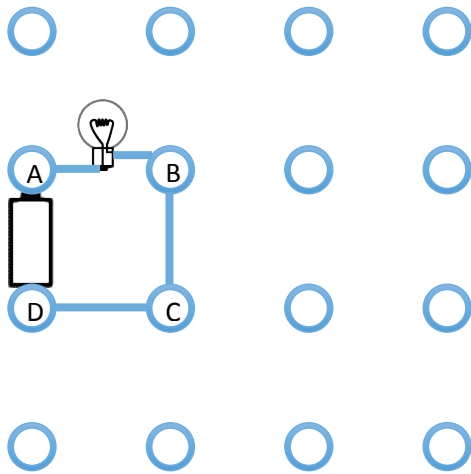
Create this circuit in DC Circuit Builder.

7. Remove the wire between Point B and Point C. The bulb should go out.

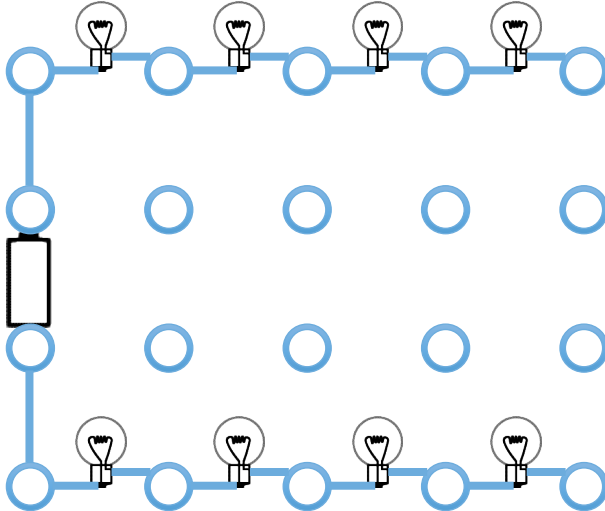
a. Switch to “Voltmeter and Ammeter”. Using the voltmeter, attach the red lead to Point B and the black lead to Point C. What happens?

b. Remove the voltmeter from the circuit. Using the ammeter, attach the red ammeter lead to Point B and the black ammeter lead to Point C. What happens?

c. In order to use an ammeter, we must remove a wire from the circuit. Why?



8. Create the incomplete circuit below. Attach one ammeter lead to a random point in the top row of bulbs and the other ammeter lead to a random point in the bottom row of bulbs.



Which bulbs light? Which bulbs don't light? Why?

9. Create the simple series circuit to the right. Place the leads of the ammeter on Points B and C. What happens? Why?

