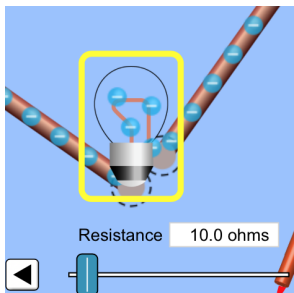
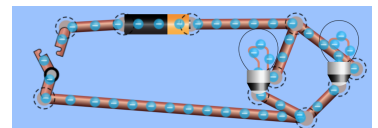
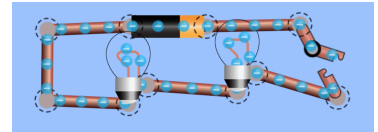
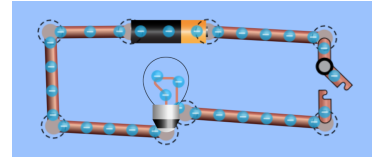


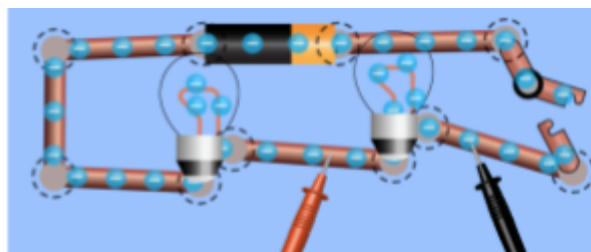
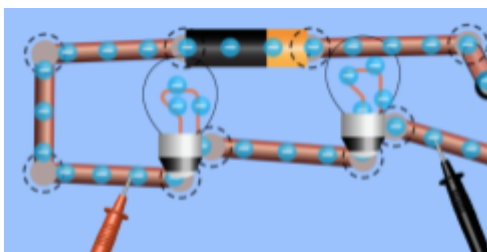
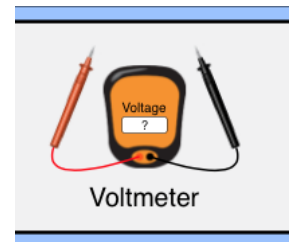
1. Open a web browser and google “PHET circuits” and select the first result, or go to <https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc-virtual-lab>
2. Click on the “play” button to launch the virtual circuit lab.
3. Build 3 circuits by clicking and dragging parts from the left into the workspace and connecting them at the nodes:

- a. A simple circuit with 1 9V battery, 1 switch, and 1 10Ω light bulb
- b. A circuit with 2 10Ω light bulbs in **series** with 1 9V battery and 1 switch
- c. A circuit with 2 10Ω light bulbs in **parallel** with 1 9V battery and 1 switch

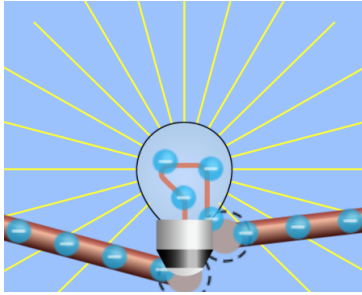


*NOTE: you may have to manually adjust the resistance of the light to 10Ω by selecting it and adjusting the slider at the bottom of the screen

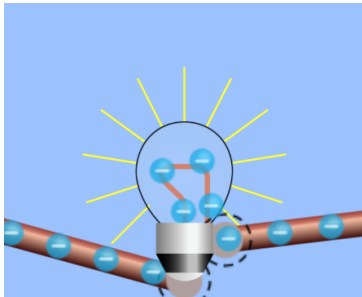
4. Now, click and drag a *Voltmeter* into the workspace. You can click and drag the red and black probes to measure the voltage drop across each light bulb or any section of wire.



5. Answer the questions on the back of the page



a. What do you notice about the **brightness** of the 2 lights in the series circuit compared to the single light in the simple circuit?



b. What do you notice about the **brightness** of the 2 lights in the parallel circuit compared to the single light in the simple circuit *and* the 2 lights in the series circuit?

c. What is the Voltage measurement across the bulb in the **simple** circuit? _____

d. What is the Voltage measurement across *each* bulb in the **series** circuit? _____

e. What is the voltage drop across *both* bulbs in the **series** circuit? _____

f. What is the Voltage measurement across *each* bulb in the **parallel** circuit? _____

g. What is the voltage drop across *both* bulbs in the **parallel** circuit? _____

6. Once you've completed this sheet, hand it in and then play with other features, building circuits and experimenting with resistors, adding 3rd, 4th, or even more bulbs in series & parallel, etc. HAVE FUN!