**Circuit Construction Kit (DC Only), Virtual Lab**

**Goals:** Practice drawing circuit diagrams

 Reinforcement of Ohm’s Law

Introduction of Series and Parallel circuits

1. Create a Circuit using 1 battery, 1 bulb, and 1 switch. Draw a circuit diagram of it below.
2. What is the Voltage of the battery above? What is the current running through? What is the resistance of the bulb? (Hint- What tools can you use to find this information)
3. Set up a circuit where there are three bulbs and three switches in use. Create a circuit (and draw the circuit diagram below) where when one switch is open, all the bulbs go out.
4. Set up a circuit where there are three bulbs and three switches in use. Create a circuit (and draw the circuit diagram below) where when one switch is open, only one bulb goes out.
5. Create again a circuit where there are 4 bulbs in a “Series”. Draw a circuit diagram below and label the bulbs “brightness”.
6. Use the circuit above- what can you do (adding/taking away switches, bulbs or wires) to increase the brightness of the bulbs? Draw two circuits that do this.
7. Now change the diagram so that the brightness is different in some blubs.
8. Create a circuit diagram of a short circuit (we haven’t covered it in class, but what do you think it means based on your background knowledge).
9. How many resistors is equivalent to a light bulb? (make sure to brainstorm different ideas to find that out.)