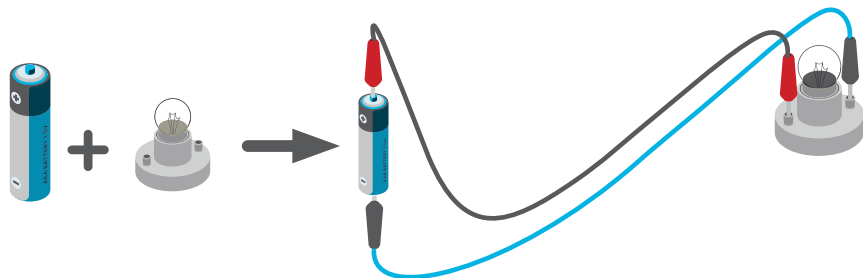


Let's look at putting together a circuit:

Basic circuit connection:



Now it's your turn:



How can these be connected? (Draw your solution)



Defining Other Circuit Terms: (These were mentioned on Day 1)

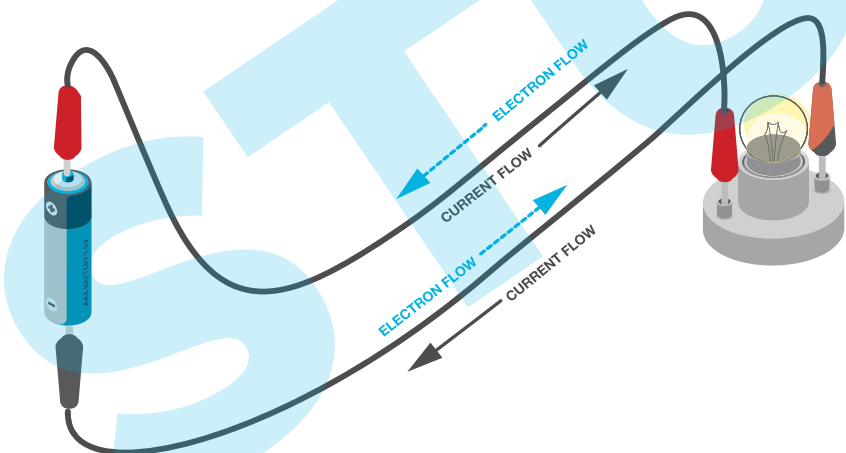
Voltage: _____

For example, a 9-volt battery and a 1.5-volt battery. How are they different?



It is important to note that voltages can be added together when batteries are properly connected end to end. (We will do an activity on this later)

Current: _____



Let's look at current situations you might be more familiar with.

The term current, as it relates to the flow of water through a system. Can you imagine the difference in current for a lazy river ride versus a rapids ride? The current is much faster for the rapids ride.



Resistance: _____

1. In our lazy river scenario, you could create resistance or restrict the flow by dragging your feet. This will result in you moving slower down the river because there is resistance to the movement.

2. A rock in the rapids will restrict the flow of water there too.

3. It should be noted that electrons try to avoid resistance and considering that virtually all materials have some resistance, electrons will choose the path of least resistance.



Formative questions:

These all are related to the flashlight that you worked on.

1. What is the source of electrons? _____

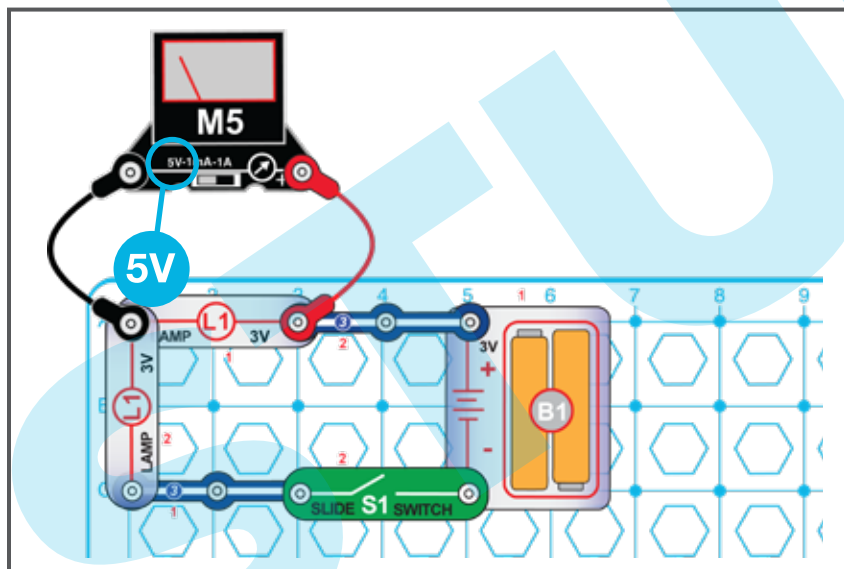
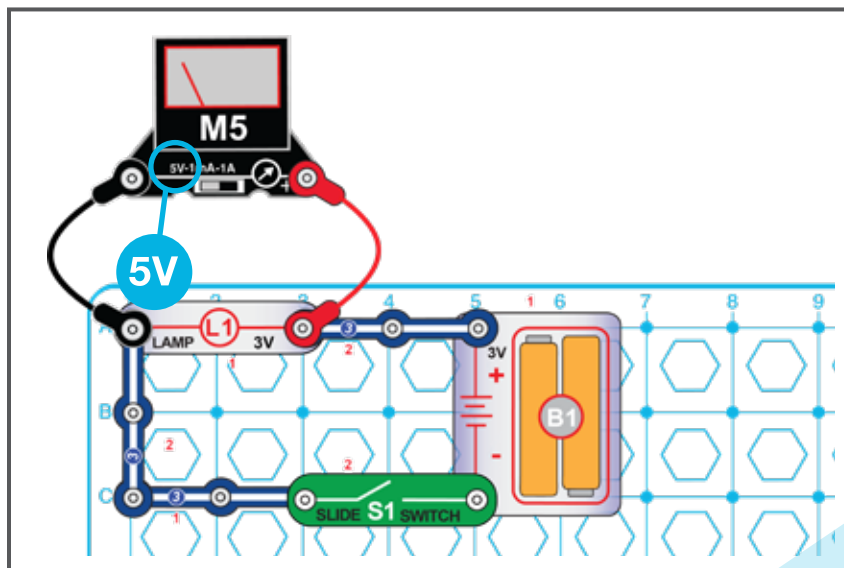
2. What is the load? _____

3. How much voltage does your flashlight have? _____

4. What is the job of the switch? _____

5. If everything in the flashlight is connected properly and the bulb won't light, give an explanation as to why? _____

Loads in Series



3. Now let's move the meter to be snapped across the lamp (L1), as shown left.

4. When the switch (S1) is turned on:

- What happens to the light? Is it On or Off? _____
- Does the light appear bright or dim? _____
- What does the meter show for voltage? _____

5. Turn off the switch.



Let's make a Series Circuit with 2 Loads:

- Make the series circuit below using two L1 lamps connected in series. That means if you trace the pathway of the electrons that you will make one continuous loop from the source of electrons (starting at the negative terminal), through each of the 2 lights, and back to the source (finishing at the positive terminal).



Directions, Observations, and Formative questions:

- When the meter is snapped across the first light and the switch (S1) is turned on:
 - What happens to the lights? Are they On or Off? _____
 - What does the meter show for voltage across the first light? _____
 - When comparing the brightness of the 2 lights to the brightness of the light in simple circuit, which circuit produced the brighter lights?

Simple Circuit or **Series Circuit?** (Circle one)

- Describe how the brightness of the lights in the series circuit compares with the brightness of the light in simple circuit. _____

2. Turn off the switch.