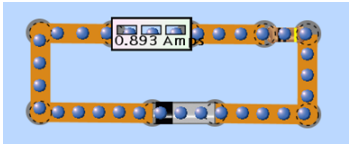
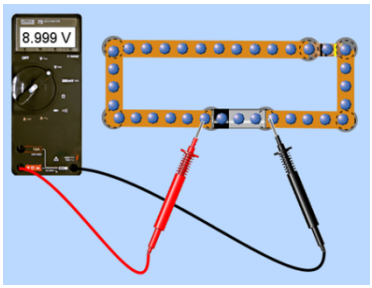
Part III: Measuring Current and Voltage

We can measure current with a device called an **ammeter** (as shown on the right). The ammeter has to be part of the circuit for this to work; we need to hook it up so that current can come in one end and go out the other end.





We can measure voltage differences with a **voltmeter** (as shown on the left)**.** The voltmeter has a black and a red lead. To find out the voltage difference between two points on a circuit, put one lead on one point and the other lead on the other point. The voltmeter cannot be part of the circuit for it to work.

1. In CCK, set up a circuit that has one light bulb and one battery. Measure and record the current going into the light bulb and the current coming out of the light bulb.

Current going in:	Current going out:
How do these two numbers compare? Does that make sense? Why or why not?	

2. Next, measure and record the voltage difference across the light bulb. After you measure the voltage difference, swap the red and black leads (put the black lead on the point on the circuit where the red one was, and vice versa) and record the new reading.

Voltage difference:	Voltage difference (swapped):
What happened to your measurement? Why?	

3. Now measure the voltage difference across the battery. Under the "Advanced" controls try adjusting the wire resistivity to more than zero. Now compare the voltage across the bulb and battery. Why do you think the voltage is different?

4. See if you can find the 'missing' voltage using your voltmeter. If you find it, say where.