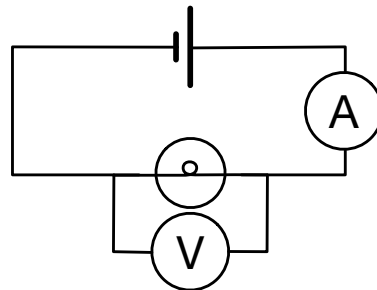
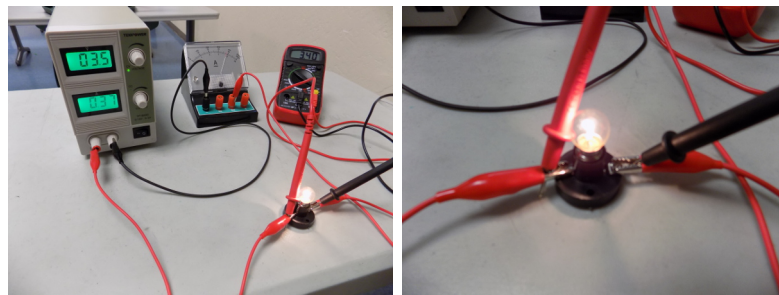


Purpose

The purpose of this investigation is to determine how the current flowing through each circuit element depends on the difference in potential across that element. The circuit elements are 1) a resistor, 2) a light bulb, and 3) a diode.

Lightbulb

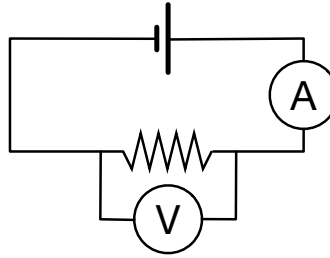
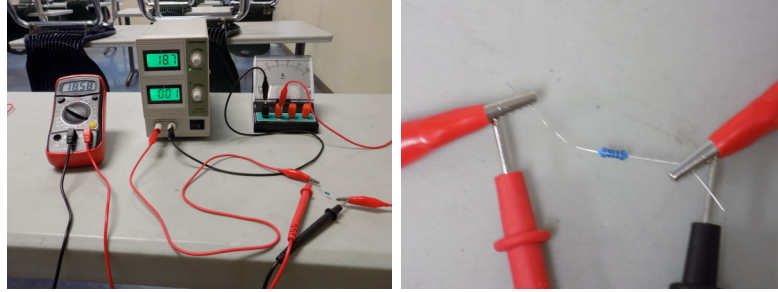
1. You have a light bulb rated at 6 V. That's its operating voltage. As you vary the voltage across this bulb, do not exceed 6 V.
2. Construct the circuit shown below for a light bulb.



3. Collect sufficient data to achieve our purpose.
4. Sketch on your schematic diagram for the lightbulb circuit the direction taken by the conventional current.
5. What causes the tungsten (chemical symbol “W”) light bulb filament to glow?

Resistor

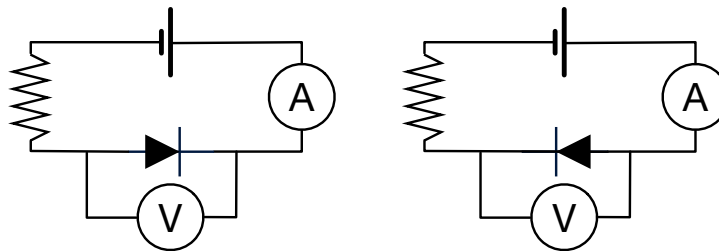
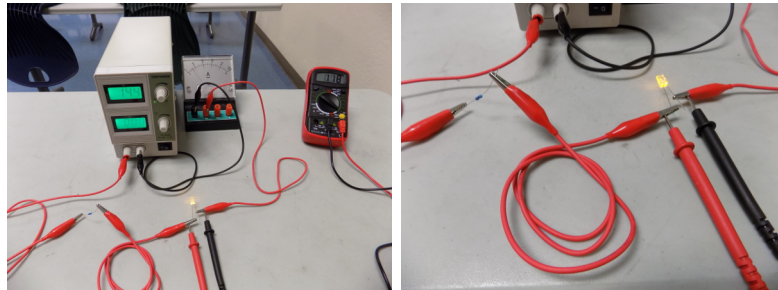
- Construct the resistor circuit as shown below.



- Again, collect sufficient data to achieve our purpose.

Diode

- Assemble the circuit for your diode as shown below, and collect sufficient current and voltage data. Note that you need to include a resistor to prevent too much current from flowing through the diode. The straight line on the diode symbol corresponds to the ring around the actual diode. Collect the current and voltage data.



- Reverse the diode, and, one more time, collect sufficient data to achieve our purpose.

Important Quantities

- What does “difference in potential” mean?
- Describe in a sentence or two what we mean by the term “current.”
- Describe in a sentence or two what we mean by “voltage.”
- Does voltage flow through a circuit?
- Does current flow through a circuit?