

Name: _____

Intro to circuits Lab

Physics Period: _____

Objectives:

- Build a single light bulb / LED circuit
- Use the voltmeters and ammeters to measure voltage and current across individual elements.

Part 1: what is a circuit?

A: Obtain one battery, one light bulb, and one wire. Connect these in as many ways as you can. Sketch each arrangement below. Be sure to separate the ones that do light from the ones that don't.

B. You should have at least four different arrangements that light the bulb. How are they similar? How are they different from the arrangement in which the bulb fails to light?

C. State what requirements must be met in order for a bulb to light.

An arrangement of a bulb, a battery, and a wire that allows the bulb to light is said to be a closed electrical circuit. The terms complete circuit or just circuit are also used. The word "circuit" was originally used to mean "a circular route or course."

D. Why is circuit an especially suitable name for an arrangement of bulb, battery, and wire in which the bulb is lit?

Part 2: Drawing a circuit diagram

Circuit diagrams show electrical connections not physical layout. Each element is represented by a different symbol.



We also draw circuits on a square rather than in a circle. This makes complicated circuits easier to draw.

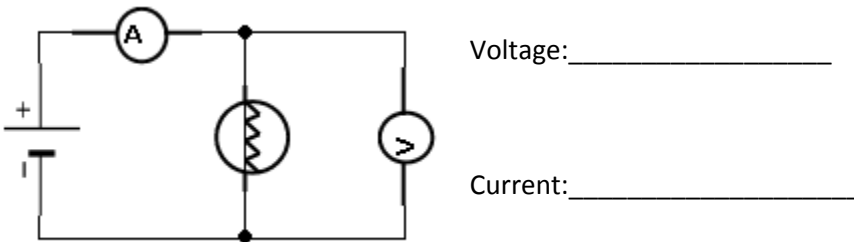
Draw a circuit diagram for you circuit

Part 3: Using the meters.

A. Put your light bulb into the provided socket.

B. **BEFORE ATTACHING YOUR BATTERY, CHECK YOUR CIRCUIT WITH ME!!!** Check in: _____

Use the following circuit diagram to attach the meters to your circuit. The dots are connection nodes.



B. Use these values and Ohm's Law to find the resistance of the light bulb.