

## Lab 34-4: Light Bulb

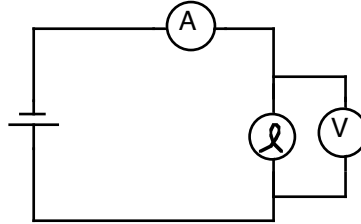
- Purpose:**
- To determine the relationship between voltage and current for a light bulb.
  - To investigate the resistance of a light bulb.

**Materials:**

1 power supply	1 light bulb & holder	5 connecting wires
1 ammeter	1 voltmeter	2 alligator clips

**Procedure:**

- Turn on your common sense. Then set up the circuit as shown.



- Record the voltage and current for the light bulb at the 5 indicated voltages.
- After the required 5 values, take data for the remaining 5 places by turning up the voltage each time so that you can see a change in the brightness of the bulb. You want to end with the bulb bright – but not so bright that you can't look at the bulb. Maximum of 6 Volts!

**Data:**

light bulb			
<i>Volts</i>	<i>Amps</i>	<i>Volts</i>	<i>Amps</i>
0.0	0.0		
0.1			
0.2			
0.4			
0.7			

**Calculations:**

- Make a graph of voltage vs. current. This should be curved, so do NOT put in a regression line. Make photocopies as needed.

**Questions:**

- From Lab 34-2, the graphs of voltage vs current were straight lines because the resistance was constant. What happened with the light bulb?
- What happens to the resistance of a light bulb as the current through it increases?
- Why does the resistance of the light bulb increase with increased current?
- It took a certain amount of voltage to push electrons through the light bulb – which means the electrons lost some potential energy going the bulb. What happened to this potential energy?