

Lab 34-3: Light Bulb

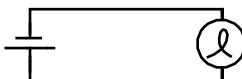
- Purpose:**
1. To determine the relationship between voltage and current for a light bulb.
 2. To investigate the resistance of a light bulb.

Materials:

1 power supply 2 wires 2 alligator clips 1 light bulb & holder

Procedure:

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



2. Record the voltage and current for the light bulb at the 5 indicated voltages.
3. 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			
$V (V)$	$I (A)$	$V (V)$	$I (A)$
0.0	0.0		
0.1			
0.2			
0.4			
0.7			

Calculations:

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

Questions:

1. From Lab 34-1, the graphs of voltage vs current were straight lines because the resistance was constant. What happened with the light bulb?
2. What happens to the resistance of a light bulb as the current through it increases?
3. Why does the resistance of the light bulb increase with increased current?
4. 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?