

Milestone Two: Electricity Lab #3

Question:

How does resistance affect current in parallel circuits?

Hypothesis:

I feel as if the resistance won't be affected by the parallel circuits due to it not affecting the flow, just involving more wires.

Experiment:

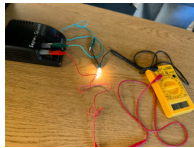
Supplies:

- power source/battery
- 5 Leads
- voltmeter
- 3 light bulbs

Experiment with group:

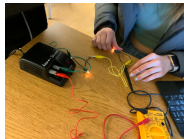
One light bulb:

$V=3.19$
 $I=0.18$
 $R=17.72$



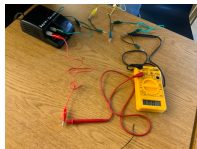
Two light bulb:

$V=2.84$
 $I=2.78$
 $R=1$



Three light bulb:

$V=2.53$
 $I=1.67$
 $R=1.51$



Experiment Simulation:

One light bulb:

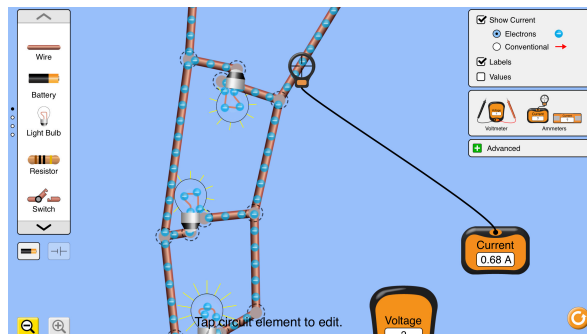
• $V=3.3$
• $I=0.18$
• $R=18.3$

Two light bulb:

• $V=3.3$
• $I=0.35$
 $R=9.42$

Three light bulb:

• $V=3.3$
• $I=0.68$
• $R=4.85$



Analysis:

I find that I cannot compare the two results of this experiment. This is due to the first experiment with the group being accurate due to how we randomly change the voltmeter through the entire experiment. However, hopefully the calculation below will show this more accurately.

Percentage difference between the two experiment's currents:**Three light bulbs:**

Experiment with group: 1.67

Experiment Simulator: 0.68

$$\begin{aligned} 1.67 - 0.68 & \div \frac{1.67 + 0.68}{2} \\ & = 0.99 \div 1.18 \\ & = 84\% \end{aligned}$$

Conclusion:

Overall, this experiment taught me a great deal on resistance, current and voltage. It's hard to get conclusive data due to my group messing up to voltmeter however, this lab report still taught me a great deal concerning science. Also have figured out that my hypothesis was incorrect when comparing my experiment simulation from the experiment simulator I did for Electricity Lab #2. I found that my electricity simulator has a higher voltage however, has a lower current compared to Electricity Lab #2. In general, this experiment taught me how to have a greater understanding in science.

