Milestone 2: Electricity Lab # 2

Question:
How does resistance affect current in series circuits?

Hypothesis:
I feel as if from the equation created my Ohm, I=V/R which, should be the same series circuit or not I believe.
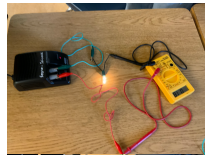
Experiment:

Supplies:
-Three light bulbs
-power source/battery
-4 leads
-voltmeter on 3.3

Experiment with the group notes:

One light bulb:
•I=0.18
•V=3.18
•R=17.6

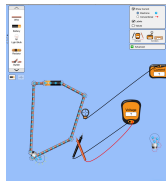**Two light bulb:**
•I=0.12
•V=3.18
•R=26.5

Three light bulb:
•I=0.10
•V=3.18
•R=31.8

Experiment Simulation:

One light bulb:
•I=0.18
•V=3.3
•R=18.6

Two light bulb:
•I=0.09
•V=1.65
•R=18.6

Three light bulb:
•I=0.06
•V=1.03
•R=18.6

Analysis:

I found that they were pretty similar results between the simulator and the experiment with the group. However, the results weren't exactly the same. Even though the number for each section were close to each other their was still some major differences. The first one is the Voltage changes for the simulator, while for the experiment with group it stays the exact same. Moreover, the simulator's Resistance stayed the same while the Resistance changes for the experiment with the group. Overall, this experiment was very insightful.

Difference between the percentages:

Three Light Bulb Current's percentage:

Experiment with group: 0.10
Simulator: 0.06

$$0.1 - 0.06 / \frac{0.1 + 0.06}{2}$$

$$= 0.04 / 0.08$$

$$= \boxed{50\%}$$

Conclusion:

Overall, this experiment taught me a great deal on Ohm's laws. It also showed me that my hypothesis was at the very least somewhat correct. Even though my group has trouble figuring out how to correctly connect the batteries however, we eventually figured it out. I feel that information taught me on how much the gaining of light bulbs and wires can affect the resistance, current and voltage of an object. In some case the voltage, current or resistance increases however in some cases it decreases like the voltage in the experiment simulator. In general, I hope we can do more experiments like this one in the future.