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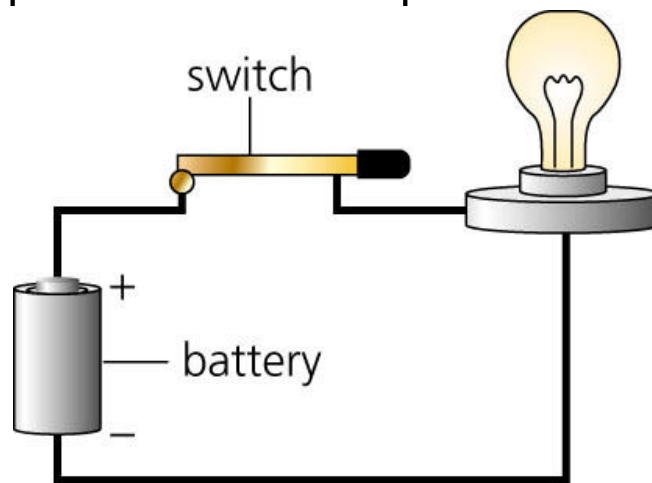
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Review of Literature

I learned that there is a guy name Georg Simon Ohm. He was born in the year 1787, and died in 1854. He was born in Erlangen, Germany. He was a physicist who discovered a mathematical law in electric-current called the "Ohm's Law." Georg Simon Ohm announced his discovery in 1827 when he said: " The amount of current flowing in a circuit made of pure resistances is directly proportional to the electromotive forces impressed on the circuit and inversely proportional to the total resistance of a circuit." This means that when the voltage increases the current flow increases, and when the voltage decreases, the current flow decreases. Also, that when the resistance increases, the current flow decreases, and when the resistance decreases, the current flow increases.

Also, while doing this project I learned about what a circuit is, about voltage, current, resistance, and electrons.

A circuit is a path that sends electric current. A circuit has a battery, or some kind of generator, a device that uses current, like a lamp or computer, and connecting wires. The ohms law can be used with circuits. Here is a picture of a simple circuit.



I also learned about electrons, which is a negatively charged particle that circles around the nucleus of an atom.

Then there is voltage, electric current, and resistance. Electric current is a flow of electrons that have been freed from atoms and is a measure of the amount of electrical charge passing any point of the wire in a certain amount of time. Resistance is the opposition of current flow, and voltage is a pressure or force that causes the electrons to move.

Purpose

The purpose of this experiment is to discover the relationship between voltage, current, and resistance in a circuit as stated by Georg Simon Ohm in 1827 which is now popularly known as "Ohms Law."

Hypothesis

If there is an increase or decrease in voltage there will be a change in current and if there is an increase or decrease of resistance there will be a change in current.

Materials

- (1) Multimeter**
- (1) Switch**
- (2) 1.5 Volt "C" Batteries**
- (2) Black Test Jacks**
- (2) Red Test Jacks**
- (2) Green Test Jacks**
- (2) Test Leads with Alligator Clips**
 - Mounting Board**
 - Test Resistors**

Procedure

- 1.) Build the test circuit.
- 2.) Built a table showing voltage, current, and resistance in the columns of the table.
- 3.) Using a test resistor of 33 ohms, and a test voltage of 1.5 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.
- 4.) Fill in the voltage, current, and calculated current values in the table.
- 5.) Using a test resistor of 33 ohms, and a test voltage of 1.5 volts, use the test circuit to determine the actual current flow in the circuit is.
- 6.) Fill in actual current flow in the table.
- 7.) Using a test resistor of 33 ohms, and a test voltage of 3.0 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.

- 8.) Fill in the voltage, current, and calculated current values in the table.
- 9.) Using a test resistor of 33 ohms, and a test voltage of 3.0 volts, use the test circuit to determine the actual current flow in the circuit is.
- 10.) Fill in actual current flow in the table.
- 11.) Using a test resistor of 75 ohms, and a test voltage of 1.5 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.
- 12.) Fill in the voltage, current, and calculated current values in the table.
- 13.) Using a test resistor of 75 ohms, and a test voltage of 1.5 volts, use the test circuit to determine the actual current flow in the circuit is.
- 14.) Fill in actual current flow in the table.
- 15.) Using a test resistor of 75 ohms, and a test voltage of 3.0 volts, use the "ohms law" formula, and a calculator to

determine what the current flow should be in the circuit.

16.) Fill in the voltage, current, and calculated current values in the table.

17.) Using a test resistor of 75 ohms, and a test voltage of 3.0 volts, use the test circuit to determine the actual current flow in the circuit is.

18.) Fill in actual current flow in the table.

19.) Using a test resistor of 100 ohms, and a test voltage of 1.5 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.

20.) Fill in the voltage, current, and calculated current values in the table.

21.) Using a test resistor of 100 ohms, and a test voltage of 1.5 volts, use the test circuit to determine the actual current flow in the circuit is.

22.) Fill in actual current flow in the table.

23.) Using a test resistor of 100 ohms, and a test voltage of 3.0 volts, use the "ohms

law" formula, and a calculator to determine what the current flow should be in the circuit.

24.) Fill in the voltage, current, and calculated current values in the table.

25.) Using a test resistor of 100 ohms, and a test voltage of 3.0 volts, use the test circuit to determine the actual current flow in the circuit is.

26.) Fill in actual current flow in the table.

27.) Using a test resistor of 750 ohms, and a test voltage of 1.5 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.

28.) Fill in the voltage, current, and calculated current values in the table.

29.) Using a test resistor of 750 ohms, and a test voltage of 1.5 volts, use the test circuit to determine the actual current flow in the circuit is.

30.) Fill in actual current flow in the table.

- 31.) Using a test resistor of 750 ohms, and a test voltage of 3.0 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.
- 32.) Fill in the voltage, current, and calculated current values in the table.
- 33.) Using a test resistor of 750 ohms, and a test voltage of 3.0 volts, use the test circuit to determine the actual current flow in the circuit is.
- 34.) Fill in actual current flow in the table.
- 35.) Using a test resistor of 900 ohms, and a test voltage of 1.5 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.
- 36.) Fill in the voltage, current, and calculated current values in the table.
- 37.) Using a test resistor of 900 ohms, and a test voltage of 1.5 volts, use the test circuit to determine the actual current flow in the circuit is.

- 38.) Fill in actual current flow in the table.
- 39.) Using a test resistor of 900 ohms, and a test voltage of 3.0 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.
- 40.) Fill in the voltage, current, and calculated current values in the table.
- 41.) Using a test resistor of 900 ohms, and a test voltage of 3.0 volts, use the test circuit to determine the actual current flow in the circuit is.
- 42.) Fill in actual current flow in the table.
- 43.) Using a test resistor of 33 ohms, and a test voltage of 1.5 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.
- 44.) Fill in the voltage, current, and calculated current values in the table.
- 45.) Using a test resistor of 33 ohms, and a test voltage of 1.5 volts, use the test

circuit to determine the actual current flow in the circuit is.

- 46.) Fill in actual current flow in the table.
- 47.) Using a test resistor of 33 ohms, and a test voltage of 3.0 volts, use the "ohms law" formula, and a calculator to determine what the current flow should be in the circuit.
- 48.) Fill in the voltage, current, and calculated current values in the table.
- 49.) Using a test resistor of 33 ohms, and a test voltage of 3.0 volts, use the test circuit to determine the actual current flow in the circuit is.
- 50.) Fill in actual current flow in the table.

TEST RESULTS

In chart form

1.5 Volts

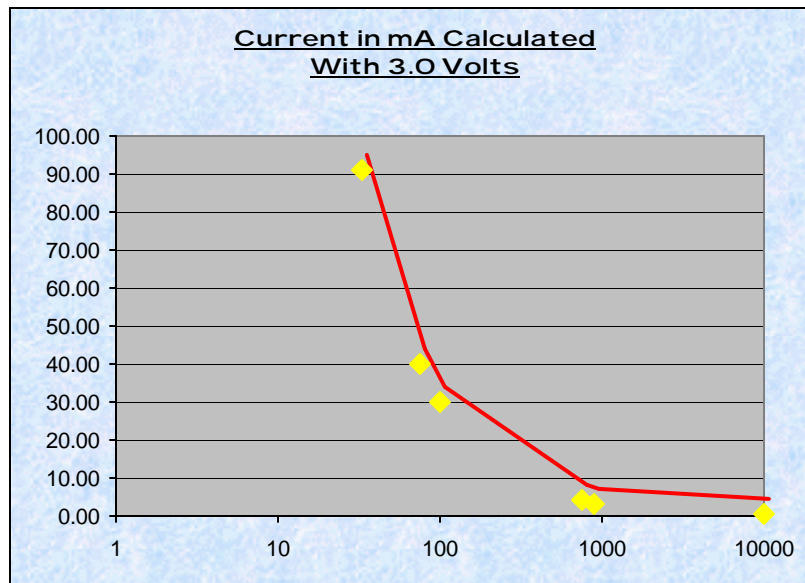
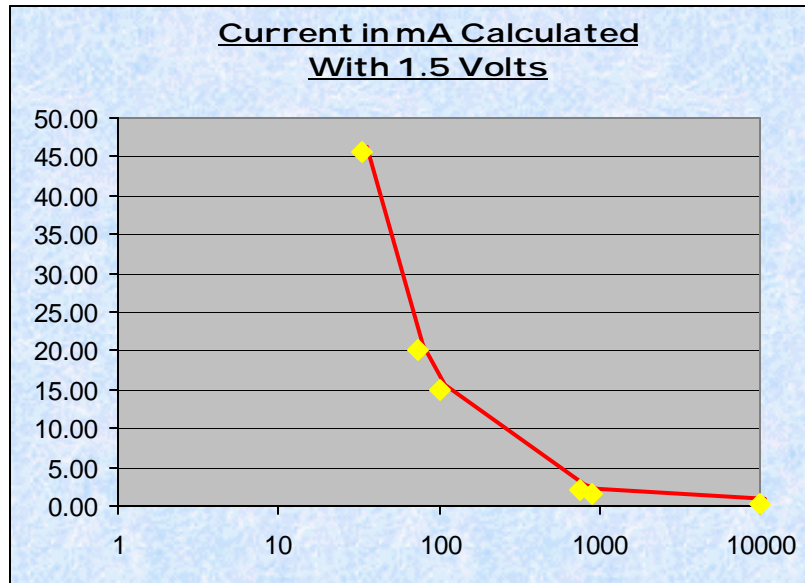
Voltage In Volts	Resistance In Ohms	Current in mA	
		Calculated	Actual
1.5	33	45.50	43.10
1.5	75	20.00	20.61
1.5	100	15.00	15.16
1.5	750	2.00	2.06
1.5	900	1.60	1.76
1.5	10000	0.15	0.15

3 Volts

Voltage In Volts	Resistance In Ohms	Current in mA	
		Calculated	Actual
3.0	33	90.90	85.60
3.0	75	40.00	40.90
3.0	100	30.00	30.25
3.0	750	4.00	4.14
3.0	900	3.30	3.57
3.0	10000	0.30	0.31

TEST RESULTS

In chart form



Conclusion

Ohms Law states that if there is an increase or decrease in voltage there will be a change in current and if there is an increase or decrease of resistance there will be a change in current.

My testing shows that when voltage is increased, current increases and when voltage decreases, current flow decreases. My result tables show that when I used 3 volts for my test, current flow was almost double the current flow when I used 1.5 volts.

My tests also show that when I increased the resistance in the circuit the current flow decreased.

This supports Georg Simon Ohm's law, which states, " The amount of current flowing in a circuit made of pure resistances is directly proportional to the electromotive forces impressed on the circuit and inversely proportional to the total resistance of a circuit.

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