ROQED PHYSICS LAB

Study of Ohm's law for a section of a circuit

Purpose: to establish the relationship between current strength, voltage and resistance of a section of a circuit.

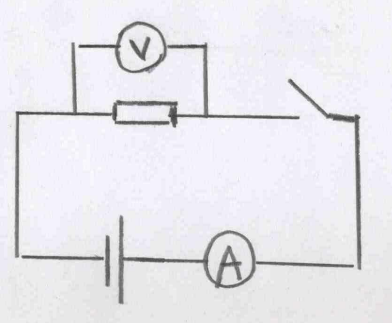
Equipment:
041 - voltmeter
040 - ammeter, milliammeter
resistors 1, 2, 3 Ohm,
099 - light bulb,
043 - Power supply,
connecting wires.

Theory:
The current I in a uniform metal conductor is directly proportional to the voltage U at the ends of this conductor and is inversely proportional to the resistance R of this conductor:

$$I = \frac{U}{R}$$

Work progress:

1. Assemble the electrical diagram shown in the figure.



2. Start the simulation. Take three measurements of the electrical circuit parameters using 1 ohm, 2 ohm, 5 ohm resistors. For each measurement, enter the resistance (R), current (I), and voltage (U) values in the table.

3. Draw up a formula to calculate the current strength of an electrical circuit depending on voltage and resistance.
$I = \frac{U}{R}$

4. Make a formula for calculating the voltage of the electrical circuit depending on the current strength and resistance.
U = IR

5. Table.

No.	Resistance R, Ohm	Current, I, A	Voltage, U, V	ExperimentIcalc	Ucalc
1	...	...	...		
2		...	...		
3		...	...		

6. Make a conclusion.
A. Resistance in a section of a circuit is directly proportional to the voltage in this section and inversely proportional to the strength of the current. How many times the current strength increases, the voltage decreases by the same amount. The voltage in a given section of the circuit is directly proportional to the product of the current strength and the resistance of this section.
B. Resistance in a section of a circuit is directly proportional to the voltage in this section and inversely proportional to the strength of the current. How many times the current strength increases, the voltage increases by the same amount. The voltage in a given section of the circuit is directly proportional to the product of the current strength and the resistance of this section.
C. Resistance in a section of a circuit is inversely proportional to the voltage in this section and is directly proportional to the strength of the current. How many times the current strength increases, the voltage decreases by the same amount. The voltage in a given section of the circuit is directly proportional to the product of the current strength and the resistance of this section.