

Name: _____



Assignment:

Resistance in Series Circuits Online Lab

Part 1: Exploring the Simulation

1. What do you observe when the circuit of one battery, two wires, and one lightbulb is complete?
2. What is the current going through the circuit?
3. What is the voltage for the circuit?
4. Show your work for the calculation of the resistance of the lightbulb.
5. What is the voltage measured on either side of the first lightbulb?

6. What is the voltage measured on either side of the second lightbulb?
7. What is the voltage of the battery?
8. How does the current compare when measured on either side of the battery and the wire between the two lightbulbs? What is the current at each location?
9. What is the resistance for each lightbulb? Show your work.

Part 2: Calculating Equivalent Resistance

10. What are the current and the voltage for the circuit with one resistor?
11. What is the resistance for the circuit with one resistor? Show your work.

12. What is the actual resistance of the resistor in this circuit?

13. Data Table for Circuit with 2 Resistors

Resistor	Resistance (Ω)	Current (A)	Voltage (V)
1			
2			
Overall			

14. Data Table for Circuit with 3 Resistors

Resistor	Resistance (Ω)	Current (A)	Voltage (V)
1			
2			
3			
Overall			

15. Data Table for Circuit with 4 Resistors

Resistor	Resistance (Ω)	Current (A)	Voltage (V)
1			
2			
3			
4			
Overall			

16. The overall resistance is also called the equivalent resistance. How does this resistance compare to the resistance of each of the resistors?