

Series Circuits Lab

Name:

Block:

Purpose

To predict and observe the voltage and current in a circuit with resistors in series.

Materials/Equipment

6-volt battery
multimeter

resistors (2)

wires

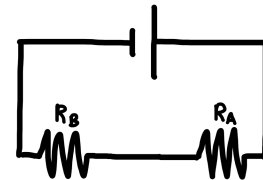
Procedure

Use the colour chart on p.297 in your textbook to determine the resistance of your resistors.

	Colour 1	Colour 2	Colour 3	Resistance
Resistor A				
Resistor B				

Part 1: Voltage

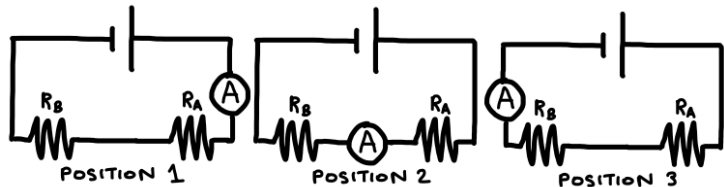
- Construct the circuit shown of two resistors in series
- Use the multimeter to measure the voltage across the battery. Record this in both tables below.
- Use the multimeter to measure the voltage across Resistor A and Resistor B. Record this in the table below.



	Across Battery	Across Resistor A	Across Resistor B
Voltage			

Part 2: Current

- Connect an ammeter in position 1 (between the battery and resistor A). *Don't forget to set the multimeter to measure current.*
- Use the multimeter to measure the current at this point. Record this in the table below.
- Repeat for positions 2 and 3.



	Position 1	Position 2	Position 3
Current			

Questions

Part 1: Voltage

1. How did the voltage across Resistor A compare with the voltage across Resistor B?
2. Add the voltage across Resistor A and the voltage across Resistor B. How does this compare to the voltage of the battery?
3. How would the voltage across each resistor change if the resistance of each resistor was doubled?

Part 2: Current

1. How did the current at each position compare?
2. How would the current change if the resistance of each resistor was doubled?
3. Use Ohm's law for the measured voltage and current for Resistor A to calculate the resistance. How does this compare to the resistance indicated by the colour bands?

Conclusion

In a series circuit, how is the voltage across the resistors related to the total voltage of the battery?

In a series circuit, how is the current at each point in the circuit related?