

Name: _____ Period: _____

Lab 21C: Parallel Circuits

Part A: Short Circuits

1. Build the circuit on page 117. Follow the directions on the page and fill in the table.
2. Why do you think you saw the results you did in table 1?

Table 1: Short Circuit Current (amps)

3 bulbs in series (A)	3 bulbs w/ short circuit (A)

3. Why would a short circuit be dangerous? _____

Part B: Parallel Circuits

4. Build the circuit on page 118. Follow the directions and fill in Table 2.

Table 2: Voltage & Current in a Parallel Circuit

	Total Circuit	Bulb 1	Bulb 2	Bulb 3
Voltage(V)				
Current (A)				

5. What happens when you disconnect one bulb from the circuit? Is this what happens in a series circuit?

6. Do you think the circuits in your home are series or parallel? Why? _____

Part C: Analyzing Circuits

7. Build the circuit on page 207. Follow the directions and fill in Table 3 and then Table 4.

Table 3: Measured Resistance

	R1 (green)	R2 (green)	R3 (blue)	R4 (red)
Resistance (Ω)				

Table 4: Voltage and Current

	Battery (total)	R1	R2	R3
Voltage (V)				
Current (A)				

8. Which of the two resistors are connected in parallel? _____
9. Which resistor is in parallel with the other two? _____
10. How does the resistance across the parallel resistors compare? _____
11. Use the equations (208) to calculate the theoretical total resistance of the circuit. Show your work.

12. Calculate the total resistance using Ohm's law, the battery voltage, and the total circuit current you measured.

13. How does the total resistance calculated using Ohm's law (# 13) compare with the theoretical total resistance found above (#12)?