

LAB Voltage in Series and Parallel Circuits

Friday, May 20, 2011
8:49 AM

NAME: _____

BLOCK: ____; DATE: _____

VOLTAGE IN SERIES AND PARALLEL CIRCUITS

PURPOSE: To compare the voltage of batteries (cells) in series and parallel circuits.

MATERIALS: 4 batteries Voltmeter alligator clips

PROCEDURE AND DATA:

PART I. Measuring voltage:

1. Obtain and record the voltage of 4 different cells (batteries - a -d).

Battery:	a	b	c	d
Voltage:				

PART II. Voltage in circuits:

1. Draw the circuit diagrams for:

a. Series circuits:

One battery Two batteries Three batteries Four batteries

b. Parallel circuits:

One battery Two batteries Three batteries Four batteries

2. Measure the voltage of each circuit described below

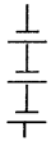
Circuit type	# of batteries	Voltage (V)
-----	1	
Series	2	
Series	3	
Series	4	
Parallel	2	
Parallel	3	
Parallel	4	

QUESTIONS/CONCLUSION:

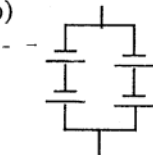
1. Why didn't your batteries all have the same voltage when you measured them in part 1?
2. What happens to the total voltage of a circuit when you add batteries in series?
3. What happens to the total voltage of a circuit when you add batteries in parallel?
4. Large hobby batteries (fig. 3.13b on p. 52 of your text) are made of 4, 1.5 V cells connected in parallel. What advantage does this battery have over a single 1.5 cell battery?

5. Determine the voltage of each set of cells (each cell = 3.0 V):

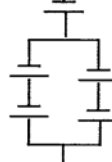
a)



b)



c)



6. A flashlight runs on 6.0 V that is provided by eight 1.5 V cells. draw a circuit diagram of how the cells must be connected to provide 6.0 V.