

Sc 9 Lab 10A Investigating Electric Current

Name_____

Class_____

Purpose: To learn what current is, how it is measured, and to compare current flow in series and parallel circuits.

Procedure:

1. A 4.5 V battery, connected to a switch, a lamp and an ammeter that measures total current.

2. A 4.5 V battery, connected to a switch, two lamps in series and an ammeter that measures total current.

3. A 4.5 V battery, connected to a switch, three lamps in series and an ammeter that measures total current.

4. A 4.5 V battery, connected to a switch, two lamps in parallel and an ammeter that measures total current.

5. A 4.5 V battery, connected to a switch, three lamps in parallel and an ammeter that measures total current.

Data Table

Type of Circuit	# of lamps	Current reading mA	Current reading A
series	1		
series	2		
series	3		
parallel	2		
parallel	3		

Summary of Data

1. When more lamps are added to a series circuit, the total current will _____.

This happens because each lamp acts as a _____. And an

increase in total resistance will decrease the _____ flow.

2. When more lamps are added to a parallel circuit, the total current will _____.

This happens because in a parallel circuit as more lamps are added, more pathways for the _____ flow are also added. More pathways for current means less total resistance, therefore the total current flow will _____.

Questions:

1. Draw a diagram to show two lamps connected to a battery of two cells in series so that there is only one pathway for the current

- a) Add an arrow to the diagram to indicate the direction of current flow.
- b) If one of the lamps in this circuit burned out, what would happen to the other one?

- c) If the ammeter was connected in different parts of the circuit, would it indicate different amounts of current? Give reasons for your answer.

2. Draw a diagram to show two lamps connected to a battery of two cells in series so that there is two pathways for the current.

a) Add arrows to the diagram to indicate the direction of current flow in the two pathways.

b) If one of the lamps in this circuit burned out, what would happen to the other one?

c) If the ammeter was connected in different parts of the circuit, would it indicate different amounts of current? Give reasons for your answer.

3. Devise an explanation why the current leaving the battery decreases as lamps are added in a series circuit, whereas the current increases as more lamps are added in parallel.