

Name: _____
Mr. Willis
Biology: _____
Date: _____

Unit I
Biology and the Scientific Method
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I

Lab: Practicing the Scientific Method

Objective: To understand how scientists use the scientific method to solve problems.

Quantitative data is data that has a numerical or measurable value.

This lab will be completed as a class. Follow each step of the lab in order.

1. While sitting quietly at your desk, find the pulse in your wrist and count the number of beats for one minute. The number of beats per minute is your pulse rate. Record your result.

_____ bpm

2. Now repeat step 1 twice and record your results.

_____ bpm

_____ bpm

3. Now calculate your average pulse rate using the three measurements you have recorded. Show your work in the space below and then record the average.

_____ average bpm

4. How do you think standing will affect your pulse rate?

5. Formulate a hypothesis and write it below.

6. What is the independent variable?

7. What is the dependent variable?

8. What are the constants?

9. Now record your pulse rate for one minute, this time under the influence of the independent variable. Record your results.

_____ bpm

_____ bpm

_____ bpm

10. Calculate the average pulse rate for the data you gathered above and record your result.

_____ average bpm

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11. How do you think holding your breath will affect your pulse rate?
12. Formulate a hypothesis and write it below.
13. What is the independent variable?
14. What is the dependent variable?
15. Now record your pulse rate for one minute, this time under the influence of the new independent variable. Record your results.
_____bpm
_____bpm
_____bpm
16. Calculate the average pulse rate for the data you gathered above and record your result.
_____average bpm

In the space below construct a data table that will easily show your data for all three trials and for all three variables.

17. Which of the situations would be the control for the experiment?

Conclusions

18. How do your results compare to your hypotheses?
19. What are some possible sources of error in this experiment?

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Construct a bar graph comparing your own data (use calculated averages) for each situation to the total class averages. Your bars should be in one color and the classes in another color. Remember to label all the important parts of the graph.