

APPENDIX D

Various Vital Signs Student Lab

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| SHSM Science CLA - Lab Investigation: How Healthy Are You? | SBI3U |
| <p><u>Text Reference:</u> Nelson Science 11 Grade 11 Biology – University Level</p> <p><u>Purpose/Question:</u> How Healthy Are You?</p> <p><u>Description:</u></p> <p>The Ministry of Health is conducting research on lifestyle choices of adolescents and the effects they have on their health. As a consultant, you have been hired to assess the health and wellness of students in your high school.</p> <p>Students will be measuring and recording pulse and respiratory rates, blood pressure and vital capacity before and after exercise. Students will analyse factors that affect these rates.</p> <p><u>Introduction:</u></p> <p>Use the reference listed to answer the following questions in paragraphs.</p> <ol style="list-style-type: none">1. What is a pulse?2. Where are your carotid, brachial and radial pulses located in your body?3. How can you determine your pulse rate?4. What is the respiratory rate?5. How can you determine your respiratory rate?6. What is blood pressure?7. What is vital capacity? | Students work individually to prepare their introductory paragraphs. |
| <p><u>Hypothesis:</u></p> <p>Formulate a hypothesis. Your hypothesis should be clearly worded and indicate your understanding of the purpose of this activity. State how healthy you think you are and how you think exercise will affect your pulse and respiratory rates, blood pressure and vital capacity.</p> | Students work in pairs and make an initial prediction of results providing their reasoning. |
| <p><u>Materials:</u></p> <p>Stethoscope, rubbing alcohol, cotton balls , sphygmomanometer, stop watch, spirometer</p> <p><u>Method:</u></p> <ol style="list-style-type: none">1. With your partner, write out the steps required to measure your pulse and respiratory rates, blood pressure and vital capacity before and after a 5 minute brisk walk. Use your textbook pages 270 and 299 as a reference.2. Be sure to include any safety measures to be followed.3. Be sure to include an observation table to record your results.4. Get your procedure and table approved by your teacher. | Students work through lab procedure and observations in pairs. |

Observations:

Complete observation table. Be sure to include room to record your classmate's results.

Conclusion:

State how exercise affected your pulse and respiratory rates, blood pressure and vital capacity. Was your hypothesis supported?

Analysis:

How do your behaviour choices and habits relating to exercise, diet, rest and other choices (such as smoking and alcohol) affect your circulatory and respiratory systems? How do your rates compare with your classmates? How do these rates compare with the standards for your age group?

Points to consider: Do you do at least 20 to 30 minutes of aerobic physical activity three times a week? Did this show in your data?
Do you eat 3 nutritionally balanced meals each day? Did this show in your data?
Do you get 8 hours of sleep each night? Did this show in your data?
Do you avoid harmful substances such as tobacco, alcohol or other drugs? Did this show in your data?

Students work individually on their conclusion and analysis paragraphs.

Suggested Websites For Standard Data

- www.teengrowth.com
- www.RightHealth.com/BloodPressure
- <http://www.health.state.ny.us/nysdoh/ems/pdf/assmttools.pdf>
- http://en.wikipedia.org/wiki/Lung_volumes

Submit Lab Report for evaluation by the teacher according to the Lab Report Evaluation Rubric.

Lab Report Evaluation Rubric

| Inquiry | Communication | Overall |
|---------|---------------|---------|
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| Parts of Report | I or C | I/R | Level 1 | Level 2 | Level 3 | Level 4 |
|-----------------------|----------|-----|---------------------------------------|--|---|---|
| Introduction | I | | Limited response to prelab questions | Adequate response to prelab questions | Proficient response to prelab questions | Exceptional response to prelab questions |
| Hypothesis | I | | Attempted | Not stated in the proper format | Stated in the proper format | Clearly stated in the proper format |
| Method | C | | Limited command of procedural writing | Moderate command of procedural writing | Considerable command of procedural writing | Extensive command of procedural writing |
| Observations - tables | C | | Incomplete | Data table completed | Data table is neat and organized | Data is neatly organized into a table with proper SI units |
| Conclusion | C | | Conclusion attempted | Conclusion given, but not related to the problem or hypothesis | Conclusion given and related to the problem or hypothesis | Conclusion given and correctly related to the problem or hypothesis |
| Analysis – questions | I | | Shows limited understanding | Shows some understanding | Shows considerable understanding | Shows thorough understanding |
| Literacy | C | | Frequent grammar/ spelling errors | More than two grammar/spelling errors | One or two grammar/spelling errors | No grammar /spelling errors |