Integrated Project-based Learning: Combining PTE Standards and Academic Standards

Use this template for planning and sharing ideas for projects. This template is based on the *6 A’s*:

*Authenticity\* Academic Rigor\* Applied Learning\* Active Exploration\* Adult Connections\* Assessment*

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| **Project** |
| **Title of Project** | **Under Pressure - the importance of blood pressure and pulse rate** |
| **Project Developed by** | Gary Showers, Patti Tucker |
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| **School** | **Twin Falls High School** |
| **Pathway / Small Learning Community/Academy** | **Health Occupations** |
| **Course Title(s)** | **Health Occupations, Biology II** |
| **Time Frame** | **6 days minimum** |

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| **Authenticity** |
| *Briefly describe your project. Include the key question and provide an overview of what students do and learn. Tell why the question is meaningful to the students and where one might see a similar question tackled by an adult in the workplace.* |
| **Key Question** | **Why is blood pressure an accurate assessment of overall health?**What is blood pressure an actual measurement of?How can you accurately measure blood pressure?How can you interpret blood pressure measurements?What impact do health behaviors have on blood pressure? |
| **Overview** | **Chapter Objectives:****Students will be able to do the following:** Accurately measure blood pressure using a sphygmomanometer and a stethoscope.identify normal and abnormal blood pressure readingsDescribe the importance of the values for normal blood pressure readingsInterpret and define both systolic and diastolic pressuresUnderstand how both health behaviors can positively or negatively affect blood pressuresIdentify different methods for obtaining blood pressure readings |

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| **Vocabulary/Key Terms** |
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|  | sphygmomanometer, stethoscope, atrium, ventricle, systolic, diastolic, blood pressure, hypertension, hypotension, myocardial, phlebitis, thrombitis, atherosclerosis, systemic circulation, cardiac circulation, infarction, rate, rhythm, tachycardia, brachial artery, pulse, bi-palp,  |
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| **Active Exploration \* Applied Learning \* Adult Connections** |
| **Classroom Activities**  | **Community** **Activities** | **Career** **Activities** |
| **Students will determine what is happening in the heart during systole and diastole.****Students will learn the proper methods of obtaining an accurate blood pressure reading.****Students will perform proper blood pressure measuring procedures on lab partners.****Students will analyze various blood pressure readings to determine the indications of heart health.** **Students will determine how various health behaviors can contribute to an increase or decrease in blood pressure readings.** | **Students will obtain blood pressures****, age and weight from 10 anonymous individuals. Students will compile a list of all data and chart information to determine any trends. (weight vs. pressure and age vs. pressure)****Students will create a flyer documenting health behaviors that can improve cardiovascular health.** | **Students will learn the reasons for different types of blood pressure measurements available to health care professionals.****Students will understand the importance of blood pressure as an indication of health.** |

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| **Academic/PTE Rigor** |
| **Standards** *Use the space below to list the state content standards and PTE industry standards addressed by the project. (A list of the content standards is available at* [*http://www.sde.idaho.gov/ContentStandards/default.asp*](http://www.sde.idaho.gov/ContentStandards/default.asp)*. This page, which includes selected high school level standards, is designed to let you easily create a list of standards you are addressing. You may then copy and paste the list into this template.)* |
| **PTE Standards:** **<http://www.pte.idaho.gov/pdf/Health/Curriculum/OrentationHealthProfessionsSecondaryAndFundamentalsHP133.pdf>** 10.022 Structure and Function: A. Describe the function and components of the heart and conduction system. B. Define and describe blood pressure. 10.023 Diseases and Disorders: A. Identify major diseases or disorders of the circulatory system and discuss symptoms, treatment, and implications of each. 10.024 Prevention: A. List health practices that promote wellness for the circulatory system. **College & Career Ready Skills demonstrate in this project: independence, build strong content knowledge, comprehend as well as critique perspectives and yet question assumptions using sound reasoning, value evidence, and use technology and digital media strategically and capably.****Idaho Core Standards:** CCSS RST.11-12.1 C Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author make s and to any gaps or inconsistencies in the account.CCSS RST. 11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words or phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.CCSS RST 11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats, and media (e.g. quantitative data, video, multimedia) in order to address a question or solve a problem.CCSS RST. 11-12.9 Synthesize information from a range of sources (e.g. texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

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| WHST. 11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. |
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| **Student Goal(s) Once the project begins, ask students to generate one or two personal goals.** |
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| **Assessment** |
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| 1. Students will be tested (written assessment) on knowledge, definitions and components of blood pressure measurement
2. Students will be assessed on ability to accurately measure blood pressure of 2 classmates
3. Flyers will be graded according to rubric.
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| **Recommended Resources / Sample Products** |
| **Software or Materials Needed***(Examples*) | **Sphygmomanometers, stethoscopes, time measurement device** |
| **Teacher-Developed Materials** *(Examples of materials that can be shared with other classes. Please attach samples.)* | Demonstration on how to accurately take blood pressure. Resource: [**http://www.suntechmed.com/blog/entry/4-bp-measurement/42-10-steps-to-accurate-manual-blood-pressure-measurement**](http://www.suntechmed.com/blog/entry/4-bp-measurement/42-10-steps-to-accurate-manual-blood-pressure-measurement) |
| **Student-Developed Materials** *(Examples of products that can be shared with other classes. Please attach samples.)* | **Flyer on healthy heart behaviors** |
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| **Final Words** (In a sentence or two, highlight your project’s overall value.) | **Blood pressure is a widely known test used by medical practitioners. In this unit students will understand the significance of this measurement and how it portrays overall cardiovascular health.**  |
| **Teacher Tips/Extensions** (Use the first person to share a useful idea that helps with implementation and ensures success. Make it chatty, informal.) | Have multiple sphygmomanometers available so many students can practice at a time. Utilize a double-ear stethoscope or automatic pressure machine to verify student accuracy. |
| **Extensions** *(List any ideas for students who may want to go deeper into the learning standards.)* | Students may investigate how medications affect blood pressure (nitroglycerin, aspirin, Coumadin etc.) |

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| **Timeline** |
| ***What sequence of teaching and learning experiences will equip students to develop and demonstrate the PTE standards and the Academic standards?***  |
| * Lesson on heart structure and how pressure measurements relate to heart function.
* Demonstration and student practice on taking blood pressures
* Lesson on what pressure measurements mean and what normal/abnormal ranges
* Students obtain data from 10 anonymous subjects and compile data from all students to look for correlations between pressure, age and weight.
* Students create a flyer/brochure/poster on how lifestyle choices can impact cardiovascular health.
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(Adapted from the Boston Public Schools Signature Projects.)