



Project Lead The Way [PLTW] Principles of Biomedical Science

outbreak at a local hospital, stabilizing a patient during an emergency, and collaborating with others to design solutions to local and global medical problems.

- (3) Students will develop skills in technical documentation to communicate experimental findings and solutions to problems, explore how connections to other disciplines

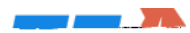
Project Lead The Way [PLTW] Principles of Biomedical Science

- (C) identify basic conflict resolution strategies and employ those strategies as necessary and appropriate;
 - (D) employ a peer review process to give effective and constructive feedback to meet given outcomes;
 - (E) develop a project schedule allocating tasks among team members and track progress for successful completion of the project; and
 - (F) select and use collaborative tools, such as cloud-based tools, document sharing, and video and text functions, to successfully complete a project.
- (4) Ethical Reasoning and Mindset: The student applies professional standards as they relate to the personal traits of a biomedical science professional. The student is expected to:
- (A) explain the importance of demonstrating professional standards such as creativity, perseverance, honesty, integrity, and accountability, that should be exhibited by biomedical professionals;
 - (B) create and support an environment that fosters teamwork, emphasizes quality, and promotes learning;
 - (C) explain the ethical implications of biomedical science decisions; and
 - (D) summarize and explain the larger ethical, moral, and legal issues related to scientific research, product development, and use in society animal use and human research.
- (5) Critical and Creative Problem-Solving: The student devises and executes a plan to solve a problem, uses data and evidence to evaluate and justify decisions, and applies an iterative design process to creatively address a need or solve a problem. The student is expected to:
- (A) synthesize information from multiple credible sources, such as literature, databases, policy documents, and diverse perspectives from multiple disciplines, to identify causes and solutions to problems;
 - (B) devise and execute a plan to solve a problem while considering the impacts of the possible solutions;
 - (C) use mathematical computations to interpret data;
 - (D) conduct research using credible resources to craft explanations and draw conclusions while acknowledging the limitations, opposing views, and biases;
 - (E) assess how design and innovation can help solve a problem in biomedical science;
 - (F) identify and define visual, functional, and structural design requirements and realistic constraints against which solution alternatives can be evaluated and optimized;
 - (G) describe how failure or unexpected results can produce positive outcomes by improving understanding;
 - (H) compare competing solution ideas and justify the selection of a solution path with respect to design requirements and constraints; and
 - (I) develop a solution and implement a plan to test and evaluate a potential solution to verify that it meets all constraints and complies with all design criteria.
- (6) Experimental Design: The student designs and carries out an experiment that investigates a research question, collects, and analyzes experimental data, and draws conclusions. The student is expected to:



Project Lead The Way [PLTW] Principles of Biomedical Science

- (A) develop a testable hypothesis and design an experimental protocol that evaluates its validity;
- (B) distinguish between independent and dependent variables;
- (C) identify and explain the purpose and importance of experimental controls;
- (D) maintain a detailed repeatable account of an experiment in a physical or digital laboratory notebook;
- (E) conduct background research using credible sources to identify and investigate a relevant research question;
- (F) select and use equipment appropriate to the experiment.



Project Lead The Way [PLTW] Principles of Biomedical Science

- (G) create, describe, and analyze models of biological processes to explain proper and improper functioning.
- (9) Clinical Medicine: The student documents patient information, synthesizes complex medical information to diagnose a disease, disorder, or injury or to determine cause of death, and responds to patient and community needs and proposes treatment strategies for disease, disorder, injury, or the prevention thereof. The student is expected to:
 - (A) transcribe and communicate information, data, and observations using medical terminology;
 - (B) explain why it is important to maintain accurate patient records;



(11)Molecular Biology and Genetics: The student analyzes genetic information to predict patterns of



Project Lead The Way [PLTW] Principles of Biomedical Science

autopsy report using test and examination results. In preparation for court testimony, students will create an evidence board that illustrates the case to a judge or jury.

- Students will assess and create plans of care for a series of patients via a digital patient (ie

