

THE WORLD'S BIGGEST HEALTH CHALLENGES, INVESTIGATED IN YOUR CLASSROOM

From nausea to neuroscience, from fevers to forensics, the ever-advancing world of medicine spans from the common to the exceptional. The biomedical field has never been for the faint of heart or mind. However, countless professionals are relied on daily to ensure our physical, mental, and emotional health. The students of today will take the place of those professionals tomorrow, and they will need to be ready to respond to health challenges of the future – many that do not even exist today.

Knowledge in biomedical sciences paves the way for a wide range of careers. A small sample of recent graduates who completed at least one PLTW Biomedical Science™ course reveals the array of opportunities: some students pursued post-secondary studies in microbiology, pharmacy, chemistry, nursing, nutrition and dietetics, or neurobiology; others enrolled in medical or dental school; and others began careers in forensic science or started research projects focused on immunology and cancer. These careers are personally and professionally rewarding. They are also challenging and require a deep understanding of how to apply science, technology, engineering, and math (STEM) to solve complex problems.

How do we prepare students to investigate medical cases, understand treatment and intervention options, and seek solutions to the world's biggest health challenges?

PLTW Biomedical Science

The rigorous and relevant four-course PLTW Biomedical Science sequence allows students to investigate the roles of biomedical professionals as they study the concepts of human medicine, physiology, genetics, microbiology, and public health. Students engage in activities such as investigating the death of a fictional person to learn content in the context of real-world cases. They examine the structures and interactions of human body systems and explore the prevention, diagnosis, and treatment of disease, all while working collaboratively to understand and design solutions to the most pressing health challenges of today and the future.

Each course in the Biomedical Science sequence builds on the skills and knowledge students gain in the preceding courses. Schools offer the three PLTW Biomedical Science foundation courses over a period of three academic years from the start of implementation and may also offer the capstone course.



PLTW Biomedical Science Curriculum

Foundation Courses

PBS Principles of Biomedical Science 1 year

In the introductory course of the PLTW Biomedical Science program, students explore concepts of biology and medicine to determine factors that led to the death of a fictional person. While investigating the case, students examine autopsy reports, investigate medical history, and explore medical treatments that might have prolonged the person's life. The activities and projects introduce students to human physiology, basic biology, medicine, and research processes while allowing them to design their own experiments to solve problems.

HBS Human Body Systems 1 year

Students examine the interactions of human body systems as they explore identity, power, movement, protection, and homeostasis. Exploring science in action, students build organs and tissues on MANIKEN® skeletal models; use data acquisition software to monitor body functions, such as muscle movement, reflex and voluntary action, and respiration; and take on the roles of biomedical professionals to solve real-world medical cases.

MI Medical Interventions 1 year

Students follow the life of a fictitious family as they investigate how to prevent, diagnose, and treat disease. Students explore how to detect and fight infection; screen and evaluate the code in human DNA; evaluate cancer treatment options; and prevail when the organs of the body begin to fail. Through cases, students learn about a range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics.

Capstone Course

BI Biomedical Innovation 1 year

In the final course of the PLTW Biomedical Science sequence, students build on the knowledge and skills gained from previous courses to design innovative solutions for the most pressing health challenges of the 21st century. Students address topics ranging from public health and biomedical engineering to clinical medicine and physiology. They have the opportunity to work on an independent research project with a mentor or advisor from a university, medical facility, or research institution.