Educational Philosophy

Is based on the Chinese proverb: “I hear and I forget. I see and I remember. I do and I understand.”

We believe in a curriculum enriched classroom environment that reflects student's special abilities and interests by giving them the tools to construct their own knowledge and foster their natural curiosity to learn and excel.

We will incorporate project based learning and inquiry based instruction, along with state of the art technological advances so our students can become innovators, entrepreneurs, community supporters, and proficient learners ready to address 21st century challenges.

For PLTW Biomedical Science course descriptions, standards alignment, and more information, visit pltw.org/biomedicalscience.

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Cumberland Regional High School’s Biomedical Sciences Pathway

Inspiring Distinction, Innovation, and a Future of Service in the Next-generation Innovators, Artists, Thinkers, and Inventors
PLTW Biomedical Science Course Descriptions

Principles of Biomedical Science (5 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.

Human Body Systems (5 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 a skeletal Maniken®; 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.

Medical Interventions (5 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 real-world cases, students are exposed to a range of interventions related to human and tissues on a skeletal Maniken®; 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.

Biomedical Innovation (5 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 design project with a mentor or advisor from a university, medical facility, or research institution.

Bring the Future of Biomedical Sciences Alive
Whether discovering new cancer treatments or teaching healthy lifestyle choices to their communities, today’s biomedical science professionals are tackling big challenges to make the world a better place.

Through a sequence of courses that includes Human Body Systems and Biomedical Innovation, PLTW Biomedical Science students in grades 9-12 are taking on these same challenges – and they're doing it before they even graduate from high school.

Working with the same tools used by professionals in hospitals and labs, PLTW Biomedical Science students step into the roles of medical investigators, surgeons, microbiologists, geneticists, and biomedical engineers. They explore realistic situations like investigating the death of a fictional person and analyzing prevention, diagnosis, and treatment of disease.

The program’s collaborative, hands-on explorations inspire students to discover the diversity of biomedical science careers and empower them to develop the knowledge and skills to make their life-changing ideas a reality. A few ways PLTW Biomedical Science students are applying their learning to make a difference:

- Designing and developing prosthetic limbs
- Creating public service campaigns on topics such as bullying and community health hazards
- Developing bloodwork innovations now adopted by Johns Hopkins
- Conducting studies on the benefits of mobile health clinics

Just imagine what your students can do.

Empower Your Students to Solve Medical Mysteries
It was a hot summer morning, 92°F. An emergency call came in at 9:45 a.m. A man contacted the police to report that he was worried about his next-door neighbor, a woman named Anna. He said he had spoken to Anna the previous morning when he saw her walking her dog around 6:30 a.m. He decided to call the police this morning because Anna's dog had been barking excitedly for the last two hours. He tried to call Anna on the telephone, but no one answered. Both the police and an EMT arrived at the scene at 9:56 a.m. The EMT determined that Anna was dead. The police immediately notified your team of crime scene investigators as well as the medical examiner, both of which were dispatched to the house. Has a crime been committed?

This is an excerpt from the case presented to students in the first course of the PLTW Biomedical Science program, Principles of Biomedical Science. From the moment students walk into the classroom, they are immersed in the mysterious death of Anna and asked to investigate, document, and analyze evidence to solve the case. Case-based scenarios like this one span all PLTW Biomedical Science courses. Students explore a range of careers in biomedical sciences as they learn content in the context of real-world, hands-on activities, projects, and problems.