

HEALTH SCIENCES

Project Lead the Way (PLTW) Biomedical Sciences

The Project Lead the Way Biomedical Sciences program is a dynamic high school program which uses real-world problems to engage and challenge students. Students interested in math, science and the human body will find the PLTW Biomedical Sciences program a great introduction to numerous medical fields. It also teaches how the skills they learn are used in the biomedical sciences.

****In order to earn a Technical Honors Diploma in PLTW Biomedical Sciences, students must also take Medical Terminology and earn Dual Credit.***

T66111 PLTW: Principles of Biomedical Science (5218)

Open to grades 9-12

2 semesters, 1 credit per semester

Meets requirements of: AHD, THD, CORE 40

Recommendation: Enrolled in Biology

Note: Fulfills Core 40 Science Credit

Students explore the concepts of human medicine and are introduced to research processes, using applied math and science to solve problems. Hands-on, interactive projects enable students to investigate human body systems and various health conditions, including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. Key biological concepts include homeostasis, metabolism, inheritance of traits, feedback systems and defense against disease. Engineering principles such as the design process, feedback loops, fluid dynamics, and the relationship of structure to function will be included where appropriate.

T66121 PLTW: Human Body Systems (5216)

Open to grades 10-12

2 semesters, 1 credit per semester

Meets requirements of: AHD, THD, CORE 40

Prerequisite(s): Principles of Biomedical Sciences

Note: Fulfills Core 40 Science Credit

Students will learn anatomy and physiology of the human body through a hands-on approach. Using real-world cases, students take the role of a biomedical professional to work together to solve medical mysteries. Hands-on, interactive projects include designing experiments, investigating the function and structures of the human body through dissections, clay modeling, laboratory analysis and data acquisition software usage to monitor body functions such as reflex, muscle movement and lung capacities. Students will learn to assess and monitor the body systems and how they work together.

T66131 PLTW: Medical Interventions (5217)

Open to grades 11-12

2 semesters, 1 credit per semester

Meets requirements of: AHD, THD, CORE 40

Prerequisite(s): Principles of Biomedical Sciences, Human Body Systems

Note: Fulfills Core 40 Science Credit

Students investigate various medical interventions that extend and improve the quality of life including gene therapy, pharmacology, surgery, prosthetics, rehabilitation, and supportive care. The course explores the design and development of various medical interventions such as vascular stents, cochlear implants, and

prosthetic limbs. In addition, students review the history of organ transplants and gene therapy and stay updated on cutting-edge developments via current scientific literature. Using 3D imaging, data acquisition software, and current scientific research, students design a product that can be used as a medical intervention.

T66141 PLTW: Biomedical Innovation (5219)

Open to grades 11-12

2 semesters, 1 credit per semester

Meets requirements of: AHD, THD, CORE 40

Prerequisite(s): Principles of Biomedical Sciences, Human Body Systems, Medical Interventions

Biomedical Innovation is the fourth and final Project Lead the Way Biomedical Science course. It is intended to follow the third course, Medical Interventions. In this capstone course students will design and conduct experiments related to the diagnosis, treatment, and prevention of disease or illness. They will apply their knowledge and skills to answer questions or to solve problems related to the biomedical sciences. They will work to design an effective emergency room, explore human physiology, and design a medical innovation. They will investigate public health issues and forensic autopsy. They may work with a mentor or advisor from a university, hospital, physician's office, or industry as they complete class projects.

T66101 Medical Terminology (5274)

Open to grades 10-12

2 semesters, 1 credit per semester

Meets requirements of: AHD, THD, CORE 40

**Note: Same credit embedded in Health Science Education I: Nursing
Dual Credit may be available**

Learn a new language in this two-semester elective. Students will learn to define and use medical terminology correctly and will become proficient in pronouncing and spelling medical terms. Students will utilize videos, presentations, and hands-on experiences to enhance learning. This course will provide a solid foundation in medical terminology for any student considering a health career.

DENTAL

****In order to earn a Technical Honors Diploma in Dental, students must also take Medical Terminology and earn Dual Credit.***

T66321 & T66311 Dental Careers I & Principles (7316 & 7315)

Must take both concurrently

Open to grades 10-12

2 semesters, 2 credit hours per semester

Meets requirements of: THD, AHD, Core 40

Recommendation(s): Principles of Biomedical Sciences or Human Body Systems

This course provides entry level training for a career in the profession of dentistry. Dental Careers I offers hands-on experience as well as classroom instruction. Emphasis is placed on the clinical environment, chair-side procedures, dental materials, placing restorations, equipment/instrument identification, tray set-ups, sterilization, and characteristics of microorganisms and disease control. In addition, oral, head and neck anatomy, basic embryology, histology, tooth morphology, charting dental surfaces, and illness are all introduced. Simulated in-school laboratories are included to provide opportunities for students to further develop clinical skills and the appropriate ethical behavior. Students will have the opportunity to complete a

4 to 8 hour dental office observation during this course.

T6633I & T6634I Dental Careers II & Capstone (7317 & 7318)

Must take both concurrently

Open to grades 11-12

2 semesters, 2 credit hours per semester

Meets requirements of: THD, AHD, Core 40

Prerequisite(s): Dental Careers I & Principles

This course provides the student with more extensive training as a Dental Professional. There is an excellent opportunity for employment experience toward college technical training. The student will perform more complex procedures during Dental Careers II in the simulated in-school laboratory such as placing restorations, orthodontic, endodontic, radiography, surgical, prosthodontic, and periodontal specialty skills and procedures. Students may be eligible to participate in an off-campus externship experience in a local dental office during the second semester.

NURSING

T6622I & T6621I Health Science Education I: Nursing & Principles (5274 & 7168)

Must take both concurrently

Open to grades 10-12

2 semesters, 2 credits per semester

Meets requirements of: THD, AHD, Core 40

Recommendation(s): PLTW Principles of Biomedical Sciences and/or PLTW Human Body Systems

Note: Embedded Medical Terms credit

Dual Credit may be available

This course is the first year of a two-year pathway in Health Sciences. Students will be exposed to multiple healthcare careers which will allow them to develop skills to prepare for the medical field. Students are provided opportunities to learn and participate in clinical activities such as medical terminology, anatomy, physiology, pathophysiology, and diagnostics and treatment. Students will also participate in non-clinical activities such as generating patient records, medical law and ethics, customer service, health insurance, and other fundamental administrative tasks. The course integrates learning hands-on patient care techniques (pulse, blood pressure, hygiene, patient movement, nutrition/elimination) in our updated simulation lab, providing an opportunity to build empathy and learn advocacy for future patients. Students will also receive certification in CPR/AED for the Professional Rescuer. This course equips students with essential knowledge and skills for the real world, laying a strong foundation for a successful career within the medical field.

T6623I & T6624I Health Science Education II: Nursing & Capstone (7164 & 7255)

Must take both concurrently

Open to grades 11, 12

2 semesters, 2 credits per semester

Meets requirements of: THD, AHD, Core 40

Prerequisite(s): Health Science Education I: Nursing & Principles

This course offers an overview of human anatomy, physiology, disease process, and treatment with an emphasis on healthcare employability skills, teamwork, and communication. Through a combination of course work and clinical simulation closely related to many areas of interest, the course will prepare

students for the National Healthcare Association Certified Clinical Medical Assistant exam while also providing the foundation for advanced employment and/or post-secondary education in various health career fields. A certification in Clinical Medical Assisting can be enhanced with additional stackable certifications such as telemetry, phlebotomy, and health information management/ medical records. Instruction includes taking and recording vital signs, preparing patients for examination, patient education, and assisting the physician during the exam. The collecting and preparation of laboratory specimens and basic laboratory tests will be covered. Prepares for the administration of medication, venipuncture, ECG, and wound care. Provides a basic understanding of the clinical and administrative duties and responsibilities pertinent to medical offices. Includes instruction in medical correspondence and records, case histories of patients, filing, telephone procedures, appointment scheduling, receptionist duties, and processing mail. Written, verbal and nonverbal communications according to patient needs are covered as well as documentation and associated legal and ethical boundaries.

VETERINARY

****In order to earn a Technical Honors Diploma in Veterinary Careers, students must earn dual credit in Animal Science.***

T6642I & T6641I Veterinary Careers I & Principles (728I & 7280)

Must take both concurrently

Open to grades 10-12

2 semesters, 2 credits per semester

Meets requirements of: THD, AHD, Core 40

Recommendation(s): Animal Science, Advanced Life Science: Animals, PLTW

Principles of Biomedical Sciences, PLTW Human Body Systems, Medical

Terminology

This course provides entry level training as a Veterinary Assistant for students pursuing careers as Veterinarians, Veterinary Technicians, Veterinary Assistants, or other careers involving animals. The focus of the first semester is classroom and laboratory training. The student will have the opportunity to practice assisting with the physical exam, veterinary nursing care, animal restraint and assisting with surgical procedures. Second semester students will have the opportunity to receive clinical (on-the-job) training within the professional community. Clinical training placements include veterinary offices, animal shelters, humane societies, groomers and animal behavior and training facilities. Students have the opportunity to receive certification in CPR/AED for the Professional Rescuer.

T6643I & T6644I Veterinary Careers II & Capstone (5070 & 7282)

Must take both concurrently

Open to grades 11-12

2 semesters, 2 credits per semester

Prerequisite(s): Veterinary Careers I & Principles

Meets requirements of: THD, AHD, Core 40

Dual Credit may be available

This course curriculum offers medical office training. Students also have the opportunity to advance learning in the veterinary field through clinical (on-the-job) training. Clinical placement begins early in the school year and continues until the end of the year. Health Careers Training - Veterinary Assisting Year Two offers a wonderful opportunity for students to gain in-depth exposure to their potential health career as well as providing a solid foundation for employment and college/technical education.