

HEALTH SCIENCES CLUSTER

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

Prerequisite(s): 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 and/or Anatomy and Physiology

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 12

2 semesters, 1 credit per semester

Meets requirements of: AHD, THD, CORE 40

Prerequisite(s): Principles of Biomedical Sciences, Human Body Systems and/or Anatomy and Physiology, and 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 11-12

2 semesters, 1 credit per semester

Meets requirements of: AHD, THD, CORE 40

Prerequisite(s): Enrolled in Biology

Note: Same credit embedded in Health Science Education I: Nursing

Dual Credit Might 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.**

T66311 & T66321 Dental Careers I (7186 & 7316)

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 - 8 hour dental office observation during this course.

T6633I & T6634I Dental Careers II (5204)

Open to grades 11-12

2 semesters, 2 credit hours per semester

Meets requirements of: THD, AHD, Core 40

Prerequisite(s): Dental Careers I

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 our 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

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

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 Might be Available

This course provides entry level training in nursing assisting and introduction to medical assisting. At the completion of this course, students may receive certification as a Certified Nursing Assistant (C.N.A.) through the Indiana State Department of Health. Students may receive certification in CPR/AED for the Professional Rescuer. During the school year students learn hands-on skills in the classroom and simulated laboratory. These skills include: infection control measures, patient hygiene, nutrition, vital signs, patient movement, etc. Following training on the skills mentioned, students receive clinical (on-the-job) experience in nursing or continue in the classroom for introduction to medical assisting. Clinical placement is designed to allow the student to gain clinical experience towards the 75 hours required for the state C.N.A. exam. Following the first year of introduction to medical assisting the student is given the opportunity to continue to nursing year II. The student will then complete the required skills to have the opportunity to study for the certification exam to become a medical assistant. The first year of the nursing program provides a wide range of entry level health care skills that gives students a solid foundation for transitioning into post-secondary programs or career placement.

T6623I & T6624I Health Science Education II: Nursing (5284)

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

This course offers an overview of human anatomy, physiology, disease process, and treatment with an emphasis on healthcare employability skills, teamwork, and communication. Students have the opportunity to learn advanced skills and explore a variety of nursing and allied health careers. Through a combination of course work and clinical (on-the-job) experience closely related to the area of their interest(s), students are given the opportunity to test to become an NHA Certified Clinical Medical Assistant (CCMA). Clinical placement begins early in the school year and continues through the end of the year. Nursing II offers a wonderful opportunity for students to create custom training (on-the-job), unique to their specific interests, while enhancing their foundation for advanced employment and/or post-secondary education in the health career fields.

VETERINARY

***In order to earn a Technical Honors Diploma (under NLPS) in Veterinary, students must also take Animal Science and earn Dual Credit.**

***In order to earn a Technical Honors Diploma (under Perkins V) in Veterinary, students must also take Animal Science and ALS: Animals and earn Dual Credit in both.**

T6641I & T6642I Veterinary Careers I (7280 & 7281)

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 (5212)

Open to grades 11-12

2 semesters, 2 credits per semester

Meets requirements of: THD, AHD, Core 40

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.