

HIGH SCHOOL ANATOMY AND PHYSIOLOGY

Thursdays, September 17-December 17 (Fall 2020)

No class October 15 or November 26

Thursdays, January 28-April 29 (Spring 2020)

No class February 18 or April 8

11:15am-12:45pm

Ages 14+

In our High School Anatomy and Physiology Course, students develop an understanding of the relationships between the structures and functions of the human body. Students learn laboratory techniques, including organ dissections, and perform hands-on science experiments commonly required in many high school anatomy and physiology curricula. A brief review of relevant material starts each lab, followed by a lab period which includes lab preparation, experimentation and clean-up. A lab manual (title TBA) will be recommended for students needing to complete lab reports (to be evaluated by the parent), the The Anatomy Coloring Book is recommended to help learn anatomical names. We recommend students register for the full semester (ideally year), but students can also register for individual labs. All lab costs are included in registration fees. Lab enrollment is limited to 12 students.

Location: STEM Lab (suite 21)

\$275/semester OR \$25/lab

10% off sibling discount available

REGISTER

LAB SCHEDULE:

INTRO TO ANATOMY - September 17

In this introductory class, student become familiar with standard terminology, including body regions, anatomical direction and orientation and body planes.

MICROSCOPY AND CELL ANATOMY - September 24

Students review the proper use of microscopes and slide preparation, practice biological drawing skills and explore the diverse structure of animal cells.

CELLULAR TRANSPORT - October 1

We explore homeostasis and the various mechanisms used by cells maintain equilibrium inside and outside of cells.

HISTOLOGY: TISSUES OF THE BODY - October 8

Students microscopically investigate a variety of human tissues to gain insight on the function of tissues based on cellular arrangement and structure.

INTEGUMENTARY SYSTEM - October 22

The skin is our largest organ and first line of defense against pathogens. We study the layers of the integument and structures within these layers including, hair follicles and sweat glands.

BONE AND AXIAL SKELETON - October 29

We focus on bone tissue, discuss the function of our skeletal system, and study the bones that make up the axial skeleton.

JOINTS AND APPENDICULAR SKELETON - November 5

Students learn the bones of the appendicular skeleton, and classification of the various types of joints throughout the human body.

MUSCULAR SYSTEM - November 12

We explore the structure and function of three muscle types through microscopy, experiment with muscle fatigue, and begin to learn the names of major muscles of the human body.

CHICKEN WING DISSECTION - November 19

Students practice proper dissection safety and technique as we dissect chicken wings to investigate the structure of muscles and how they are attached to bone to allow movement of the skeleton.

NERVES AND NERVE DISORDERS - December 3

We investigate the structure of neurons and how electrical impulses travel along neurological pathways, and learn about nerve disorders that impact the function of the nervous system.

GROSS ANATOMY OF THE BRAIN - December 10

Today, we focus on the structures of the brain and the function of each as we investigate preserved mammalian brains.

ANATOMY AND DISORDERS OF THE EYE - December 17

Students learn about vision and anatomy of the eye as they dissect a cow eyes, and learn about visual impairments, including cataracts.

SMELL, TASTE AND HEARING - January 28

We explore the anatomy and function of our olfactory, gustatory and auditory systems, and how these systems allow us to interpret environmental stimuli.

ENDOCRINE SYSTEM AND DIABETES - February 4

Students identify each endocrine gland and the functions of the hormones they secrete, and learn how imbalances in levels of the hormone, insulin, can lead to diabetes.

BLOOD AND BLOOD TYPING - February 11

We classify distinct types of blood cells from histological slides, and interpret blood typing analysis results to identify antigens on the surface of erythrocytes.

ANATOMY OF THE HEART - February 25

Students dissect a mammalian heart to identify anatomical structures, and determine the pathway of blood flow through the heart.

BLOOD VESSELS AND PULSE - March 4

We investigate anatomical differences in blood vessels, and identify major blood vessels in the human body.

LYMPHATIC SYSTEM AND IMMUNE RESPONSE - March 11

Students study the lymphatic system and how the human body removes toxins, as well as learn how our immune system responds to pathogens that have entered the body.

RESPIRATORY SYSTEM AND FUNCTION - March 18

Today, we create a model of our respiratory system to understand the mechanism that causes the breathing cycle, and the chemical signal that stimulates inhalations.

ANATOMY OF THE LUNGS - March 25

Students investigate structure of healthy and diseased lung tissue, as well as the gross anatomy of mammalian lungs.

DIGESTIVE SYSTEM - April 1

We study the gastrointestinal tract and accessory organs and their functional roles in the digestion and reabsorption of food.

ENZYME LAB - April 15

In today's lab, we discuss the function of enzymes and conduct an experiment demonstrating the catalyzing function of catalase.

REPRODUCTIVE SYSTEM - April 22

We study the organs and cellular processes involved in the production of gametes, including hormonal regulation and meiosis.



URINARY SYSTEM AND URINALYSIS - April 29

Students investigate the urinary system and its importance in regulating blood pressure and chemistry as they dissect a kidney, and explore what urinalysis tests mean.

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