Curriculum Map: Anatomy and Physiology 2022-23

Course: ANATOMY Sub-topic: Anatomy

Grade(s): 10 to 12

Course Description: Anatomy and Physiology is an elective course designed for students preparing for a career in a health or medical related field. The course is intended to represent an introductory Anatomy and Physiology course offered at the college level and students participating in dual enrollment may earn college credits for successfully meeting course requirements. After an introduction to the study of Anatomy and Physiology, the course focuses on specific aspects of each organ system and how the structure of organs directly relates to the functions of the system. Most importantly, the course intends to develop an appreciation for the complexity of the human body and the amazing processes that enable all of us to perform basic life functions.

Course Textbooks, Workbooks, Materials Citations: Hole's Human Anatomy & Physiology - 13th Edition

McGraw Hill Publishers

Unit: Introduction, Biochemistry & Cells

Timeline: Week 1 to 4

Unit Description: This unit of Anatomy and Physiology will serve as primarily an introduction to the terminology needed and a basic overview of how the human body is organized into systems. It also reviews major themes in biology, but with a human anatomy and physiology context.

Unit Big Ideas: Biological principles apply to all living organisms, including the Human Body.

Unit Assignments:

Intro to Anatomy Quiz

Lab Report 1

Lab Quizzes

Interview assignment

Biochemistry Quiz

Exam

Unit Key Terminology & Definitions :

Parietal

Visceral

Homeostasis

Negative Feedback

Metabolism

Enzyme

Stem Cell

Differentiation

Cancer

Topic: Brief History of Anatomy and Physiology

Minutes for Topic: 44

Topic: Heirarchy of living systems & systems overview

Minutes for Topic: 88

Topic: Organization of the Human Body - Cavities + Linings
Minutes for Topic: 44

Topic: Homeostasis and Negative Feedback Controls
Minutes for Topic: 88

Topic: Anatomical Terms
Minutes for Topic: 176

Topic: Cell Structure
Minutes for Topic: 132

Topic: Movement of materials into and out of the cell
Minutes for Topic: 44

Topic: Cell Division, Differentiation & Cancer
Minutes for Topic: 88

Topic: Enzymes and Biochemistry
Minutes for Topic: 132

Unit: Tissue and The Integumentary System

Timeline: Week 5 to 7

Unit Description:	This unit compares the characteristics of the four main types of tissues with a focus on epithelial and connective tissues. It then uses the integumentary system as beginning system to show how organs and organ systems are collections of tissues.
Unit Assignments:	Epithelial Tissues Lab Epithelial Tissues Quiz Connective Tissues Lab Connective Tissue Quiz Skin Lab Skin Quiz Exam
Unit Key Terminology & Definitions :	Tissue Epithlial Tissue Connective Tissue Voluntary Involuntary striated Integumentary Epidermis Dermis Accessory Organs

Topic: Introduction to Tissues
Minutes for Topic: 44

Topic: Characteristics of Epithelial Tissues
Minutes for Topic: 88

Topic: Identification of Epithelial Tissues
Minutes for Topic: 88

Topic: Charcteristics of Connective Tissue
Minutes for Topic: 88

Topic: Identification of ConnectiveTissues
Minutes for Topic: 88

Topic: Characteristics and Identifcation of Muscle and Nervous Tissue
Minutes for Topic: 44

Topic: Overview of Skin Structures
Minutes for Topic: 44

Topic: General Characteristics of the Epidermis
Minutes for Topic: 44

Topic: Characteristics of the Dermis and Subcutaneous Layers
Minutes for Topic: 44

Topic: Identification and Overview of Accessory Organs
Minutes for Topic: 88

Topic: Basics of Skin Color
Minutes for Topic: 44

Unit: Skeletal and Muscular Systems

Timeline: Week 8 to 12

Unit Description:	The skeletal - muscular system unit focuses on the interactions between our bones and muscles, including the joints. It will identify locations of bones and muscles, the basic structure of each and how they function as living systems. Joints are also explained by structure, classification and movements.
Unit Key Terminology & Definitions :	Osteon Epiphysis Diaphysis Articulation Marrow Calcitonin Origin Insertion Fascicle Muscle Fiber Sarcomere Sliding Filament Theory

Topic: Identification and Location of Bones
Minutes for Topic: 44

Topic: Structure of a long bone
Minutes for Topic: 44

Topic: Bone Growth and Development
Minutes for Topic: 88

Topic: Features of the Skull
Minutes for Topic: 176

Topic: Anatomy of Bone Breaks
Minutes for Topic: 44

Topic: Overview of Joint Structure
Minutes for Topic: 44

Unit: Nervous System
Timeline: Week 13 to 16

Unit Description: The Nervous System Unit focuses on the basic structure and function of nerves, as well as explaining the organization and classification of the nervous system. There is an emphasis on the parts of the brain and what each part does.

Unit Key Terminology & Definitions :
neuroglial
neuron
action potential
central nervous system
peripheral nervous system
sympathetic
parasympathetic
autonomic
cerebrum
cerebellum
brain stem

Topic: Introduction to the Nervous System
Minutes for Topic: 44

Topic: Structure of a Neuron
Minutes for Topic: 88

Topic: Events of a nerve impulse
Minutes for Topic: 88

Topic: Reflex Arcs
Minutes for Topic: 44

Topic: Structure of the Nervous System
Minutes for Topic: 44

Topic: Parts of the Brain
Minutes for Topic: 176

Topic: Odds and Ends of the Nervous System
Minutes for Topic: 44

Unit: The Senses
Timeline: Week 17 to 34

Unit Description: The senses unit examines how our five senses, plus the sense of balance, enable us to perceive the world around us. How the eye structure and ear structure relate to vision and hearing is looked at more closely than the other senses.

Unit Key Terminology & Definitions :
Perception
Adaption
Projection
Referred Pain
Receptors
Cornea
Retina

Cochlea

Equilibrium

Topic: Overview of the Senses
Minutes for Topic: 44

Topic: The Somatic Senses
Minutes for Topic: 44

Topic: A&P of Smell and Taste
Minutes for Topic: 88

Topic: Structure of the Eye
Minutes for Topic: 132

Topic: Physiology of Sight
Minutes for Topic: 88

Topic: Structure of the Ear
Minutes for Topic: 44

Topic: Physiology of hearing
Minutes for Topic: 44

Topic: Dynamic vs. Static Equilibrium
Minutes for Topic: 44

Unit: Endocrine, Blood and Lymphatic Systems

Timeline: Week 19 to 22

Unit Description: This unit focuses on three separate, but interrelated topics: the endocrine system, blood and the lymphatic system. The focus of each topic will be a brief overview of how each system works. The endocrine system topic will focus on the role of hormones in regulating homeostasis. The blood will focus on components of blood, as well as blood typing and clotting. The lymphatic system will focus on the need to redistribute interstitial fluid back into the blood and the check for pathogens along the way.

Unit Key Terminology & Definitions :

Hormone

Plasma

Hematocrit

Antigen

Antibody

Hemostasis

Lymph

Immunity

Topic: Overview of Endocrine System
Minutes for Topic: 44

Topic: Hormones and Glands
Minutes for Topic: 176

Topic: overview of blood
Minutes for Topic: 44

Topic: Characteristics of Red Blood Cells
Minutes for Topic: 88

Topic: Characteristics of White Blood Cells
Minutes for Topic: 88

Topic: Platelets and Clotting

Minutes for Topic: 44

Topic: Blodd Typing
Minutes for Topic: 88

Topic: Structure of the Lymphatic System
Minutes for Topic: 44

Topic: Specific and Non specific Immunity
Minutes for Topic: 176

Unit: Cardiovascular and Respiratory Systems

Timeline: Week 23 to 26

Unit Description:	The cardiovascular and respiratory systems unit focuses on how the heart pumps blood through the circulatory system. It also focuses on how the structures of the respiratory system function to exchange gases with the blood. Heart structure, blood pressure and respiratory volumes will also be explained in this unit.
Unit Key Terminology & Definitions :	Pericardium Myocardium Atria Ventricles Pulmonary Systemic Cardiac Conduction System Systolic Diastolic Fibrillation Respiration Inhalation Exhalation

Topic: Systemic and Pulmonary Circuits
Minutes for Topic: 44

Topic: Structure of the Heart
Minutes for Topic: 88

Topic: Cardiac Conduction System
Minutes for Topic: 88

Topic: Anatomy of Blood Vessels
Minutes for Topic: 44

Topic: Location of Blood Vessels
Minutes for Topic: 88

Topic: Events of a Heart Attack
Minutes for Topic: 44

Topic: Taking, Reading and Understanding Blood Pressure
Minutes for Topic: 88

Topic: Basic Structure of the Respiratory System
Minutes for Topic: 44

Topic: Organs of the Respiratory system
Minutes for Topic: 176

Topic: Events of Inspiration and Expiration
Minutes for Topic: 88

Topic: Lung Volumes and Capacities
Minutes for Topic: 88

Unit: Digestive & Urinary Systems

Timeline: Week 27 to 30

Unit Description: The Digestive and Urinary Systems unit focuses on the breakdown of food, absorption of nutrients and the elimination of wastes. It uses the sequential events of what happens to food after you eat it until the elimination of the indigestible materials as waste products. It also examines the filtration of materials from the blood and composition of waste products excreted as urine.

Unit Key Terminology & Definitions :

Mechanical Digestion

Chemical Digestion

Peristalsis

Sphincter

Accessory Organs

Absorption

Villi

Colon

Filtration

Secretion

Reabsorption

Topic: Overview of the Digestive System
Minutes for Topic: 44

Topic: Actions in the Mouth, Pharynx and Esophagus
Minutes for Topic: 132

Topic: The Stomach
Minutes for Topic: 132

Topic: Accessory Organs
Minutes for Topic: 88

Topic: Small and Large Intestines
Minutes for Topic: 44

Topic: Heirarchy of the Urinary System
Minutes for Topic: 44

Topic: How a nephron works
Minutes for Topic: 88

Topic: Countercurent Exchange
Minutes for Topic: 44

Unit: Reproduction & Developmental Anatomy

Timeline: Week 31 to 34

Unit Description: The Reproductive and Development Unit focuses on a general overview and comparison of the male and female reproductive systems. It explains the formation of gametes, followed by the process of fertilization, pregnancy and development.

Unit Key Terminology & Definitions :

gametes

gametogenesis

fertilization

zygote

blastula

embryo

fetus

Topic: Gametogenesis & Fertilization
Minutes for Topic: 44

Topic: Overview of Male Reproductive System
Minutes for Topic: 132

Topic: Overview of Female Reproductive System
Minutes for Topic: 132

Topic: Events of the Reproductive Cycle
Minutes for Topic: 44

Topic: Pregnancy and Development
Minutes for Topic: 176

Unit: Dissection and Course Review
Timeline: Week 35 to 36

This Curriculum Map Unit has no Topics to display