

## Anatomy/Physiology Curriculum - CP

### Body Organization Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b> HS-LS1 From Molecules to Organisms: Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b> HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</p>
<p><b><u>Essential Question:</u></b> How is the human body organized?</p>	<p><b><u>Science and Engineering Practices:</u></b> Developing and Using Models based on evidence of systems Scientific Investigations use a variety of methods</p>
<p><b><u>Disciplinary Core Idea:</u></b> Structure and Function</p>	<p><b><u>Crosscutting Concepts:</u></b> Stability and Change Structure and Function</p>
<p><b><u>Resources:</u></b> See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b> Body Organization Worksheets Homeostasis Lab / Gizmo Assessment probes Rat Dissection - demo Online Homework/Integrated Questions Terminology Quiz Chapter Test</p>
<p><b><u>Vocabulary:</u></b> Atoms Molecules Cell Tissue Organs Organ systems Metabolism Responsiveness Homeostasis Negative feedback Positive feedback Cranial</p>	<p>Abdominal Pelvic Parietal pleurae Membranes Skeletal Anatomical position Superior Inferior Anterior Posterior Medial Lateral Bilateral</p>

Dorsal	Proximal
Ventral	Distal
Frontal	Superficial
Vertebral	Deep
Transverse	Sagittal
Homeostatic Mechanism	Coronal

## Cell Chemistry Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b> HS -LS1 From Molecules to Organisms: Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b> LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins LS1-4 Use a model to illustrate the role of cellular division and differentiation. LS1-7 Illustrate that cell respiration is a chemical process whereby bonds are broken and formed to create energy</p>
<p><b><u>Essential Question:</u></b> How do cells maintain balance within the human body?</p>	<p><b><u>Science and Engineering Practices:</u></b> Developing and Using Models Planning and Carrying out investigations Constructing Explanations and Designing Solutions Scientific Investigations Use a Variety of Methods</p>
<p><b><u>Disciplinary Core Idea:</u></b> Structure and Function Growth and Development of Organisms Organization for Matter and Energy Flow In Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b> Systems and Systems Models Structure and Function</p>
<p><b><u>Resources:</u></b> See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b> Cell Worksheets Osmosis/Diffusion – Egg Lab - demo Online Homework/Integrated Questions Chapter Test</p>
<p><b><u>Vocabulary:</u></b> Elements Atoms Nucleus Protons Electrons Isotopes</p>	<p>Nucleic Acids Cell membrane Organelles Selectively permeable Cytoplasm Ribosomes Cytoskeleton</p>

Acids	Mitochondria
Bases	Lysosomes
pH	Cilia
Carbohydrates	Flagella
Lipids	Diffusion
Proteins	Osmosis
Nucleus	Mitosis
Golgi Apparatus	Meiosis
Endoplasmic Reticulum	Protein synthesis
Ribosomes	RNA
	Endocytosis
	Exocytosis
	Active Transport
	Cell Cycle

## Histology Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b> HS -LS1 From Molecules to Organisms: Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b> LS 1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems</p>
<p><b><u>Essential Question:</u></b> How does the specificity of a tissue affect the overall organ function in the human body?</p>	<p><b><u>Science and Engineering Practices:</u></b> Developing and Using Models Planning and Carrying out investigations Constructing Explanations and Designing Solutions Scientific Investigations Use a Variety of Methods</p>
<p><b><u>Disciplinary Core Idea:</u></b> Structure and Function</p>	<p><b><u>Crosscutting Concepts:</u></b> Systems and Systems Models Structure and Function</p>
<p><b><u>Resources:</u></b> See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b> Histology Worksheets Flow Chart Construction Microscope Test Tissue Slides Tissue Jeopardy Online Homework /Integrated questions Quiz Chapter Test</p>
<p><b><u>Vocabulary:</u></b> Tissues Epithelium Basement membrane Simple squamous Simple cuboidal Simple columnar Pseudostratified columnar Stratified squamous Stratified cuboidal Transitional epithelium Glandular epithelium Exocrine gland Endocrine gland Connective tissue Collagen Reticular</p>	<p>Areolar tissue Adipose Dense connective Loose connective Hyaline cartilage Elastic cartilage Fibrocartilage Blood Bone Osteocytes Serous membrane Mucous membrane Cutaneous membrane Skeletal muscle Smooth muscle Cardiac muscle Nervous tissue</p>

Integumentary System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b>          HS -LS1 From Molecules to Organisms:          Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b>          HS-LS-1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems          HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</p>
<p><b><u>Essential Question:</u></b>          How do the structures of the skin help to regulate other parts of the human body?</p>	<p><b><u>Science and Engineering Practices:</u></b>          Developing and Using Models          Constructing Explanations and Designing Solutions          Scientific Investigations Use A Variety of Methods</p>
<p><b><u>Disciplinary Core Idea:</u></b>          Structure and Function          Growth and Development of Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b>          Systems and Systems Models          Structure and Function          Stability and Change</p>
<p><b><u>Resources:</u></b>          See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b>          Skin Color Origins Case Study          Integumentary worksheets          Skin coloring          Slides/Models          Skin Disease Project          Online Homework/Integrated Questions          Quiz          Chapter Test</p>
<p><b><u>Vocabulary:</u></b>          Epidermis          Dermis          Subcutaneous layer          Keratin          Melanin          Cyanosis          Follicle          Sebaceous gland          Sweat gland          Eccrine          Apocrine</p>	<p>Impetigo          Herpes          Pediculosis          Psoriasis          Scabies          Ulcer          Wart          Vitiligo          Inflammation          Eczema</p>

Heat regulation Acne Dermatitis	Hair shaft Skin Carcinomas
---------------------------------------	-------------------------------

## Skeletal System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b> HS -LS1 From Molecules to Organisms: Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b> HS-LS-1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</p>
<p><b><u>Essential Question:</u></b> How is the skeleton used in movement and support within the human body?</p>	<p><b><u>Science and Engineering Practices:</u></b> Constructing Explanations and Designing Solutions Scientific Investigations Use a Variety of Methods</p>
<p><b><u>Disciplinary Core Idea:</u></b> Structure and Function Growth and Development of Organisms Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b> Structure and Function Stability and Change</p>
<p><b><u>Resources:</u></b> See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b> Skeletal System Worksheets Slides/Models Male/Female Pelvic Comparison Lab Online Homework/Integrated Questions Quiz Study Guide Chapter Test</p>
<p><b><u>Vocabulary:</u></b> Long bone Short bone Flat bone Irregular bone Epiphysis</p>	<p>Trunk bones Pelvic bones Fossa Foramen</p>



Diaphysis Compact bone Spongy bone Medullary cavity Endosteum Marrow Lacunae Osteocyte Haversian canal Osteoblasts Ossification Epiphyseal plate Osteoclasts Cartilage Hematopoiesis Ossification center Calcium Cranial bones Vertebral column Leg bones Arm bones	Flexion Extension Adduction abduction
---	--

Cardiovascular System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b>          HS -LS1 From Molecules to Organisms:          Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b>          HS-LS-1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems          HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</p>
<p><b><u>Essential Question:</u></b>          What is the function of the heart, and vessels, and how do they maintain a healthy body?</p>	<p><b><u>Science and Engineering Practices:</u></b>          Scientific Investigations Use a Variety of Methods          Constructing Explanations and Designing Solutions</p>
<p><b><u>Disciplinary Core Idea:</u></b>          Structure and Function          Growth and Development of Organisms          Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b>          Structure and Function          Stability and Change</p>
<p><b><u>Resources:</u></b>          See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b>          Cardiovascular System Worksheets          BP Virtual Lab – Gizmo          Sphygmomanometer Lab          Heart Dissection – Sheep - demo          CV System Travel          Models          ABO Blood Group Lab          Online Homework/Integrated Questions          Quiz          Chapter Test</p>
<p><b><u>Vocabulary:</u></b>          Pulmonary          Pericardium          Epicardium          Myocardium          Endocardium          Atria          Ventricle          Septum          Tricuspid</p>	<p>Sinoatrial node          Pacemaker          Atrioventricular node          AV bundle          Purkinje fibers          Electrocardiogram          Artery          Arteriole          Capillary          Venule</p>

Papillary muscle Pulmonary valve Mitral valve Aorta Aortic valve Coronary artery Cardiac veins Coronary sinus Systole Diastole Cardiac cycle Lub-dup Conduction system Radial ABO Blood Group	Veins Vasoconstriction Vasodilation Capillary exchange Blood volume Viscosity Jugular Carotid Iliac Femoral Mesenteric Ulnar
---	--

## Muscular System – Anatomy/Physiology

<p><b><u>Standard:</u></b>          HS -LS1 From Molecules to Organisms:          Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b>          HS-LS-1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems          HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.          LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules are broken and the bonds in new compounds are formed, resulting in a net transfer of energy.</p>
<p><b><u>Essential Question:</u></b>          How are muscles used to create force and motion in the human body?          How do the structures in other animals relate to the human body?</p>	<p><b><u>Science and Engineering Practices:</u></b>          Developing and Using Models          Scientific Investigations Use A Variety of Methods          Constructing Explanations and Designing Solutions</p>
<p><b><u>Disciplinary Core Idea:</u></b>          Structure and Function          Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b> Systems and Systems Models          Structure and Function</p>
<p><b><u>Resources:</u></b>          See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b>          Cat Dissection - demo          Muscular System Worksheets          Muscular System powerpoint          Build Myofibril Model          Slides/Models          Online Homework/Integrated Questions Quiz          Chapter Test          Identification of Muscles Test</p>
<p><b><u>Vocabulary:</u></b></p>	

Fascia	Acetylcholine
Myofibrils	Hemoglobin
Myosin	ATP
Actin	Insertion
Sarcomeres	Origin
Fiber	Prime mover
Sarcoplasmic reticulum	Antagonist
H zone	Synergist
Z line I	Fixator
Band	
A Band Motor	
neuron	
Synapse	
Tropomyosin	
Sliding filament theory	
All or none response	
All human muscles	
Some cat muscles	

Nervous System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b>          HS -LS1 From Molecules to Organisms:          Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b>          HS-LS-1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems          HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</p>
<p><b><u>Essential Question:</u></b>          How does the human body receive, interpret, and send information throughout itself?</p>	<p><b><u>Science and Engineering Practices:</u></b>          Developing and Using Models          Scientific Investigations Use a Variety of Methods          Constructing Explanations and Designing Solutions</p>
<p><b><u>Disciplinary Core Idea:</u></b>          Structure and Function          Growth and Development of Organisms          Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b>          Energy and Matter          Structure and Function          Stability and Change</p>
<p><b><u>Resources:</u></b>          See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b>          Nervous System Worksheets          Slides/Models          Phineas Gage Article          Beautiful Minds Article Summary          Hemispheric Dominance Activity          Nervous System Disorder Project          Sheep Brain Dissection          Concept Map          Online Homework/Integrated Questions Quiz          Chapter Test          Brain Labeling</p>
<p><b><u>Vocabulary:</u></b>          Neurons          Nerve Impulses          Cell body          Dendrites          Axons</p>	<p>Resting potential          Potential change          Action potential          Membrane potential          Excitatory</p>

Nerve	Inhibitory
Central nervous system	All or none response
Peripheral nervous system	Reflex arc
Neuroglial cells	Meninges
Sensory receptors	Dura mater
Microglial cells	Pia mater
Astrocytes	Arachnoid mater
Effectors	Cerebrospinal fluid
Somatic nervous system	Spinal nerves
Autonomic nervous system	Spinal cord
Schwann cells	Cranial nerves
Myelin sheaths	Nerve tracts
Nodes of Ranvier	Central canal
Multipolar	Ascending tract
Sensory	Descending tract
Motor	Brain
Mixed	Cerebrum Corpus callosum
Synapse	Sulcus
Neurotransmitters	Fissure
Midbrain	Gyrus
Hindbrain	Lobes
Medulla	EEG
Cranial nerves	
Oligodendrocytes	

Respiratory System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b> HS -LS1 From Molecules to Organisms: Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b> HS-LS-1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.</p>
<p><b><u>Essential Question:</u></b> How do the respiratory organs and blood, exchange gases to keep your body cells alive?</p>	<p><b><u>Science and Engineering Practices:</u></b> Developing and Using Models Scientific Investigations Use a Variety of Methods Constructing Explanations and Designing Solutions</p>
<p><b><u>Disciplinary Core Idea:</u></b> Structure and Function Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b> Systems and Systems Models Structure and Function Stability and Change</p>
<p><b><u>Resources:</u></b> See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b> Respiratory System Worksheets Respiratory Stations H lab Slides/Models Online Homework/Integrated Questions Quiz Chapter Test</p>
<p><b><u>Vocabulary:</u></b> Respiration Nose Nasal cavity Nasal septum Hard palate Soft palate Pharynx Larynx Vocal cords Glottis Trachea</p>	<p>Respiratory cycle Total lung capacity Vital capacity Respiratory membrane Alveolar gas exchange</p>



Hyaline cartilage Primary bronchi Bronchial tree Bronchioles Alveoli Alveolar sacs Pleural cavity Visceral pleura Parietal pleura Lungs Inspiration	Hemoglobin Oxyhemoglobin Partial pressure Hypoxia Cystic fibrosis pneumothorax Expiration Atmospheric pressure Surface tension Surfactant
---	--

## Digestive System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b>          HS -LS1 From Molecules to Organisms:          Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b>          HS-LS-1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems          HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis          HS -LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules are broken and the bonds in new compounds are formed, resulting in a net transfer of energy.</p>
<p><b><u>Essential Question:</u></b>          How does the gastrointestinal tract process our food into energy for the human body?</p>	<p><b><u>Science and Engineering Practices:</u></b>          Developing and Using Models          Constructing Explanations and Designing Solutions          Scientific Investigations Use a Variety of Methods</p>
<p><b><u>Disciplinary Core Idea:</u></b>          Structure and Function          Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b>          Energy and Matter          Stability and Change          Structure and Function</p>
<p><b><u>Resources:</u></b>          See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b>          Digestive System Worksheets          Cholesterol Lab          Digestive System Stations          Digestive System Project          Student Presentations          Online Homework/Integrated Questions          Quiz          Chapter Test</p>

**Vocabulary:**

Mechanical digestion  
Chemical digestion  
Alimentary canal  
Mucous membrane  
Lumen  
Mucosa  
Peristalsis  
Cheek  
Lip  
Tongue  
Mastication  
Papillae  
Taste receptors  
Palate  
Uvula  
Teeth  
Primary teeth  
Secondary teeth  
Saliva glands  
Parotid gland  
Submandibular glands  
Sublingual glands  
Pharynx  
Bolus  
Esophagus  
Sphincter

Pepsin  
Pepsinogen  
Gastrin  
Chyme  
Liver  
Pancreas  
Hepatic duct  
Common bile duct  
Bile  
Gall bladder  
Duodenum  
Jejunum  
Ileum  
Mesentery  
Intestinal glands  
Cecum  
Appendix  
Rectum  
Anus  
Anal canal  
Colon  
Ascending colon  
Transverse colon  
Descending colon  
Sigmoid colon  
Stomach  
Villi  
Gastric glands

## Urinary System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b>          HS -LS1 From Molecules to Organisms:          Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b>          HS-LS-1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems          HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis</p>
<p><b><u>Essential Question:</u></b>          How does the urinary system excrete nitrogenous wastes thereby maintaining homeostasis in the human body?</p>	<p><b><u>Science and Engineering Practices:</u></b>          Developing and Using Models          Constructing Explanations and Designing Solutions          Scientific Investigations Use a Variety of Methods</p>
<p><b><u>Disciplinary Core Idea:</u></b>          Structure and Function          Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b>          Energy and Matter          Stability and Change          Structure and Function</p>
<p><b><u>Resources:</u></b>          See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b>          Urinary System Worksheets          Urine Lab          Diabetic Neuropathy Lab Data Analysis          Cat/Rat Model - demo          Online Homework/Integrated Questions          Quiz          Chapter Test</p>

**Vocabulary:**

Kidney

Ureter

Urethra

Bladder

Cortex

Medulla

Calyx

Sinus

Column

Pelvis

Papilla

Pyramid

Glomeruli

Corpuscle

Tubule

Arteries

Afferent

Efferent

GFR

Filtration

Reabsorb

Urea

Urine

Micturition

## Reproductive System Unit – Anatomy/Physiology

<p><b><u>Standard:</u></b>          HS -LS1 From Molecules to Organisms:          Structures and Processes</p>	<p><b><u>Performance Expectation:</u></b>          HS-LS-1-2 Develop and use a model to illustrate the hierarchal organization of interacting systems          HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis          HS-LS1-4 Use models to illustrate the role of cell division and differentiation.</p>
<p><b><u>Essential Question:</u></b>          What is the role of the Reproductive System in gamete formation?          How does a zygote differentiate into an embryo?</p>	<p><b><u>Science and Engineering Practices:</u></b>          Developing and Using Models          Constructing Explanations and Designing Solutions          Scientific Investigations Use a Variety of Methods</p>
<p><b><u>Disciplinary Core Idea:</u></b>          Structure and Function          Organization for Matter and Energy Flow in Organisms</p>	<p><b><u>Crosscutting Concepts:</u></b>          Energy and Matter          Stability and Change          Structure and Function</p>
<p><b><u>Resources:</u></b>          See Checklist for Timeline</p>	<p><b><u>Assessments:</u></b>          Reproductive System Worksheets          Cat/Rat Model          Online Homework/Integrated Questions Quiz          Chapter Test</p>

**Vocabulary:**

Ovary  
Uterine/Fallopian Tube  
Uterus  
Clitoris  
Vagina  
Cervix  
Oogenesis  
Follicle  
Meiosis  
Oogenesis  
Estrogen  
Menarche  
Menopause  
Mammary Gland  
STD's

Testes  
Seminiferous Tubules  
Epididymis  
Ductus Deferens  
Seminal Vesicles  
Prostate  
Bulbourethral Gland  
Scrotum  
Penis  
Androgen  
Testosterone  
Spermatogenesis  
Egg  
Zygote  
Fertilization  
Blastocyst  
Embryo  
Cleavage  
Chorion  
Implantation  
Umbilical cord  
Placenta  
Neonate  
Teratogens





