

Mendon High School Anatomy and Physiology Curriculum Pacing Guide

Topic/ Time Frame (1Day = 50 minutes)	Student Skills	Activities / Labs	Benchmarks Covered	Assessment
First Semester				
Laboratory Safety and Scientific Method 1 week	<ol style="list-style-type: none"> 1. Students will follow lab safety procedures regarding chemicals and preserved specimens. 2. Students will apply the scientific method. 	<ol style="list-style-type: none"> A. Safety Quiz and Contract B. Scientific Method and Measurements Lab¹ 		Lab, projects, quizzes and tests
Organization of Life 2 wks	<ol style="list-style-type: none"> 1. Students will distinguish between anatomy and physiology. 2. Students will identify the levels of organization. 3. Students will describe how the body systems relate to each other. 4. Students will identify the life processes: metabolism, responsiveness, movement, growth, differentiation, reproduction. 5. Students will recognize the homeostatic feedback 	<ol style="list-style-type: none"> A. Labeling the body) B. Potato Autopsy C. Homeostasis Lab 	B.2.3B B.2.3e B.2.5b B.2.6a	Lab, projects, quizzes and tests

	<p>mechanisms.</p> <p>6. Student will be able to identify and apply direction terms, body planes, and body cavities.</p> <p>7. Students will evaluate how environment and personal health are interrelated.</p>			
<p>Biochemistry</p> <p>1 wk</p>	<p>1. Students will describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.</p> <p>2. Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity.</p>	A. Organic Compounds Lab	<p>B2.2A</p> <p>B2.2D</p> <p>B2.5A</p> <p>B4.3A</p> <p>B4.4b</p>	Lab, projects, quizzes and tests
<p>Cells</p> <p>1 wk</p>	<p>1. Students will relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).</p> <p>2. Explain the relationship between mutation, cell cycle, and uncontrolled cell</p>	<p>A. Microscope Lab</p> <p>B. Tonicity Lab : Diffusion/ Osmosis</p>	<p>B2.1C</p> <p>B2.1d</p> <p>B2.5i</p>	Lab, projects, quizzes and tests

	<p>growth potentially resulting in cancer.</p> <p>3. Students will evaluate how environment and personal health are interrelated.</p>			
<p>Histology</p> <p>3 wks</p>	<p>1. Students will classify and state the defining characteristics of epithelial tissue, connective tissue, muscle tissue, and nervous tissue.</p>	<p>A. Tissue Lab</p> <p>B. Labeling tissue samples</p>	<p>B.2.3</p>	<p>Lab, projects, quizzes and tests</p>
<p>Integumentary</p> <p>2 wks</p>	<p>1. Students will describe the function of the vertebrate Integumentary system</p> <p>2. Students will identify the functions of accessory integumentary parts /organs</p>	<p>A. Label the skin</p> <p>B. UV lab</p>	<p>B.2.3d</p> <p>B.2.r6e</p>	<p>Lab, projects, quizzes and tests</p>
<p>Skeletal</p> <p>3 wks</p>	<p>1. Students will describe the anatomy and histology of bone tissue.</p> <p>2. Students will distinguish between bones of the axial skeleton and the appendicular skeleton</p> <p>3. Students will identify the major bones of the axial and appendicular skeleton.</p>	<p>A. Bone Identification Lab</p> <p>B. Chicken leg lab</p>	<p>B.2.3.d</p> <p>B.2.3.g</p> <p>B.2.r6e</p>	<p>Lab, projects, quizzes and tests</p>

Muscle 3 wks	<ol style="list-style-type: none"> 1. Students will describe the anatomy and histology, including ultrastructure, of muscle tissue. 2. Students will list the steps involved in the sliding filament of muscle contraction. 3. Students will describe signal transmission across a myoneural junction. 4. Students will identify the major muscles of the human on a model or diagram. 	<ol style="list-style-type: none"> A. Labeling muscles B. Muscle fatigue lab C. Muscle model D. Sarcomere model 	<p>B.2.3d B.2.3g B.2.r6e</p>	Lab, projects, quizzes and tests
Second Semester				
Nervous 4 wks	<ol style="list-style-type: none"> 1. Students will describe the anatomy, histology, and physiology of the central and peripheral nervous systems and name the major divisions of the nervous system. 2. Students will identify the parts of a reflex arc. 3. Students will identify the general parts of a synapse and describe the physiology of signal transmission across a synapse. 	<ol style="list-style-type: none"> A. Brain Dissection B. Eye Dissection C. Eye tests D. Reflex Lab E. Reaction time F. Sensory Labs 	<p>B.2.3d B.2.r6e</p>	Lab, projects, quizzes and tests

	<ol style="list-style-type: none"> 4. Students will identify the major parts of a cross section through the spinal cord. 5. Students will identify the major parts of the brain on diagrams or models. 6. Students will identify the major functions of the spinal cord. 7. Students will identify the major functions associated with the sympathetic and parasympathetic nervous systems. 8. Students will describe the structure of vertebrate sensory organs. Relate structure to function in vertebrate sensory systems 			
<p>Endocrine</p> <p>1 ½ wk</p>	<ol style="list-style-type: none"> 1. Students will define the terms endocrine and exocrine. 2. Students will compare endocrine and neural controls of physiology. 3. Students will describe the anatomy and physiology of the endocrine system. 	<ol style="list-style-type: none"> A. Power point on a hormone B. Chart the hormones C. Pattern puzzles on Hormones 	<p>B.2.3d B.2.r6e B.2.2f</p>	<p>Lab, projects, quizzes and tests</p>

<p>Cardiovascular</p> <p>4 wks</p>	<ol style="list-style-type: none"> 1. Students will describe the composition and physiology of blood, including that of the plasma and the formed elements. 2. Students will describe the steps in hemostasis, including the mechanism of coagulation. Include the basis for blood typing and transfusion reactions. 3. Students will describe the factors affecting blood flow through the cardiovascular system. 4. Students will describe normal heart sounds and what they mean. 5. Students will describe hypertension and some of the factors that produce it 6. Students will describe fetal circulation and changes that occur to the circulatory system at birth. 7. Students will describe the anatomy and the physiology of the 	<ol style="list-style-type: none"> A. Blood Typing and genetics B. Heart Dissection C. Pulse Lab/ blood pressure lab D. Labeling circulation, heart 	<p>B.2.3d B.2.r63</p>	<p>Lab, projects, quizzes and tests</p>

	<p>lymph system.</p> <p>8. Students will analyze how heredity and family history can impact personal health.</p> <p>9. Students will explain the basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics.</p> <p>10. Students will explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.</p>			
<p>Digestion</p> <p>3 wks</p>	<p>1. Students will describe the physiology of the digestive system, including mechanical digestion, chemical digestion, absorption and the neural and hormonal mechanisms of control.</p>	<p>A. Digestive tract model</p> <p>B. Alka seltzer surface lab</p> <p>C. Concept Map on digestive system</p> <p>D. Labeling the digestive system</p>	<p>B.2.f</p> <p>B.2.3d</p> <p>B.2.3f</p> <p>B.2.r6e</p>	<p>Lab, projects, quizzes and tests</p>
<p>Respiration</p> <p>2 wks</p>	<p>1. Students will describe the physiology of the respiratory system including the mechanisms of ventilation, gas exchange, gas transport</p>	<p>A. Lung Model</p> <p>B. Lung Capacity</p> <p>C. Respiration Rate Lab</p>	<p>B.2.3d</p> <p>B.2.3f</p> <p>B.2.r6e</p>	<p>Lab, projects, quizzes and tests</p>

	and the mechanisms that control the rate of ventilation.			
Urinary System 1 wks	1. Students will describe the physiology of urine formation by the kidney.	A. Kidney Dissection B. Diffusion Lab	B.2.3d B.2.3f B.2.r6e	Lab, projects, quizzes and tests