

**LITCHFIELD PUBLIC SCHOOLS**  
**Core Curriculum Scope and Sequence**  
**Grade 11 & 12 Anatomy & Physiology**

<b>Name of Unit Weeks</b>	<b>CT Frameworks/ Standards</b>	<b>Content and Skill Objectives</b> Students will be able to:	<b>Assessments</b>	<b>Resources</b>
<b>Introduction to Anatomy and Physiology</b>  <b>4 weeks</b>	As a result of the coordinated structures and functions of organ systems, the internal environment of the human body remains relatively stable (homeostatic) despite changes in the outside environment.	Describe the axis lines , planes , regions and cavities of the human body Define the major tissue types of the body Classify the four types of tissue transplantation.	Lab work on body cavities Lab work on body regions Test on unit concepts	Textbook ,college degree ,experience
<b>Skeletal System</b>  <b>4 weeks</b>		Describe the functions of bone  Identify the types of bones.  Describe the formation of bone . Identify the bones of the axial and appendicular skeletons.  Describe the joints as to classification and action.  Describe the disorders of bones.	Lab work on bone Histology Lab work on Skull bones and features Lab work on entire skeleton Test on unit concepts	Textbook ,college degree , experience

<p><b>Muscular System</b> <b>3 weeks</b></p>		<p>Describe the structure of a whole skeletal muscle , muscle fibers and myofibrils.</p> <p>Explain how the arrangement of thick and thin filaments in a myofibril gives rise to the striated appearance of the myofibril.</p> <p>Describe the sliding filament model of muscular contraction and the associated structural changes seen in the electron microscope.</p> <p>Explain how the release of calcium ions from the sarcoplasmic reticulum triggers a muscular contraction.</p> <p>Describe how an impulse reaches the sarcoplasmic reticulum</p> <p>Describe the sources of energy for muscular contraction during moderate and strenuous exercise .</p> <p>Describe how skeletal muscles are named according to action, shape, and their origins and insertions.</p>	<p>Lab on Muscle histology</p> <p>Lab on human body muscles</p> <p>Test on unit concepts</p>	<p>Textbook , college degree , experience</p>
<p><b>Integumentary system</b></p>		<p>Distinguish between the epidermal</p>	<p>Lab on skin slides</p>	<p>Textbook ,college</p>



<p><b>Respiratory System</b> <b>4 weeks</b></p>		<p>Explain the unique features of the circulatory system in the liver.</p> <p>Describe coronary heart and some of the congenital defects of the cardiovascular system.</p> <p>List the components of the lymphatic system.</p> <p>Distinguish between the B-cell and T-cell immune systems.</p> <p>Describe the structures forming the upper respiratory tract and the divisions of the bronchial tree within the lungs.</p> <p>Explain the importance of the surfactant coating of the alveoli.</p> <p>Explain the roles of the diaphragm and external intercostal muscles in breathing.</p> <p>List the pressure changes in the thorax and lungs during inspiration / expiration.</p> <p>Define the different types of abnormal breathing.</p> <p>Describe the mechanisms of</p>	<p>Lab on histology of the Respiratory system.</p> <p>Gross anatomy of sheep pluck</p> <p>Lab on measurement of vital capacity.</p> <p>Test on unit concepts</p>	<p>Textbook , college degree ,experience</p>
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<p><b>Nervous System</b> <b>6 weeks</b></p>		<p>oxygen and carbon dioxide transport in the blood.</p> <p>Discuss the control of pulmonary ventilation.</p> <p>Describe the characteristics of several respiratory disorders.</p> <p>Describe the structure of neurons and distinguish between the different types.</p> <p>Describe the changes in membrane permeability that give rise to a propagated nerve impulse..</p> <p>Outline the succession of events of synaptic transmission and identify the principal differences between an EPSP and an IPSP.</p> <p>Identify the principle parts of the brain and the major functions of each.</p> <p>Describe the meninges of the brain and spinal cord.</p> <p>Describe the origin , function , and circulation of cerebrospinal fluid .</p>	<p>Lab on histology of brain tissue</p> <p>Lab on PNS nerves</p> <p>Dissection of the sheep eye</p> <p>Taste and smell receptor Biofeed-back Comparision lab</p> <p>Co-study lab with chemistry “Chemical Good Guy vs Chemical Bad Guy”</p> <p>Test on Unit Concepts</p>	<p>Textbook , college degree , experience</p>
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<p><b>Alimentary System</b>  <b>[Digestive]</b>  <b>3 weeks</b></p>		<p>Outline the principle features of the spinal cord.</p> <p>Describe the anatomy and distribution of the spinal and cranial nerves.</p> <p>Outline the anatomical characteristics and principle functions of the sympathetic and parasympathetic divisions of the autonomic nervous system.</p> <p>Describe reflex action and the reflex arc.</p> <p>Describe the receptors of each of the special senses-vision , hearing , equilibrium, olfaction, taste and explain how each functions.</p> <p>Illustrate and interpret some of the common abnormalities of vision and hearing</p> <p>Describe the components of the digestive system and its associated structures .</p> <p>Identify the unique anatomical features of the small intestine.</p>	<p>Lab on digestive system histology</p> <p>Lab on Fat content of “Fast</p>	<p>Textbook , college degree , experience</p>
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<p><b>Excretory System</b> <b>3 weeks</b></p>		<p>List the sequence of events in swallowing .</p> <p>Outline the steps in the digestion of carbohydrates , protein , and fat .</p> <p>Describe the absorption of the products of digestion and identify their sites of absorption.</p> <p>Summarize the functions of the liver.</p> <p>Discuss the regulation of the secretions of the digestive glands</p> <p>Describe the gross external and internal structure of the kidney.</p> <p>Describe the microanatomy of the kidney and the nephron.</p> <p>Distinguish between the two principle stages of urine formation. Describe the structure and function of the ureters ,urinary bladder , and urethra.</p>	<p>foods”</p> <p>Lab on enzyme action of stomach and intestine</p> <p>Test on Unit Concepts</p> <p>Lab on the chemistry of urine</p> <p>Lab on membrane diffusion</p> <p>Lab on excretory system histology</p> <p>Test on the unit concepts</p>	<p>Textbook , college degree , experience</p>
<p><b>Endocrine System</b> <b>3 weeks</b></p>		<p>Define the term hormone and discuss the origin modern concepts of hormone action.</p>	<p>Lab on Endocrine histology</p>	<p>Textbook , college degree , experience</p>

<p><b>Male and Female Reproductive System</b> <b>4 weeks</b></p>		<p>Distinguish the mechanisms of the two major classes of hormones</p> <p>Discuss the interrelationship between the hypothalmas and the hypophysis.</p> <p>Summarize the actions of the hormones secreted by each endocrine gland.</p> <p>Describe the disorders of the endocrine glands</p> <p>Describe the anatomy of the external and internal organs and associated structures of the male and female reproductive systems and explain their functions.</p> <p>Describe the structure and functions of the mammary glands.</p> <p>Outline the stages of the menstrual cycle and discuss menstrual problems and menopause.</p> <p>Describe the relationships between estrogens, progesterone , and gonadotropins during the menstrual cycle</p> <p>Describe the effects of testosterone</p>	<p>Lab on the mechanism of the hormones</p> <p>Test on the unit concepts</p> <p>Lab on male reproductive histology</p> <p>Lab on female reproductive histology</p> <p>Test on unit concepts</p>	<p>Textbook, college degree ,experience</p>
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		<p>on both the primary and secondary sex characteristics.</p> <p>Describe common sexually Transmitted diseases.</p> <p>.</p>	“	
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	Organs have a variety of mechanisms to combat disease.	See the unit on Circulation for this material		
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