






**** HUMAN ANATOMY AND PHYSIOLOGY ****

| Timeline | Unit/theme | Standard | Student Focused Objective | Resources/ Suggested Activities |
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| 12 DAYS (AUG 1 - 16) | Intro to Anatomy | SC15.HAP.1 Develop and use models and appropriate terminology to identify regions, directions, planes, and cavities in the human body to locate organs and systems. | Learning Targets: <ul style="list-style-type: none"> I can accurately use appropriate anatomical terminology. Examples: proximal, superficial, medial, supine, superior, inferior, anterior, posterior I can Identify anatomical body planes, body cavities, and abdominopelvic regions of the human body. I can develop anatomically correct models using my knowledge of terminology of body planes and regions. | Notes/Presentation: Intro to A&P PPT Videos: <ul style="list-style-type: none"> Introduction to Anatom... The Semipermeable M... Additional Materials: Anatomical Directions Quiz Anatomy Arcade - Anatomical Terminology Word Search Cell Defense: The Plasma Membrane |
| 8 DAYS (AUG 19 - 28) | Histology | SC15.HAP.2 Analyze characteristics of tissue types (e.g., epithelial tissue) and construct an explanation of how | Learning Targets: <ul style="list-style-type: none"> I can classify connective, muscular, nervous, and connective tissues. I can describe the similarities and | Notes/Presentation: Connective Tissue PPT Epithelial Tissues PPT Muscle and Nerve Tissues |



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| | | <p>the chemical and structural organizations of the cells that form these tissues are specialized to conduct the function of that tissue (e.g., lining, protecting).</p> | <p>differences between tissues using my knowledge of their characteristics.</p> | <p>PPT</p> <p>Videos: TED Ed Video: How to 3D Print Human Tissues ▶ Tissues, Part 1: Crash ... ▶ Tissues, Part 2 - Epithe... ▶ EPITHELIAL TISSUE ... ▶ Exocrine Gland and En...</p> <p>Additional Materials: Epithelial Tissues Connective Tissue Types and Examples</p> |
| <p>8 DAYS (Aug 29 - Sept 16)</p> | <p>Integumentary System</p> | <p>SC15.HAP.3 Obtain and communicate information to explain the integumentary system's structure and function, including layers and accessories of skin and types of membranes.</p> <p>SC15.HAP.3a Analyze the effects of pathological conditions (e.g., burns, skin cancer, bacterial and viral infections, chemical dermatitis) to determine the body's attempt to maintain homeostasis.</p> | <p>Learning Targets:</p> <ul style="list-style-type: none"> • I can identify and describe functions of the integumentary system. • I can analyze pathological conditions and describe their implications on the integumentary system. • I can describe how the structure of the integumentary system and its accessory organs dictate its function. | <p>Notes/Presentation: Integumentary System PPT Skin Picture Quiz</p> |



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| <p>12 DAYS (Sept 17 - Oct 4)</p> | <p>Skeletal System</p> | <p>SC15.HAP.4 Use models to identify the structure and function of the skeletal system (e.g., classification of bones by shape, classification of joints and the appendicular and axial skeletons).</p> <p>SC15.HAP.4a Obtain and communicate information to demonstrate understanding of the growth and development of the skeletal system (e.g., bone growth and remodeling).</p> <p>SC15.HAP.4b Obtain and communicate information to demonstrate understanding of the pathology of the skeletal system (e.g., types of bone fractures and their treatment, osteoporosis, rickets, other bone diseases).</p> | <p>Learning Targets:</p> <ul style="list-style-type: none"> • I can identify the bones that compose the skeletal system. • I can describe the function of the skeletal system. • I can classify the different types of joints and explain their movements • I can identify the four types of bones • I can research various types of skeletal system disorders | <p>Notes/Presentation: Skeletal System PPT</p> <p>Videos:  Skull Bones Mnemonic...</p> <p>Additional Materials: Whack-A-Bone HUB Bend a Bone with Vinegar - ScienceBob.com</p> |
| <p>12 DAYS (Oct 7 - Oct 24)</p> | <p>Muscular System</p> | <p>SC15.HAP.5 Develop and use models to illustrate the anatomy of the muscular system, including muscle locations and groups, actions, origins and insertions.</p> | <p>Learning Targets:</p> <ul style="list-style-type: none"> • I can develop and use models to illustrate the muscular system. • I can explain the physiology of the muscular system. • I can compare and contrast the | <p>Notes/Presentations: Muscular System PPT</p> <p>Videos:  What makes muscles g...  Anatomy and Physiolo...</p> |



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| | | <p>SC15.HAP.5a Plan and conduct investigations to explain the physiology of the muscular system (e.g., muscle contraction/relaxation, muscle fatigue, muscle tone), including pathological conditions (e.g., muscular dystrophy).</p> | <p>different types of muscle movements i.e. contraction/relaxation.</p> <ul style="list-style-type: none"> I can explain how different pathological conditions impact the muscular system. | <p>Anatomy and Physiolo...</p> <p>Additional Materials: Poke-A-Muscle Muscle Structure and Fibers Quiz Muscle Movement Diagram Quiz</p> |
| <p>6 DAYS (Nov 21 - Dec 5)</p> | <p>Endocrine System</p> | <p>SC15.HAP.13 Obtain, evaluate, and communicate information to support the claim that the endocrine glands secrete hormones that help the body maintain homeostasis through feedback loops.</p> <p>SC15.HAP.13a Analyze the effects of pathological conditions (e.g., pituitary dwarfism, Addison's disease, diabetes mellitus) caused by imbalance of the hormones of the endocrine glands.</p> | <p>Learning Targets:</p> <ul style="list-style-type: none"> I can identify and describe the functions of the endocrine glands. I can evaluate how the secretion of hormones impacts the function of the body and its organs. I can research and evaluate how common disorders impact the endocrine system. | <p>Notes/Presentation: Endocrine System PPT</p> <p>Videos:</p> <ul style="list-style-type: none"> Endocrine System, Par... The Endocrine System Exocrine Gland and En... <p>Additional Materials: Endocrine Ed</p> |
| <p>13 DAYS (Dec 6 - Jan 14)</p> | <p>Cardiovascular System</p> | <p>SC15.HAP.7 Use models to determine the relationship between the structures in and functions of the cardiovascular</p> | <p>Learning Targets:</p> <ul style="list-style-type: none"> I can identify the structures and functions of the cardiovascular system. | <p>Notes/Presentations: Cardiovascular System: The Heart PPT Cardiovascular System:</p> |



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| | | <p>system (e.g., components of blood, blood circulation through the heart and systems of the body, ABO blood groups, anatomy of the heart, types of blood vessels). SC15.HAP.7a Engage in argument from evidence regarding possible prevention and treatment options related to the pathology of the cardiovascular system (e.g., myocardial infarction, mitral valve prolapse, varicose veins, arteriosclerosis, anemia, high blood pressure).</p> <p>SC15.HAP.7b Design and carry out an experiment to test various conditions that affect the heart (e.g., heart rate, blood pressure, electrocardiogram [ECG] output).</p> | <ul style="list-style-type: none"> • I can compare and contrast the main components of blood • I can discuss treatment and prevention of common pathologies of the cardiovascular system. • I can evaluate and interpret the results of various cardiovascular tests i.e. heart rate, blood pressure, ECG. | <p>Blood Vessels PPT Cardiovascular System: Blood PPT</p> <p>Videos: Blood Typing Video</p> |
| 7 FLEX DAYS | <p>Topics: Intro to Anatomy, Histology, Integumentary, Skeletal, Muscular, Nervous,</p> | <p>Standards: 1, 2, 3, 4, 5, 6, 7, and 13</p> | <p>Flex days will consist of initial introductions, lab safety, reviews, and exams.</p> | |



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| | Endocrine, and Cardiovascular systems | | | |
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| Timeline | Unit/ theme | Standard | Student Focused Objective | Resources/ Suggested Activities |
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| 12 DAYS (AUG 1 - 16) | Intro to Anatomy | 1. Obtain, evaluate, and communicate information to explain how differences in cellular structure (mitochondria, cytoskeletal structure, endoplasmic reticulum, cell membrane) lead to differences in the function and organization of the four tissue types (epithelial, connective, muscular, and nervous). | Students will be able to: <ol style="list-style-type: none"> 1. Use appropriate anatomical terminology. Examples: proximal, superficial, medial, supine, superior, inferior, anterior, posterior 2. Identify anatomical body planes, body cavities, and abdominopelvic regions of the human body. 3. Classify major types of cells, including squamous, cuboidal, columnar, simple, and stratified. | <ul style="list-style-type: none"> Introduction to Anatom... Anatomical Directions Quiz Anatomy Arcade - Anatomical Terminology Word Search The Semipermeable M... Cell Defense: The Plasma Membrane <p>Curriculum: Suburban Science LLC</p> |



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| <p>8 DAYS (AUG 19 - 28)</p> | <p>Histology</p> | <p>1. Obtain, evaluate, and communicate information to explain how differences in cellular structure (mitochondria, cytoskeletal structure, endoplasmic reticulum, cell membrane) lead to differences in the function and organization of the four tissue types (epithelial, connective, muscular, and nervous).</p> | <p>Students will be able to:</p> <p>4. Classify tissues as connective, muscular, nervous, or epithelial.</p> | <p>TED Ed Video: How to 3D Print Human Tissues</p> <ul style="list-style-type: none"> ▶ Tissues, Part 1: Crash ... ▶ Tissues, Part 2 - Epithe... ▶ EPITHELIAL TISSUE ... <p>Epithelial Tissues</p> <ul style="list-style-type: none"> ▶ Exocrine Gland and En... <p>Connective Tissue Types and Examples</p> <p>Curriculum: Suburban Science LLC</p> |
| <p>8 DAYS (Aug 29 - Sept 16)</p> | <p>Integumentary System</p> | <p>2. Obtain, evaluate, and communicate information to describe how the structures of the integumentary system and its accessory organs contribute to its function. a. Construct an explanation of the relationships between the integumentary system and other organ systems, including the body's mechanisms for maintaining homeostasis.</p> | <p>Students will be able to:</p> <p>5. Identify anatomical structures and functions of the integumentary system.</p> <ul style="list-style-type: none"> • Identify accessory organs • Recognize diseases and disorders of the integumentary system • Examples: decubitus ulcer, melanoma, psoriasis | <p>Curriculum: Suburban Science LLC</p> |
| <p>12 DAYS (Sept 17)</p> | <p>Skeletal System</p> | <p>3. Develop and use a model to illustrate how the structures of the</p> | <p>Students will be able to:</p> <p>6. Identify bones that compose the</p> | <ul style="list-style-type: none"> ▶ Skull Bones Mnemonic... <p>Whack-A-Bone HUB</p> |



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| - Oct 4) | | <p>skeletal system contribute to its function.</p> <p>a. Obtain, evaluate, and communicate information describing the growth and development of the skeletal system.</p> <p>b. Construct an explanation of the relationships between the skeletal system and other organ systems, including the body's mechanisms for maintaining homeostasis.</p> | <p>skeletal system.</p> <ul style="list-style-type: none"> ● Identify functions of the skeletal system ● Identify subdivisions of the skeleton as axial and appendicular skeletons ● Classify types of joints according to their movement ● Identify the four bone types ● Identify various types of skeletal system disorders ● Examples: fractures, arthritis | <p>Bend a Bone with Vinegar - ScienceBob.com</p> <p>Curriculum: Suburban Science LLC</p> |
| 12 DAYS (Oct 7 - Oct 24) | Muscular System | <p>4. Develop and build a three-dimensional model to illustrate the structures of the muscular system, including muscle locations, origins, and insertions, and explain their roles in movement and support.</p> <p>a. Model the cellular physiology of skeletal muscle, including how the cell functions in muscle contraction and relaxation. b. Obtain, evaluate, and communicate information to explain muscle fatigue and tone in terms of muscle cell physiology.</p> | <p>Students will be able to:</p> <p>7. Identify major muscles, including origins, insertions, and actions.</p> <ul style="list-style-type: none"> ● Describe common types of body movements, including flexion, extension, abduction, and adduction ● Classify muscles based on functions in the body, including prime movers, antagonists, synergists, and fixators ● Compare and contrast skeletal, smooth, and cardiac muscles based on their microscopic anatomy ● Identify diseases and disorders of the muscular system | <p>Poke-A-Muscle Muscle Structure and Fibers Quiz Muscle Movement Diagram Quiz</p> <p>▶ What makes muscles g... ▶ Anatomy and Physiolo... ▶ Anatomy and Physiolo...</p> <p>Curriculum: Suburban Science LLC</p> |



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| | | | <ul style="list-style-type: none"> • Examples: muscular dystrophy, multiple sclerosis, strain | |
| 18 DAYS (Oct 25 - Nov 20) | Nervous System | <p>5. Obtain, evaluate, and communicate information explaining the relationship between the structures and functions of the central nervous system and the peripheral nervous system.</p> <p>a. Use a model to illustrate the role of action potentials in neural transmission.</p> <p>b. Construct an explanation of the role of reflex arcs, the central nervous system, and special senses in the response to stimuli to maintain homeostasis and guide behavior.</p> <p>c. Construct an explanation of the role of neurotransmitters in the functions and behavior of the nervous system.</p> <p>d. Obtain, evaluate, and summarize scientific findings regarding the biological origin of emotions and memories in distinct regions of the brain.</p> | <p>Students will be able to:</p> <p>8. Identify structures of the nervous system.</p> <ul style="list-style-type: none"> • Explain differences in the function of the peripheral nervous system and the central nervous system • Label parts of sensory organs, including the eye, ear, tongue, and skin receptors • Recognize diseases and disorders of the nervous system • Examples: Parkinson's disease, meningitis | <p> How does anesthesia ...</p> <p>Curriculum: Suburban Science LLC</p> |
| 6 DAYS | Endocrine | 6. Construct an explanation of how | Students will be able to: | Endocrine Ed |



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| (Nov 21 - Dec 5) | System | <p>the interdependence of the nervous and endocrine systems maintains homeostasis. a. Obtain, evaluate, and communicate information explaining how hormones secreted by endocrine glands help the body maintain homeostasis through negative and positive feedback loops.</p> <p>b. Obtain, evaluate, and communicate information describing the role of endocrine axes involving the thyroid and gonads in controlling growth, development, metabolism, and reproduction.</p> | <p>9. Identify the endocrine glands and their functions.</p> <ul style="list-style-type: none"> Describe effects of hormones produced by the endocrine glands Identify common disorders of the endocrine system Examples: diabetes, goiter, hyperthyroidism | <ul style="list-style-type: none"> Endocrine System, Par... The Endocrine System Exocrine Gland and En... <p>Curriculum: Suburban Science LLC</p> |
| 13 DAYS (Dec 6 - Jan 14) | Cardiovascular System | <p>8. Obtain, evaluate, and communicate information explaining how the structures of the cardiovascular system are related to its functions.</p> <p>a. Create a model to show how a pressure gradient moves blood through the circulatory system.</p> <p>b. Carry out an investigation exploring the link between blood pressure and heart rate and include the role of baroreceptors and chemoreceptors in the explanation of results.</p> | <p>Students will be able to:</p> <p>10. Identify structures and functions of the cardiovascular system.</p> <ul style="list-style-type: none"> Trace the flow of blood through the body Identify components of blood Describe blood cell formation Distinguish among human blood groups Describe common cardiovascular diseases and disorders Examples: myocardial infarction, mitral valve | <p>Blood Typing Video ecg-sim-page - SkillStat</p> <p>Curriculum: Suburban Science LLC</p> |



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| | | c. Construct an explanation of the cardiovascular system's relationships with other organ systems, including the body's mechanisms for maintaining homeostasis. | prolapse, varicose veins, arteriosclerosis | |
| 11 DAYS (Jan 15 - Jan 30) | Lymphatic System | 7. Obtain, evaluate, and communicate information describing the structure of lymph nodes and primary cells of the immune system (neutrophils, lymphocytes, monocytes, macrophages, eosinophils, and basophils) and explaining their role in inflammation and the body's defense. a. Obtain, evaluate, and communicate information explaining how vaccines work to stimulate immunity in the human body. b. Construct an explanation of how the lymphatic system interacts with the immune and circulatory systems. | Students will be able to: 11. Identify physiological effects and components of the immune system. <ul style="list-style-type: none"> • Contrast active and passive immunity • Evaluate the importance of vaccines • Recognize disorders and diseases of the immune system | Lymphatic vessel -リン... Curriculum: Suburban Science LLC |
| 9 DAYS (Jan 31 - Feb 12) | Respiratory System | 9. Obtain, evaluate, and communicate information to explain the relationship between the structures and functions of the respiratory system. | Students will be able to: 12. Identify structures and functions of the respiratory system. <ul style="list-style-type: none"> • Trace the pathway of the oxygen and carbon dioxide | How To Make a Model of the Lungs Curriculum: |



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| | | <p>a. Construct an explanation of how the circulatory system works with respiration to transport respiratory gasses. b. Use a model to illustrate how pressure gradients move air into and out of the lungs. c. Construct an explanation of the respiratory system's relationships with other organ systems, including the body's mechanisms for maintaining homeostasis.</p> | <p>exchange</p> <ul style="list-style-type: none"> Recognize common disorders of the respiratory system Examples: asthma, bronchitis, cystic fibrosis | Suburban Science LLC |
| 11 DAYS (Feb 13 - Mar 6) | Digestive System | <p>10. Obtain, evaluate, and communicate information explaining the relationship between the structures and functions of the digestive system, including absorption and chemical and mechanical digestion. a. Construct an explanation of the roles of accessory organs (salivary glands, pancreas, and liver) in digestion. b. Construct an explanation of the relationships between the digestive system and other organ systems, including the body's mechanisms for maintaining homeostasis.</p> | <p>Students will be able to:</p> <p>13. Identify structures and functions of the digestive system.</p> <ul style="list-style-type: none"> Trace the pathway of digestion from the mouth to the anus using diagrams Identify disorders affecting the digestive system Examples: ulcers, Crohn's disease, diverticulitis | <p>Salivary Amylase Experiment</p> <p>Curriculum: Suburban Science LLC</p> |
| 7 DAYS (Mar 7 - | Urinary System | <p>11. Use a model to illustrate the microanatomy of excretory</p> | <p>Students will be able to:</p> <p>14. Identify structures and functions of</p> | <p> Failing Kidneys and Dif...</p> <p> Interpretation of the Uri...</p> |



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| Mar 18) | | <p>structures and describe their functions.</p> <p>a. Construct an explanation of how the excretory system maintains homeostasis, including blood pressure and pH.</p> | <p>the urinary system.</p> <ul style="list-style-type: none"> Trace the filtration of blood from the kidneys to the urethra Recognize diseases and disorders of the urinary system Examples: kidney stones, urinary tract infections | <p> Interpretation of the Uri...</p> <p>Curriculum: Suburban Science LLC</p> |
| 10 DAYS (Mar 19 - Apr 10) | Reproducti ve System | <p>12. Use models to compare and contrast the internal and external structures of the female and male reproductive systems and their production of gametes.</p> <p>a. Construct an explanation of how the endocrine system influences the growth, development, and functions of the reproductive systems in males and females, including the mechanisms of hormonal birth control.</p> | <p>Students will be able to:</p> <p>15. Identify structures and functions of the reproductive system.</p> <ul style="list-style-type: none"> Differentiating between male and female reproductive systems Recognizing stages of pregnancy and fetal development Identifying disorders of the reproductive system Examples: endometriosis, sexually transmitted diseases, prostate cancer | <p>Welcome to the reproductive system (video) Khan Academy</p> <p>Website: Innerbody - Interactive 3D models and detailed explanations of the reproductive system.</p> <p>YouTube : 4-Part video series</p> <p> Reproductive System, ...</p> <p> Reproductive System, ...</p> <p> Reproductive System, ...</p> <p> Reproductive System, ...</p> <p>Curriculum:</p> |



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| 15 FLEX DAYS | Reviewing tests, schedule changes, 5 days for fetal pig dissection. | | | |