



Career & Technology Human Anatomy & Physiology

Unit Name		Anatomy and Physiology		By 6 Weeks	
Academic Alignment with TEKS	CTE TEKS	Content/Vocabulary	Guiding Questions	Activities	Resources and Web links
ELA: 110.33 A1,B1a&e, SCI. Bio 1A Chem. 4A Math 2A.1 Social Studies N.A	TEKS 121.13 (a) General requirements. The prerequisites for this course are Biology and Chemistry. To receive credit in science, students must meet the 40% laboratory and fieldwork requirement identified in §74.3(b)(2)(C) of this title (relating to Description of a Required Secondary Curriculum). This course is recommended for students in Grade 11 or 12. (b) Introduction. (1) Science is a way of learning about the natural world. Students should know how science has built a vast body of changing and increasing knowledge described by physical, mathematical, and conceptual models, and that science may not answer all questions. (2) A system is a collection of cycles, structures, and processes that interact. Students should understand a whole in terms of its components and how these components relate to each other and to the whole. All systems have basic properties that can be described in terms of space, time, energy and matter. Change and constancy occur in systems and can be observed and measured as patterns. These patterns help to predict what will happen next and can change over time.	Ch.1 Body Orientation Ch. 2 Basic Chemistry Ch. 3 Cells and Tissues Relationship between Anatomy and Physiology Concepts of matter and energy Cellular Basis of life	How is Anatomy and Physiology related? Define Homeostasis and explain its importance. Differentiate clearly between matter and energy. What are the four elements that make up living matter demonstrate safe practices during laboratory investigations and in fieldwork; and make wise choices in the conservation and use of resources and the disposal of materials.	Online Quizzes Microscope lab with tissues	Essentials of Human Anatomy and Physiology



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	<p>(3) Investigations are used to learn about the natural world through questioning, observing and drawing conclusions. Students should understand that certain types of questions can be answered by investigations, and that conclusions and models built from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and, based on new discoveries, are constantly being changed to more closely reflect the physical world.</p>				
<p>ELA 6C, 6E Sci. B1A, B2A Math 2A.1 Social Studies NA</p>	<p>TEKS (1) The student conducts laboratory investigations and fieldwork using safe, environmentally appropriate, and ethical practices. The student is expected to (2) The student uses scientific methods during fieldwork and laboratory investigations. (10) The student knows how to compare anatomical structures to physiological functions. The student is expected to:</p>	<p>Ch.4 Skin and body membranes Ch. 5 The skeletal System Ch. 6 The Muscular System</p>	<p>What are the functions of the integumentary system and explain how these functions are accomplished. Identify the major anatomical areas of the skeletal system How does the skeletal system help maintain homeostasis What is the role of the muscular system?</p>	<p>Online Quizzes Cat Dissection #1</p>	<p>Essentials of Human Anatomy and Physiology</p>



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<p>ELA 6a-6g 7a-7i Bio. 10a,b Math 2A.1 Social studies NA</p>	<p>TEKS</p> <p>(6) The student knows the body processes that maintain homeostasis. The student is expected to:(A) investigate and describe the integration of the chemical and physical processes, including equilibrium, temperature, pH balance, chemical reactions, passive and active transport, and biofeedback, that contribute to homeostasis; and(B) predict the consequences of the failure to maintain homeostasis.</p> <p>7) The student knows the electrical conduction processes and interactions. The student is expected to:(A) illustrate conduction systems such as nerve transmission or muscle stimulation;(B) research and describe the therapeutic uses and effects of external sources of electricity on the body system; and(C) evaluate the application of advanced technologies such as electroencephalogram (EEG), electrocardiogram (ECG), bionics, transcutaneous electrical nerve stimulation (TENS), and cardioversion.</p> <p>10) The student knows how to</p>	<p>Ch. 7 The Nervous System Ch. 8 Special Senses Ch. 9 The Endocrine System</p>	<p>General functions of the nervous system. Structural and functional classifications of the nervous system. List and explain the 5 special senses of the nervous system. Describe the difference between the endocrine and exocrine glands. Indicate the endocrine role of the kidneys, the stomach and intestines, the heart, and the placenta.</p>	<p>Online Quizzes Cranial Nerve Lab</p>	<p>Essentials of Human Anatomy and Physiology</p>



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	<p>compare anatomical structures to physiological functions. The student is expected to:(A) analyze the relationships between the anatomical structures and physiological functions of systems such as integumentary, reproductive, nervous, and digestive; (B) evaluate the cause and effect of disease, trauma and congenital defects on the structure and function of cells, tissues, organs, and systems;(C) research and evaluate technological advances and limitations in the treatment of system disorders; and(D) identify characteristics of the aging process on body systems.</p>				
<p>ELA 6a-6g, 7a-7i Bio. 4a, 10a-c, 11a&b, 12a Math 12.A1 Social Studies NA</p>	<p>TEKS (7) The student knows the electrical conduction processes and interactions. The student is expected to:(A) illustrate conduction</p>	<p>Ch.10 Blood Ch. 11 Cardiovascular Ch. 12 Lymphatic System Ch. 13 Respiratory System</p>	<p>Indicate the composition and volume of whole blood. Describe the composition of plasma. Describe the blood clotting process. List the different types of white blood cells and the role</p>	<p>Online Quizzes Cat Dissection #2</p>	<p>Essentials of Human Anatomy and Physiology</p>



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	<p>systems such as nerve transmission or muscle stimulation;(B) research and describe the therapeutic uses and effects of external sources of electricity on the body system; and(C) evaluate the application of advanced technologies such as electroencephalogram (EEG), electrocardiogram (ECG), bionics, transcutaneous electrical nerve stimulation (TENS), and cardioversion8) The student knows the body's transport systems. The student is expected to:(A) analyze the physical, chemical, and biological properties of transport systems including circulatory, respiratory, and excretory;(B) identify and describe the factors that alter the normal functions of transport systems; and(C) compare the interactions among the transport systems.</p>		<p>that they play. Describe the location of the heart and trace the pathway of blood through the heart. Compare and contrast the structure and function of arteries, veins, and capillaries. Define blood pressure and pulse and name all the pulse points. Explain how the lymphatic system is functionally related to the cardiovascular and immune system. Describe the functions of lymph nodes, tonsils, and the thymus. Name the organs forming the respiratory passageway from the nasal cavity to the alveoli of the lungs and describe the functions of each.</p>		
<p>ELA 6a-6g, 7a-7i Bio 4d, 9a 10a-c, 11a,b Math 12A.1 Social Studies NA</p>	<p>TEKS (4) The student knows the energy needs of the human body and the processes through which (A) analyze and explain the chemical reactions that provide energy</p>	<p>Ch. 14 The Digestive System</p>	<p>Name the organs of the alimentary canal and accessory digestive organs and identify each on a diagram model. Identify the overall functions of the digestive system as digestion and absorption of foodstuffs, and describe the general activities of each</p>	<p>Online Quizzes Cat Dissection #3</p>	<p>Essentials of Human Anatomy and Physiology</p>



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	<p>for the body;(B) identify the means, including the structure and function of the digestive system, by which energy is processed and stored within the body; and(C) analyze the effects of energy deficiencies in malabsorption disorders such as diabetes, hypothyroidism, and Crohn's disease. (10) The student knows how to compare anatomical structures to physiological functions. The student is expected to:(A) analyze the relationships between the anatomical structures and physiological functions of systems such as integumentary, reproductive, nervous, and digestive;(B) evaluate the cause and effect of disease, trauma and congenital defects on the structure and function of cells, tissues, organs, and systems;(C) research and evaluate technological advances and limitations in the treatment of system disorders; and(D) identify characteristics of the aging process on body systems.</p>		<p>digestive organs. Describe the mechanisms of swallowing, vomiting, and defecation. Name the end products of protein, fat, and carbohydrate digestion. List the six major nutrient categories. Describe the effects of aging on the digestive system.</p>		
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<p>ELA 6a-6g 7a-7i Bio 7a; 10a-c 11a,b; 13b Math 12a.1 Social Studies NA</p>	<p>TEKS</p> <p>(8) The student knows the body's transport systems. The student is expected to:(A) analyze the physical, chemical, and biological properties of transport systems including circulatory, respiratory, and excretory;(B) identify and describe the factors that alter the normal functions of transport systems; and(C) compare the interactions among the transport systems. (10) The student knows how to compare anatomical structures to physiological functions. The student is expected to:and systems;(B) identify the functions of the male and female reproductive systems; and(A) analyze the relationships between the anatomical structures and physiological functions of systems such as integumentary, reproductive, nervous, and digestive;(B) evaluate the cause and effect of disease, trauma and congenital defects on the structure and function of cells, tissues, organs, and systems;(C) research and</p>	<p>Ch. 15 Urinary System Ch. 16 Reproductive System</p>	<p>Describe the location of the kidneys in the body. Describe the formation of urine. Describe the composition of normal urine and the abnormal urinary components. Name the common urinary tract problems Discuss the common purpose of the reproductive system organs. Identify the organs of the male and female reproductive system. Discuss the composition of sperm and name the glands that produce it. Describe the phases and controls of the menstrual cycle. Describe the process of fertilization. Describe the development of a fetus. Describe the 3 stages of labor.</p>	<p>Online Quizzes Cat Dissection #4</p>	<p>Essentials of Human Anatomy and Physiology</p>
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	<p>evaluate technological advances and limitations in the treatment of system disorders; and(D) identify characteristics of the aging process on body systems.(11) The student knows the process of reproduction, growth, and development. The student is expected to:(A) research and describe embryological development of tissues, organs,(C) summarize the human development cycle.</p>				
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