Health Science

TEXAS CTE
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Scope & Sequence

Course Name: Anatomy and Physiology **TSDS PEIMS Code:** 13020600		**Course Credit:** 1.0 **Course Requirements:** This course is recommended for students in Grades 10-12. **Prerequisites:** Biology and a second science credit. **Recommended prerequisite:** A course from the Health Science Career Cluster.
Course Description: The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis.		
NOTE: This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered.		
Total Number of Periods **Total Number of Minutes** **Total Number of Hours**	175 Periods 7,875 Minutes 131.25 Hours*	*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc.
Unit Number, Title, and Brief Description	**# of Class Periods*** (assumes 45-minute periods) Total minutes per unit	**TEKS Covered 130.224 (c) Knowledge and skills**
Unit 1: Meeting Employer Expectations in Health Science This unit is designed to inform future Health Science students about industry expectations	8 periods 360 minutes	1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to: (A) demonstrate verbal and non-verbal communication in a clear, concise, and effective manner; and

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for employability skills and professional standards.		(B) exhibit the ability to cooperate, contribute, and collaborate as a member of a team.
Unit 2: Laboratory and Field Investigation in Health Science In this unit students understand how to safely and effectively use laboratory equipment. Student will demonstrate ethical and environmentally appropriate practices during laboratory and field investigations. Students should be able analyze data with both physical equipment and with experimentation that extends beyond the classroom.	10 periods 450 minutes	(2) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to: (A) demonstrate safe practices during laboratory and field investigations; and (B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.
Unit 3: The Use of Scientific Theory in Health Science The scientific theory is a foundation of health science. Student in this unit will distinguish between scientific hypotheses and scientific theories and also collect and organize qualitative and quantitative data and make measurements with accuracy and precision using a variety of scientific tools. Students will also demonstrate the ability to communicate valid conclusions supported by the data through a variety of methods.	13 periods 585 minutes	(3) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to: (A) know the definition of science and understand that it has limitations, as specified in subsection (b)(4) of this section; (B) know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have

		been tested over a wide variety of conditions are incorporated into theories; (C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science are created and new technologies emerge; (D) distinguish between scientific hypotheses and scientific theories; (E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology; (F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;

		(G) analyze, evaluate, make inferences, and predict trends from data; and (H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.
Unit 4: Critical Thinking Skills in Health Science Students will learn to use the scientific method, critical thinking, and problem solving to make informed decisions in health science. Students will evaluate scientific models, research, and the impact of scientific research on society and the environment. Students will analyze, evaluate, and critique scientific explanations to encourage critical thinking.	12 periods 540 minutes	(4) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to: (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking; (B) communicate and apply scientific information extracted from various sources such as accredited scientific journals, institutions of higher learning, current events, news reports, published journal articles, and marketing materials; (C) draw inferences based on data related to promotional materials for products and services; (D) evaluate the impact of scientific research on society and the environment; (E) evaluate models according to their limitations in representing biological objects or events; and (F) research and describe the history of science and contributions of scientists.

Unit 5: Technological Advancements in Health Science Students will analyze developments in stem cell research, bioengineering, and transplant technologies.	10 periods 450 minutes	(13)	The student recognizes emerging technological advances in science. The student is expected to: (A) recognize advances in stem cell research such as cord blood use; and (B) recognize advances in bioengineering and transplant technology.
Unit 6: Human The Body's Energy Needs Analyzing energy needs and the processes through which they are fulfilled id the emphasis of this unit. The digestive system will be evaluated as a way our bodies process and store energy. How energy excesses and energy deficiencies effect different body systems will be explored.	10 periods 450 minutes	(5)	The student evaluates the energy needs of the human body and the processes through which these needs are fulfilled. The student is expected to: (A) analyze the chemical reactions that provide energy for the body; (B) evaluate the modes, including the structure and function of the digestive system, by which energy is processed and stored within the body; (C) analyze the effects of energy deficiencies in malabsorption disorders as they relate to body systems such as Crohn's disease and cystic fibrosis; and (D) analyze the effects of energy excess in disorders as they relate to body systems such as cardiovascular, endocrine, muscular, skeletal, and pulmonary.
Unit 7: Handling Forces in the Human Body In this unit students discover how muscles, joints, and bones allow body movement. A variety of diagnostic and therapeutic	14 periods 630 minutes	(6)	The student differentiates the responses of the human body to internal and external forces. The student is expected to: (A) explain the coordination of muscles, bones, and joints that allows movement of the body;

technologies are discussed along with the physical effect forces have on the body.		(B) investigate and report the uses of various diagnostic and therapeutic technologies; (C) interpret normal and abnormal contractility conditions such as in edema, glaucoma, aneurysms, and hemorrhage; (D) analyze and describe the effects of pressure, movement, torque, tension, and elasticity on the human body; and (E) perform an investigation to determine causes and effects of force variance and communicate findings.
Unit 8: The Importance of Maintaining Homeostasis Students in this unit will become familiar with the consequences of failing to maintain homeostasis. Student will also investigate and describe the integration of the chemical and physical processes in maintaining homeostasis in the human body.	10 periods 450 minutes	(7) The student examines 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 transport, active transport, and biofeedback, that contribute to homeostasis; and (B) determine the consequences of the failure to maintain homeostasis.
Unit 9: Electrical Impulse and it's effect on Human Physiology In this unit students will illustrate the electrical conduction processes and electrical interactions in the human body. Therapeutic and more advanced diagnostic uses of electricity will be evaluated.	10 periods 450 minutes	(8) The student examines the electrical conduction processes and interactions. The student is expected to: (A) illustrate conduction systems such as nerve transmission or muscle stimulation; (B) investigate 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, electrocardiogram,

			bionics, transcutaneous electrical nerve stimulation, and cardioversion.
Unit 10: Human Body Transport Systems Physical, chemical, and biological properties of transport systems will be examined in this unit. Factors that alter normal transport and the interactions between transport systems will be analyzed. How the circulatory, respiratory, and excretory systems deal with transport will be explained.	10 periods 450 minutes	(9)	The student explores 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) determine the factors that alter the normal functions of transport systems; and (C) contrast the interactions among the transport systems.
Unit 11: Environmental Factors and the Human Body Students will learn about the affect of negative environmental factors on body systems. Measures to minimize these harmful environmental factors will be illustrated.	8 periods 360 minutes	(10)	The student investigates environmental factors that affect the human body. The student is expected to: (A) identify the effects of environmental factors such as climate, pollution, radioactivity, chemicals, electromagnetic fields, pathogens, carcinogens, and drugs on body systems; and (B) explore measures to minimize harmful environmental factors on body systems.
Unit 12: The Structure and Function of the Human Body In this unit students will explore the structure and function of 11 body systems. Students will examine the effect of disease, trauma, and congenital defects on body systems.	60 periods 2,700 minutes	(11)	The student investigates the structure and function of the human body. The student is expected to: (A) analyze the relationships between the anatomical structures and physiological functions of systems, including the integumentary, nervous, skeletal, muscular, cardiovascular, respiratory, digestive,

Students will also analyze how technological advances along with limitations influence treatment of the various body systems. Human growth and development from embryo to old age will be explained.		urinary, immune, endocrine, and reproductive systems; (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 technological advances and limitations in the treatment of system disorders; and (D) examine characteristics of the aging process on body systems. (12) The student describes the process of reproduction and growth and development. The student is expected to: (A) explain embryological development of cells, tissues, organs, and systems; (B) identify the functions of the male and female reproductive systems; and (C) summarize the human growth and development cycle.

Health Science

TEXAS CTE
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Scope & Sequence

Course Name: Principles of Health Science **PEIMS Code:** 13020200		**Course Credit:** 1.0 **Course Requirements:** This course is recommended for students in Grades 9 and 10. **Prerequisites:** None.
Course Description: The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.		
NOTE: This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered.		
Total Number of Periods **Total Number of Minutes** **Total Number of Hours**	175 Periods 7,875 Minutes 131.25 Hours*	*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc.
Unit Number, Title, and Brief Description	**# of Class Periods*** (assumes 45-minute periods) Total minutes per unit	**TEKS Covered** **130.222(c) Knowledge and skills**
Unit 1: Employability Skills, Career Options and Preparation This unit allows students to explore business and industry employer expectations. Teamwork, communications skills, punctuality, attendance, time management, organizational skills, and productive work habits are emphasized. Students also identify	18 periods 810 minutes	(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to (A) express ideas in a clear, concise, and effective manner; (B) exhibit the ability to cooperate, contribute, and collaborate as a member of a team; and

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career options and the corresponding pathway for a health science career.		(C) identify employer expectations such as punctuality, attendance, time management, communication, organizational skills, and productive work habits. (5) The student assesses career options and the preparation necessary for employment in the health science industry. The student is expected to: (A) locate, evaluate, and interpret career options and employment information; and (B) recognize the impact of career decisions, including the causes and effects of changing employment situations. (6) The student identifies academic preparation and skills necessary for employment as defined by the health science industry. The student is expected to identify academic requirements for professional advancement such as certification, licensure, registration, continuing education, and advanced degrees.
Unit 2: Using Data and Measurement in Health Science In this unit students look at the many ways data and measurements influence health science. The metric system, reading charts and graphs, an interpreting data are covered. Students will also plan and prepare oral presentations and practice using precise language to communicate ideas.	18 periods 810 minutes	(2) The student applies mathematics, science, English language arts, and social studies in health science. The student is expected to: (A) convert units between systems of measurement; (B) apply data from tables, charts, and graphs to provide solutions to health-related problems; (C) interpret technical material related to the health science industry; (D) organize, compile, and write ideas into reports and summaries; (E) plan and prepare effective oral presentations;

		(F) formulate responses using precise language to communicate ideas
Unit 3: Wellness Principles in Health Science Maintaining wellness is a key concept in health science. This unit will look at biological and chemical processes that influence wellness. Students analyze how an individual can maintain wellness throughout their life span along with stages of development, Maslow's Hierarchy of Needs and stages of development being covered.	16 periods 720 minutes	(2) The student applies mathematics, science, English language arts, and social studies in health science. The student is expected to: (G) describe biological and chemical processes that maintain homeostasis; (H) identify and analyze principles of body mechanics and movement such as forces and the effects of movement, torque, tension, and elasticity on the human body; (I) identify human needs according to Maslow's Hierarchy of Human Needs; (J) describe the stages of development related to the life span; (K) identify the concepts of health and wellness throughout the life span; (L) analyze and evaluate communication skills for maintaining healthy relationships throughout the life span;
Unit 4: Research and Analysis in Health Science	16 periods 720 minutes	(2) The student applies mathematics, science, English language arts, and social studies in health science. The student is expected to: (M) research the historical significance of health care; (N) describe the impact of health services on the economy;

Understanding the health care system is vital to those looking to make it a career. This unit looks at the history of modern health care along with state, local, and national influences. Health care varies greatly from state to state, and from nation to nation. Differences are explored along with the tremendous economic impact the health care industry has on any country's economy.		(O) analyze the impact of local, state, and national government on the health science industry; (P) identify diverse and cultural influences that have impacted contemporary aspects of health care delivery; and (Q) research and compare practices used by various cultures and societies to solve problems related to health.
Unit 5: Communication Skills in Health Science Students learn about effective communications in the unit. Verbal and nonverbal communication is explored along with conflict resolution techniques.	14 periods 630 minutes	(3) The student uses verbal and nonverbal communication skills. The student is expected to: (A) identify components of effective and non-effective communication; (B) demonstrate effective communication skills for responding to the needs of individuals in a diverse society; (C) evaluate the effectiveness of conflict-resolution techniques in various situations; and (D) accurately interpret, transcribe, and communicate medical vocabulary using appropriate technology.
Unit 6: Leadership Skills and Teamwork Leadership skills such as goal setting and team building are evaluated. Students also identify traits of effective leadership. The concept of the multidisciplinary team along its role in healthcare are explained.	15 periods 675 minutes	(4) The student implements the leadership skills necessary to function in a democratic society. The student is expected to: (A) identify traits of a leader; (B) demonstrate leadership skills, characteristics, and responsibilities of leaders such as goal-setting and team building; and

		(C) demonstrate the ability to effectively conduct and participate in meetings. (8) The student examines the role of the multidisciplinary team in providing health care. The student is expected to: (A) explain the concept of teaming to provide quality health care; and (B) examine the role of professional organizations in the preparation and governance of credentialing and certification.
Unit 7: Health Science Career Pathways Students will have the opportunity to compare health science careers within the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems. Students will study how various health science entities interact within the health care system.	16 periods 720 minutes	(7) The student identifies the career pathways related to health science. The student is expected to: (A) compare health science careers within the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems; and (B) identify the collaborative role of team members between systems to deliver quality health care.
Unit 8: Ethics and Legal Responsibilities Principles of ethical behavior and confidentiality are examined along with the concepts of malpractice, negligence, and liability. The student will research laws governing the health science industry..	16 periods 720 minutes	(9) The student interprets ethical behavior standards and legal responsibilities. The student is expected to: (A) compare published professional codes of ethics and scope of practice; (B) explain principles of ethical behavior and confidentiality, including the consequences of breach of confidentiality; (C) discuss ethical issues related to health care, including implications of technological advances;

			(D) examine issues related to malpractice, negligence, and liability; and (E) research laws governing the health science industry.
Unit 9: Individual Rights and Choices Wellness strategies for the prevention of disease are emphasized in this unit. The positive and negative effects of relationships on physical and emotional health such as peers, family, and friends in promoting a healthy community are evaluated.	16 periods 720 minutes	(10)	The student recognizes the rights and choices of the individual. The student is expected to: (A) identify situations related to autonomy; (B) identify wellness strategies for the prevention of disease; (C) evaluate positive and negative effects of relationships on physical and emotional health such as peers, family, and friends in promoting a healthy community; (D) review documentation related to rights and choices; and (E) demonstrate an understanding of diversity and cultural practices influencing contemporary aspects of health care.
Unit 10: Understanding Safety Requirements in Health Sciences Safety practices in the health science industry along with standard precautions, fire prevention and safety practices are taught. Students will study the many governmental and regulatory agencies surrounding health sciences.	14 periods 630 minutes	(11)	The student recognizes the importance of maintaining a safe environment and eliminating hazardous situations. The student is expected to: (A) identify governing regulatory agencies such as the World Health Organization, Centers for Disease Control and Prevention, Occupational Safety and Health Administration, U.S. Food and Drug Administration, Joint Commission, and National Institute of Health;

			(B) identify industry safety standards such as standard precautions, fire prevention and safety practices, and appropriate actions to emergency situations; and (C) relate safety practices in the health science industry.
Unit 11: Technology for Your Health Sciences Career Technology is becoming a vital component in modern health sciences. In this unit students will research many of the technologies currently in use health careers. A culminating activity will be to present a report about a specific piece of equipment that includes the potential issues and benefits the equipment may have..	16 periods 720 minutes	(12)	The student identifies the technology used in the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems. The student is expected to: (A) research and identify technological equipment used in the diagnostic, therapeutic, health informatics, support services, and biotechnology research and development systems; (B) identify potential malfunctions of technological equipment; and (C) recognize and explain the process for reporting equipment or technology malfunctions.

Health Science

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Scope & Sequence

Course Name: Medical Terminology **PEIMS Code:** 13020300		**Course Credit:** 1.0 **Course Requirements:** This course is recommended for students in Grades 9-12. **Prerequisites:** None.
Course Description: The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.		
NOTE: This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered.		
Total Number of Periods **Total Number of Minutes** **Total Number of Hours**	175 Periods. 7,875 Minutes. 131.25 Hours.*	*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc.
Unit Number, Title, and Brief Description	**# of Class Periods*** (assumes 45-minute periods) Total minutes per unit	**TEKS Covered** **130.223 (c) Knowledge and skills**
Unit 1: Meeting Employer Expectations in Health Science This unit is designed to inform future Health Science students about industry expectations for employability skills and professional standards..	20 periods 900 minutes	(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to: (A) express ideas in a clear, concise, and effective manner; and (B) exhibit the ability to cooperate, contribute, and collaborate as a member of a team.

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Unit 2: Medical Terminology Resourses At the completion of this unit students will be able to use a variety of medical terminology recourses. Students are expected to become familiar with medical dictionaries, multimedia recourses, and investigate electronic media under the supervision of their instructor.	25 periods 1,125 minutes	(4)	The student examines available resources. The student is expected to: (A) examine medical and dental dictionaries and multimedia resources; (B) integrate resources to interpret technical materials; and (C) investigate electronic media with appropriate supervision.
Unit 3: Building Blocks of Medical Terminology In this unit student learn the basic building blocks of medical terminology as it related to the health care industry. Students will build and analyze words based on prefixes, suffixes, root words, combining vowels, combining forms, and abbreviations. Students will describe anatomical planes and positions, diagnostic procedures, diseases and their treatment.	45 periods 2,025 minutes	(2)	The student recognizes the terminology related to the health science industry. The student is expected to: (A) identify abbreviations, acronyms, and symbols related to the health science industry; (B) identify the basic structure of medical words; (C) practice word-building skills; (D) research the origins of eponyms; (E) recall directional terms and anatomical planes related to body structure; (F) define and accurately spell occupationally specific terms such as those relating to the body systems, surgical and diagnostic procedures, diseases, and treatment; and (G) use prior knowledge and experiences to understand the meaning of terms as they relate to the health science industry.
Unit 4: Abbreviations Use in the Medical Industry	25 periods 1,125 minutes	(5)	The student interprets medical abbreviations. The student is expected to: (A) distinguish medical abbreviations used throughout the health science industry; and

Students will learn to interpret medical abbreviations and to distinguish between common medical abbreviations used in the medical field in this unit. Students will successfully translate physician's notes, progress sheets, lab reports, and radiological reports .		(B)	translate medical abbreviations in simulated technical material such as physician progress notes, radiological reports, and laboratory reports.
Unit 5: Communications Skills and Applied Medical Terminology In this unit students will apply what they have learned about medical terminology to a variety of heath science scenarios. The student's ability to correctly pronounce and use medical language along with translating medical related materials will be evaluated and assessed.	30 periods 1,350 minutes	(3)	The student demonstrates communication skills using the terminology applicable to the health science industry. The student is expected to: (A) demonstrate appropriate verbal and written strategies such as correct pronunciation of medical terms and spelling in a variety of health science scenarios; (B) employ increasingly precise language to communicate; and (C) translate technical material related to the health science industry.
Unit 6: Putting Medical Terminology to Use Students in this unit will demonstrate more complex skills. Students will be expected to translate medical terms into conversation, summarize medical content, and interpret medical scenarios correctly. Students will also be able to identify terminology common to specific medical specialist such as oncologist, dermatologists, and pathologists.	30 periods 1,350 minutes	(6)	The student appropriately translates health science industry terms. The student is expected to: (A) interpret, transcribe, and communicate vocabulary related to the health science industry; (B) translate medical terms to conversational language to facilitate communication; (C) distinguish medical terminology associated with medical specialists such as geneticists, pathologists, and oncologists;

		(D) summarize observations using medical terminology; and (E) interpret contents of medical scenarios correctly.
NOTE: A reminder that districts can add/suppliant a course with additional content. A research component, activities, projects can be added as long as all TEKS are met.		

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Scope & Sequence

Course Name: Pathophysiology **PEIMS Code:** 13020800		**Course Credit:** 1.0 **Course Requirements:** This course is recommended for students in Grades 11 and 12. **Prerequisites:** Biology and Chemistry. **Recommended Prerequisite:** A course from the Health Science Career Cluster.
Course Description: The Pathophysiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Pathophysiology will study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of disease. Students will differentiate between normal and abnormal physiology.		
NOTE: This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered.		
Total Number of Periods **Total Number of Minutes** **Total Number of Hours**	175 Periods 7,875 Minutes 131.25 Hours*	*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc.
Unit Number, Title, and Brief Description	**# of Class Periods*** (assumes 45-minute periods) Total minutes per unit	**TEKS Covered** **130.227 (c) Knowledge and skills**
Unit 1: Meeting Employer Expectations in Health Science This unit is designed to inform future Health Science students about industry expectations for employability skills and professional	15 periods 675 minutes	(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to: (A) demonstrate verbal and non-verbal communication in a clear, concise, and effective manner; and (B) exhibit the ability to cooperate, contribute, and

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standards.		collaborate as a member of a team.
Unit 2: Laboratory and Field Investigation in Health Science In this unit students understand how to safely and effectively use laboratory equipment. Student will demonstrate ethical and environmentally appropriate practices during laboratory and field investigations. Students should be able analyze data with both physical equipment and with experimentation that extends beyond the classroom.	15 periods 675 minutes	(2) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to: (A) demonstrate safe practices during laboratory and field investigations; and (B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.
Unit 3: The Use of Scientific Theory in Health Science The scientific theory is a foundation of health science. Student in this unit will distinguish between scientific hypotheses and scientific theories and also collect and organize qualitative and quantitative data and make measurements with accuracy and precision using a variety of scientific tools. Students will also demonstrate the ability to communicate valid conclusions supported by the data through a variety of methods.	20 periods 900 minutes	(3) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to: (A) know the definition of science and understand that it has limitations, as specified in subsection (b)(4) of this section; (B) know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a variety of conditions are

Students are also expected to describe proper methods of disposing of biohazard material and to display standard precautions, including proper protective equipment during all laboratory exercises.		incorporated into theories; (C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science are created and new technologies emerge; (D) distinguish and differentiate between scientific hypothesis and scientific theories; (E) plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology; (F) collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures; (G) analyze, evaluate, make inferences, and predict trends from data; and

		(H) communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports
Unit 4: Critical Thinking Skills in Health Science Students will learn to use the scientific method, critical thinking, and problem solving to make informed decisions in health science. Students will evaluate scientific models, research, and the impact of scientific research on society and the environment. Students will analyze, evaluate, and critique scientific explanations to encourage critical thinking.	15 periods 675 minutes	(4) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to: (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking; (B) communicate and apply scientific information extracted from various sources such as accredited scientific journals, institutions of higher learning, current events, news reports, published journal articles, and marketing materials; (C) draw inferences based on data related to promotional materials for products and services; (D) evaluate the impact of scientific research on society and the environment; (E) evaluate models according to their limitations in representing biological objects or events; and (F) research and describe the history of science and contributions of scientists.

Unit 5: The Mechanisms of Pathology In this unit students will explore biological and chemical process at the cellular level. Multiple factors that contribute to disease including age, gender, environment, lifestyle, and heredity are analyzed. Students will examine cells and tissues looking for signs of mutations and neoplasms. The body's attempt to compensate and maintain homeostasis is also explained.	25 periods 1,125 minutes	(5)	The student analyzes the mechanisms of pathology. The student is expected to: (A) identify biological and chemical processes at the cellular level; (B) detect changes resulting from mutations and neoplasms by examining cells, tissues, organs, and systems; (C) identify factors that contribute to disease such as age, gender, environment, lifestyle, and heredity; (D) examine the body's compensating mechanisms occurring under various conditions; and (E) analyze how the body attempts to maintain homeostasis when changes occur.
Unit 6: The Processes of Pathogenesis In this unit students will examine the ways diseases develop and analyze the body's natural defenses against them. Students will describe different stages of pathogenesis and research stages in the progression of disease. Chemical agents, environmental pollution, and trauma on the disease process will be analyzed.	25 periods 1,125 minutes	(6)	The student examines the process of pathogenesis. The student is expected to: (A) identify pathogenic organisms using microbiological techniques; (B) differentiate the stages of pathogenesis, including incubation period, prodromal period, and exacerbation or remission; (C) analyze the body's natural defense systems against infection such as barriers, the inflammatory response, and the immune response; (D) evaluate the effects of chemical agents, environmental pollution, and trauma on the disease process; and (E) research stages in the progression of disease.

Unit 7: Common Human Diseases The nature of common diseases including advanced technologies for the diagnosis and treatment are the focus of this unit. Some diseases, thought to be cured, are making a reemergence as antibiotic-resistance diseases are being discovered. Students will differentiate between congenital disorders and childhood diseases as they investigate ways diseases affect multiple body systems.	30 periods 1,350 minutes	(7)	The student examines a variety of human diseases. The student is expected to: (A) describe the nature of diseases, including the etiology, signs and symptoms, diagnosis, prognosis, and treatment options for diseases; (B) explore advanced technologies for the diagnosis and treatment of disease; (C) examine reemergence of diseases such as malaria, tuberculosis, and polio; (D) differentiate between hospital-acquired infections and community-acquired infections; (E) examine antibiotic-resistant diseases such as methicillin resistant *Staphylococcus aureus*; (F) differentiate between congenital disorders and childhood diseases; and (G) investigate ways diseases affect multiple body systems
Unit 8: Disease Prevention and Control Students in this unit will examine how disease prevention and control influence both personal and public health. Developing world health issues are identified and possible ways to cope with them. Public health issues related asepsis, isolation, immunization, and quarantine are analyzed. A personal wellness and health plan will be developed along with and understanding of how stress and aging affects the human body.	30 periods 1,350 minutes	8)	The student integrates the effects of disease prevention and control. The student is expected to: (A) evaluate public health issues related to asepsis, isolation, immunization, and quarantine; (B) analyze the effects of stress and aging on the body; (C) evaluate treatment options for diseases; (D) investigate diseases that threaten world health and propose intervention strategies; and (E) develop a plan for personal health and wellness.