Course Title: Pathophysiology 1b

State: TX
State Course Title: Pathophysiology
State Course Code: 127.424
State Standards: Career and Technical Education
Date of Standards: 2021

TEKS	Course Title (a or b), if applicable, e.g. Game Design 1a	Unit Name(s)	Lesson(s) Numbers
(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	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 3
(B) demonstrate the ability to cooperate, contribute, and collaborate as a member of a team.	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 1
(2) The student, for at least 40% of instructional time, asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:			
(A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations;	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 1
(B) apply scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems;	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 4
(C) use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency-approved safety standards;	Pathophysiology 1a	Unit 4: Welcome to the Laboratory	Lesson 1
(D) use appropriate 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, micro pipettors, hand lenses, Celsius thermometers, hot plates, timing devices, Petri dishes, lab incubators, biochemical media and stains dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;	Pathophysiology 1a	Unit 4: Welcome to the Laboratory	Lessons 1, 4
(E) collect quantitative data using the International System of Units (SI) and United States customary units and qualitative data as evidence;	Pathophysiology 1a	Unit 4: Welcome to the Laboratory	Lesson 4

(F) organize quantitative and qualitative data using lab notebooks or journals, lab reports, labeled drawings, graphic organizers, peer reviewed medical journals, summaries, oral reports, and technology-based reports;	Pathophysiology 1a	Unit 4: Welcome to the Laboratory	Lesson 4
(G) develop and use models to represent phenomena, systems, processes, or solutions to engineering problems; and	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 1
(H) distinguish between scientific hypotheses, theories, and laws.	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 1
(3) The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:			
(A) identify advantages and limitations of models such as their size, scale, properties, and materials;	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 1
(B) analyze data by identifying significant statistical features, patterns, sources of error, and limitations;	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 2
(C) use mathematical calculations to assess quantitative relationships in data; and	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 2
(D) evaluate experimental and engineering designs.	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 3
(4) The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:			
(A) develop explanations and propose solutions supported by data and models and consistent with scientific ideas, principles, and theories;	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 4
(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats; and	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 1
(C) engage respectfully in scientific argumentation using applied scientific explanations and empirical evidence.	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 3
(5) The student knows the contributions of scientists and engineers and recognizes the importance of scientific research and innovation on society. The student is expected to:			
(A) analyze, evaluate, and critique scientific explanations and solutions by using empirical evidence, logical reasoning, and experimental and observational testing so as to encourage critical thinking by the student;	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 3
(B) relate the impact of past and current research on scientific thought and society, including research methodology, cost-benefit analysis, and contributions of diverse scientists and engineers as related to the content; and	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lessons 1, 2

(C) research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) or health science field in order to investigate careers.	Pathophysiology 1a	Unit 3: Joining the Scientific Community	Lesson 4
(6) The student analyzes the mechanisms of pathology. The student is expected to:			
(A) describe abnormal biological and chemical processes at the cellular level;	Pathophysiology 1a	Unit 2: It Starts with the Cell	Lesson 4
(B) examine and analyze changes resulting from mutations and neoplasms by examining cells, tissues, organs, and systems;	Pathophysiology 1b	Unit 5: Oncology	Lesson 3
(C) investigate factors that contribute to disease, including age, gender, environment, lifestyle, and heredity; and	Pathophysiology 1b	Unit 5: Oncology	Lessons 2, 4
(D) analyze and describe how the body's compensating mechanisms attempt to maintain homeostasis when changes occur.	Pathophysiology 1b	Unit 1: Normal Physiological Mechanisms	Lesson 1
(7) The student examines the process of pathogenesis. The student is expected to:			
(A) differentiate and identify pathogenic organisms using microbiological techniques such as gram staining, biochemical identification, and microscopic observation;	Pathophysiology 1a	Unit 7: The Art of Treating Infections	Lessons 1, 2
(B) research and summarize the stages of pathogenesis, including incubation period, prodromal period, and exacerbation or remission;	Pathophysiology 1a	Unit 6: The Telling of Infectious Stories	Lesson 1
(C) analyze the body's natural defense systems against infection, including barriers, the inflammatory response, and the immune response;	Pathophysiology 1a	Unit 6: The Telling of Infectious Stories	Lesson 3
(D) analyze other mechanisms of disease prevention and treatment such as vaccinations, antibiotics, chemotherapy, and immunotherapy; and	Pathophysiology 1a	Unit 7: The Art of Treating Infections	Lesson 4
(E) evaluate the effects of chemical agents, environmental pollution, and trauma on the disease process.	Pathophysiology 1b	Unit 7: Public Health Concerns	Lessons 1-3
(8) The student examines diseases throughout the body's systems. The student is expected to:			
(A) investigate the etiology, signs and symptoms, diagnosis, prognosis, and treatment of diseases;	Pathophysiology 1a	Unit 1: From Bloodletting to Breakthroughs	Lessons 1, 2
(B) explore and describe advanced technologies for the diagnosis and treatment of disease;	Pathophysiology 1a	Unit 4: Welcome to the Laboratory	Lessons 4, 5
(C) research and describe reemergence of diseases such as malaria, tuberculosis, polio, and measles	Pathophysiology 1a	Unit 8: Infectious Disease Prevention and Control	Lesson 3

(D) research the causes, prevention, and impact of nosocomial infections and differentiate between the causes, prevention, and impact of nosocomial infections versus community-acquired infections;	Pathophysiology 1a	Unit 8: Infectious Disease Prevention and Control	Lesson 2
(E) research and describe antibiotic-resistant diseases such as methicillin-resistant Staphylococcus aureus;	Pathophysiology 1a	Unit 7: The Art of Treating Infections	Lesson 4
(F) differentiate between various types of diseases and disorders, including hereditary, infectious, and auto-immune; and	Pathophysiology 1a	Unit 6: The Telling of Infectious Stories	Lesson 2
(G) investigate ways diseases such as diabetes, Parkinson's, lupus, and congestive heart failure affect multiple body systems.	Pathophysiology 1b	Unit 3: Cardiovascular Pathology	Lesson 4
(9) 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;	Pathophysiology 1a	Unit 8: Infectious Disease Prevention and Control	Lessons 2, 4
(B) analyze the effects of stress and aging on the body;	Pathophysiology 1b	Unit 8: Choosing Wellness	Lesson 2
(C) analyze patient medical data and interpret medical laboratory test results to inform diagnosis and treatment;	Pathophysiology 1a	Unit 5: Data and Discussions	Lesson 3
(D) analyze and interpret epidemiological data to determine common trends and predict outcomes in disease progression;	Pathophysiology 1b	Unit 7: Public Health Concerns	Lesson 4
(E) research and summarize diseases that threaten world health and propose intervention strategies; and	Pathophysiology 1b	Unit 7: Public Health Concerns	Lesson 4
(F) develop a prevention plan that considers how behaviors contribute to lifestyle diseases.	Pathophysiology 1b	Unit 3: Cardiovascular Pathology	Lessons 3, 4