



Regional Occupational Program

Medical Core 2 A-G 2025-2026

COURSE DESCRIPTION

This course will provide students with an in-depth, hands-on, individual and group experience focusing on critical analyses of each human body system and the pathophysiology of injuries, diseases, and disorders. Students who successfully complete this course will be prepared for the rigor of AP Biology, College level Anatomy and Physiology courses, as well as being prepared for their future healthcare career choice. The curriculum for this course includes very important 21st century skills, such as effective communication, critical thinking, creativity, and collaboration. This course will qualify the student to take advanced health career courses, which will provide additional training and work-based learning.

Course Information:

Course Length: 1 Year
Prerequisite: Biology, Chemistry, Algebra I, or Integrated Math, Medical Core I
Course Level: Concentrator
UC: Yes G - Elective
Articulated: No
Industry Cert.: No
Industry Sector: Health Science and Medical Technology
Pathway: Patient Care
CALPADS: 7921

O*Net SOC Codes:

31-9092 Medical Assistants
31-1121 Home Health Aides

Legend:

CTE - PS CTE Pathway Standards
CRP Career Ready Practices
CTE - AS CTE Anchor Standards
CCSS Common Core State Standards
ISTE International Society for Technology in Education

Includes updates from 24/25 Health Science and Medical Technology Advisory
[Advisory Minutes](#)

Medical Core 2

Course Orientation

- a. Discuss objectives for this course, including competencies, teacher expectations, classroom policies, and procedures.
- b. Identify and discuss the acquisition of transferable skills (communication, collaboration, creativity, and critical thinking) and their importance to being college and career ready and for future personal and professional success.
- c. Review objectives, competencies, and course syllabus.
- d. Discuss student and teacher expectations, including behavior, class rules, appropriate dress, pre-course knowledge, and grading policies, including enrollment and attendance requirements and procedures, and classroom/school safety and disaster procedures.
- e. Discuss next steps in course sequence related to the career pathway, the need for reinforcement of basic skills, transferrable skills, and postsecondary and career options.
- f. Discuss the Big Six: Career Ready Essentials and the Standards for Career Ready Practice as they relate to this course, all aspects of the industry sector, and being college and career ready.

Big Six: Career Ready Essentials

1. Effective Communication	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ol style="list-style-type: none"> a. Demonstrate effective verbal communication and conflict resolution skills. b. Use the writing process to develop written communication with the appropriate tone, organization, and format for the identified audience. c. Explain the effect of interpersonal skills on one's ability to communicate effectively and develop relationships. d. Describe the impact of ineffective communication on business relationships. e. Analyze the impact of vocabulary, body language, and tone on verbal communication. f. Demonstrate active listening skills. g. Accurately interpret industry-specific written communication. h. Model responsible and effective use of various communication technologies. i. Identify valid and reliable digital reference and resource materials. j. Gather information from multiple digital sources to compare and contrast, synthesize, and summarize. k. Identify and use appropriate communication and collaboration technologies. l. Utilize technology to problem solve, accomplish tasks, and to produce or publish products. 		<u>1</u> <u>2</u> <u>11</u>	<u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>SLS</u> <u>11-12.2</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>WS</u> <u>11-12.7</u> <u>11-12.6</u>	<u>1b,c</u> <u>2c</u> <u>3b,c</u> <u>5c</u> <u>6b,c,d</u>
2. Collaboration, Creativity, and Critical Thinking	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ol style="list-style-type: none"> a. Demonstrate critical thinking skills for a variety of purposes and in different settings. b. Collaborate to reach consensus on an identical objective through the sharing of knowledge, tasks, and learning. c. Discuss the importance of the critical thinking process to real-world applications. d. Evaluate the impact of creative thinking on problem solving and innovation in real-world applications. 		<u>2</u> <u>4</u> <u>5</u> <u>7</u> <u>9</u> <u>10</u>	<u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>7</u> <u>8</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>SLS</u> <u>9-10</u>	<u>1c</u> <u>3c,d</u> <u>4a-d</u> <u>5c,d</u> <u>6c</u> <u>7b,c,d</u>

<ul style="list-style-type: none"> e. Compile work that demonstrates the process used to (elaborate, refine, analyze) evaluate original ideas and maximize creative efforts. f. Apply divergent and convergent thinking to the development of an original idea or solution. g. Examine real-world limits to adopting ideas. h. Demonstrate creative thinking (preparation, insight, evaluation, elaboration, and communication) to create a new idea or concept. i. Assume shared responsibility for collaborative work, and value the individual contributions made by each team member. j. Evaluate evidence, arguments, claims, and beliefs to identify connections. k. Identify bias, prejudice, propaganda, self-deception, distortion, and misinformation. l. Produce intellectual, informational, or material products that serve an authentic purpose. m. Work effectively and respectfully with those from diverse backgrounds or cultures. n. Demonstrate respect, trust, commitment, and the ability to compromise in collaborative projects. 		<u>11</u>	<u>9</u> <u>11</u>	<u>11-12.1</u> <u>11-12.1d</u> <u>11-12.2</u> <u>WS</u> <u>11-12.7</u> <u>11-12.6</u>	
3. Leaders and Teams: Roles and Responsibilities	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Determine the individual and team members' roles and responsibilities. b. Demonstrate leadership skills and qualities (i.e., reliability, negotiation skills, initiative, positive reinforcement, recognition of others' efforts, problem-solving skills, conflict resolution, and delegation). c. Explain the importance of technical, social, and communication skills to team success. d. Compare and contrast leadership styles and their effectiveness in various situations. e. Organize and delegate responsibilities in a team setting to encourage ideas, perspectives, and contributions from all team members. f. Develop a strong sense of team identity by brainstorming solutions, volunteering, assisting others, practicing respect and courtesy, and taking initiative. g. Examine situations in which a follower becomes the leader. h. Describe twenty-first-century skills required across all occupations. i. Identify and discuss the characteristics of a successful team (i.e., leadership, cooperation, and effective decision-making). j. Leverage social and cultural differences to increase innovation and quality of work. 		<u>7</u> <u>8</u> <u>9</u>	<u>3</u> <u>7</u> <u>8</u> <u>9</u> <u>11</u>	<u>SLS</u> <u>11-12.2</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>WS</u> <u>11-12.6</u>	<u>7a,c</u>
4. Legal, Ethical, and Environmental Considerations	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Demonstrate industry specific ethical and legal practices. b. Identify eco-friendly industry specific practices and resources. c. Identify local, state, and federal regulatory agencies, entities, laws, and regulations. d. Identify discrimination based on race, nationality, religion, gender, age, disability, or sexual orientation. e. Summarize the ethical and legal implications of workplace discrimination and harassment. 		<u>5</u> <u>7</u> <u>8</u> <u>12</u>	<u>3</u> <u>5</u> <u>7</u> <u>8</u> <u>9</u> <u>11</u>	<u>WS</u> <u>11-12.6</u> <u>11-12.7</u> <u>SLS</u> <u>9-10</u>	<u>2a,b</u> <u>3a,b</u> <u>5c</u> <u>6c</u>

<ul style="list-style-type: none"> f. Explain the concept of corporate citizenship. g. Examine an employer's role in protecting the health and welfare of employees, the community, and the environment. h. Analyze current environmental laws and regulations and their impact on industry. i. Compare and contrast both society's and industry's impact on the environment. 				11-12.1 11-12.1d 11-12.2	
5. Personal Growth and Career Planning	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Demonstrate continued personal development and growth. b. Develop and manage a personal growth and career plan. c. Explain the relationship between sound financial habits and financial security. d. Create and manage a personal financial plan. e. Demonstrate initiative in achieving personal and professional goals. f. Apply time management strategies to meet deadlines. g. Demonstrate a growth mindset through flexibility and a positive attitude. h. Select and demonstrate appropriate job-search and retention techniques. i. Demonstrate strategies to prepare for employment. j. Demonstrate interpersonal skills appropriate for the workplace. k. Elaborate on the importance of perseverance to personal and professional success. l. Discover personal career interests, aptitudes, and skills. 		<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>6</u>	<u>2</u> <u>3</u> <u>4</u> <u>7</u> <u>8</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>SLS</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u> <u>11-12.2</u> <u>WS</u> <u>11-12.6</u>	<u>1a</u> <u>3a,c</u> <u>4d</u> <u>6a,d</u> <u>7b</u>
6. Workplace Safety and Personal Wellness	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<ul style="list-style-type: none"> a. Demonstrate proper industry specific safe work practices to prevent injury or illness. b. Assess the potential impact of goal setting on personal and professional success. c. Describe the role of security and emergency procedures in workplace safety. d. Describe the effect of preventative measures on emergencies in the workplace. e. Identify and describe the causes, prevention, and treatment of common accidents. f. Identify local, state, and federal agencies that regulate workplace safety. g. Explain the role of the California Occupational Safety and Health Administration (Cal-OSHA) and the Environmental Protection Agency (EPA). h. Discuss the basics of system operations. i. Demonstrate the proper use of personal protective equipment (PPE). j. Explain the purpose of and accurately interpret a Safety Data Sheet (SDS). k. Identify hazardous materials and chemicals. l. Demonstrate proper procedures to respond to work-related accidents and injuries. m. Describe how ergonomics, housekeeping, and maintenance are related to accidents and injuries. n. Demonstrate cyber ethics, cyber safety, and cybersecurity. o. Assess the potential impact of preventative physical and mental health measures on workplace safety. 		<u>2</u> <u>5</u> <u>6</u> <u>8</u> <u>12</u>	<u>2</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>10</u> <u>11</u>	<u>LS</u> <u>9-10</u> <u>11-12.6</u> <u>WS</u> <u>11-12.7</u> <u>11-12.6</u> <u>SLS</u> <u>9-10</u> <u>11-12.1</u> <u>11-12.1d</u>	<u>1a,d</u> <u>2a,d</u> <u>5b</u>

Medical Core 2 Units of Instruction

7. Human anatomy and Physiology: An Overview	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<p>a. Demonstrate the primary and secondary survey following HOPS (history, observation, palpation, and stress tests).</p> <p>b. Identify and describe the structural characteristics, functions, and locations of epithelial, connective, muscle, and nervous tissue.</p> <p>c. Identify animal cell organelles.</p> <p>d. Identify organelle structure using micrographs from both Transmission and Scanning electron microscopes.</p> <p>e. Describe the function of all cell organelles.</p> <p>f. Assemble the correct amino acid sequence given a strand of DNA.</p> <p>g. Interpret the genetic code to determine amino acid sequence from mRNA codons.</p> <p>h. Identify every stage of the cell cycle.</p> <p>i. Illustrate all stages of Mitosis.</p> <p>j. Calculate the percentage of cells in each phase of the cell cycle.</p> <p>k. Use correct anatomical and medical terminology.</p> <p>l. Identify various factors that affect the rate of enzyme activity in living cells.</p> <p>m. Interpret pH, acidic and basic solutions, monitoring temperature, and activation energy.</p>	B4.1 B5.0 B5.1 B5.3 B5.5 B5.6 B8.4 B10.4 B10.5	1 2 4 5 6 11	1 2 4 5 6 11	LS 9-10 11-12.6 WS 11-12.6 11-12.7 RSTS 9-10 11-12.4	
8. Support & Movement: Integumentary System, Skeletal System, & Muscular System	CTE - PS	CRP	CTE - AS	CCSS	ISTE
<p>a. Demonstrate and describe each of the following: extension, flexion, abduction, adduction, dorsiflexion, plantarflexion, inversion, and eversion.</p> <p>b. Perform a primary patient assessment for a sports related injury.</p> <p>c. Describe the gross and microscopic structure of skin.</p> <p>d. Identify the epidermal and dermal layers of skin, hair follicles, hair, sweat glands, sebaceous glands, and subcutaneous tissue.</p> <p>e. Identify the components of osseous tissue.</p> <p>f. List the types of tissues found in bone and describe their specialized function.</p> <p>g. Classify bones according to their shape.</p> <p>h. Identify the parts of the long bone.</p> <p>i. Identify all bones of the skull.</p> <p>j. Classify joints based on structure and function.</p> <p>k. Identify the bones and markings of the axial and appendicular.</p> <p>l. Identify structures associated with synovial joints and their range of motion.</p> <p>m. Describe the differences between the fetal skull and adult skull.</p> <p>n. Describe the microscopic anatomy of skeletal muscle fibers.</p> <p>o. Explain the role of myofibrils and myofilaments.</p> <p>p. Identify structures associated with the neuromuscular junction.</p>	B2.0 B2.3 B2.4 B5.0 B5.1 B5.3 B5.5 B5.6 B7.0 B7.1 B7.2 B8.1 B8.4 B10.4 B10.5	1 2 4 5 6 11	1 2 4 5 6 11	LS 9-10 11-12.6 WS 11-12.6 11-12.7 RSTS 9-10 11-12.4	

<p>q. Describe the sequence of events of the skeletal muscle fiber action potential and the sliding filament mechanism of contraction.</p> <p>r. Distinguish between smooth and cardiac muscle tissue.</p> <p>s. Identify the three main types of muscle through microscopic examination.</p>					
<p>9. Integration & Coordination: Nervous System, The Senses, & Endocrine Systems</p>	<p>CTE - PS</p>	<p>CRP</p>	<p>CTE - AS</p>	<p>CCSS</p>	<p>ISTE</p>
<p>a. Demonstrate the effects of hyper and hypo secretions of various hormones and suggest remedies.</p> <p>b. Identify each of the endocrine glands, list the hormones produced, and describe their effects on target sites.</p> <p>c. Identify the organization and function of the sensory organs, and the nervous and endocrine systems.</p> <p>d. Describe how homeostasis is maintained by the body under changing conditions.</p> <p>e. Describe the structure of a neuron.</p> <p>f. Explain how electrochemical action potentials are propagated and transmitted throughout the nervous system.</p> <p>g. Describe the functional components of a reflex arc.</p> <p>h. Identify the major parts and functions of the brain and describe how it is protected.</p> <p>i. Identify major cranial and spinal nerves.</p> <p>j. Identify and describe the protective structures and anatomical features of the spinal cord.</p> <p>k. Describe the organization of the central, peripheral, sympathetic, and parasympathetic divisions of the nervous system.</p> <p>l. Identify structures of the eyeball and accessory structures.</p>	<p>B2.0 B2.3 B2.4 B5.0 B5.1 B5.3 B5.5 B5.6 B8.4 B10.4 B10.5</p>	<p><u>1</u> <u>2</u> <u>4</u> <u>5</u> <u>6</u> <u>11</u></p>	<p><u>1</u> <u>2</u> <u>4</u> <u>5</u> <u>6</u> <u>11</u></p>	<p>LS 9-10 11-12.6 WS 11-12.6 11-12.7 RSTS 9-10 11-12.4</p>	
<p>10. Transport: Blood, Cardiovascular System, Lymphatic System & Immunity</p>	<p>CTE - PS</p>	<p>CRP</p>	<p>CTE - AS</p>	<p>CCSS</p>	<p>ISTE</p>
<p>a. Demonstrate the proper use of a sphygmomanometer and stethoscope.</p> <p>b. Measure tidal air volume, expiratory reserve volume, inspiratory reserve volume, and functional residual volume.</p> <p>c. Identify blood cell type through the microscopic study of blood smears.</p> <p>d. Explain the genetics of the ABO blood system.</p> <p>e. Perform individual ABO blood typing.</p> <p>f. Explain the structure and function of blood vessels.</p> <p>g. Distinguish between systemic, pulmonary, and cardiac circulation.</p> <p>h. Identify all structures in the human heart and the major arteries and veins.</p> <p>i. Describe the significance of pulse and blood pressure.</p> <p>j. Identify the structures that control the heartbeat.</p> <p>k. Illustrate the stages of blood clotting.</p> <p>l. Analyze the relationship between exercise and the heart.</p> <p>m. Describe factors that lead to heart failure.</p>	<p>B2.0 B2.3 B2.4 B3.1 B4.4 B5.0 B5.1 B5.3 B5.5 B5.6 B8.4 B10.4 B10.5</p>	<p><u>1</u> <u>2</u> <u>4</u> <u>5</u> <u>6</u> <u>11</u></p>	<p><u>1</u> <u>2</u> <u>4</u> <u>5</u> <u>6</u> <u>11</u></p>	<p>LS 9-10 11-12.6 WS 11-12.6 11-12.7 RSTS 9-10 11-12.4</p>	

<p>n. Describe the mechanisms of the non-specific immune response, including the roles of mucous membranes, phagocytes, inflammatory response, and fever in protecting the body.</p> <p>o. Discuss the differences between Humoral immunity and Cell Mediated immunity.</p> <p>p. Distinguish between active and passive immunity.</p>					
<p>11. Absorption & Excretion: Digestive System, Respiratory System, Urinary System</p>	<p>CTE - PS</p>	<p>CRP</p>	<p>CTE - AS</p>	<p>CCSS</p>	<p>ISTE</p>
<p>a. Identify the organ, accessory organs, and anatomical features of the digestive system.</p> <p>b. Distinguish between pulmonary ventilation, external respiration, internal respiration, and cellular respiration.</p> <p>c. List the major organic compounds required by the body.</p> <p>d. Analyze chemical and mechanical digestion of food in every section of the alimentary canal.</p> <p>e. Identify tooth structure, type, and function in the digestive process.</p> <p>f. Describe the function of gastric juice.</p> <p>g. Explain chemical digestion and its role in the absorption of compounds in the small intestine.</p> <p>h. Explain the function of bile, digestive enzymes, and accessory digestive organs.</p> <p>i. Describe the process in which solid waste is formed and eliminated.</p> <p>j. Define metabolism and list several factors that influence metabolic rate.</p> <p>k. Identify the organs and anatomical features of the respiratory system.</p> <p>l. Illustrate and explain the function of the respiratory system.</p> <p>m. Determine lung capacity at rest and work.</p> <p>n. Identify the kidney and other urinary tract structures, anatomical features.</p> <p>o. Explain the functions of the excretory system.</p> <p>p. Identify all components of the nephron.</p> <p>q. Explain the physiological processes and structures involved in urine formation, filtration, re-absorption, and secretion.</p> <p>r. Identify and describe the components of urine.</p>	<p>B2.0</p> <p>B2.3</p> <p>B2.4</p> <p>B5.0</p> <p>B5.1</p> <p>B5.3</p> <p>B5.5</p> <p>B5.6</p> <p>B8.4</p> <p>B10.4</p> <p>B10.5</p>	<p><u>1</u></p> <p><u>2</u></p> <p><u>4</u></p> <p><u>5</u></p> <p><u>6</u></p> <p><u>11</u></p>	<p><u>1</u></p> <p><u>2</u></p> <p><u>4</u></p> <p><u>5</u></p> <p><u>6</u></p> <p><u>11</u></p>	<p>LS</p> <p>9-10</p> <p>11-12.6</p> <p>WS</p> <p>11-12.6</p> <p>11-12.7</p> <p>RSTS</p> <p>9-10</p> <p>11-12.4</p>	
<p>12. Life Cycle: Reproductive System, Pregnancy, Growth, Development, & Genetics</p>	<p>CTE - PS</p>	<p>CRP</p>	<p>CTE - AS</p>	<p>CCSS</p>	<p>ISTE</p>
<p>a. Identify and describe the structure, function, and location of male and female reproductive structures and accessory organs.</p> <p>b. Identify and explain the function of male and female reproductive hormones and their effects on the reproductive system.</p> <p>c. Explain how the formation process of sperm and eggs.</p> <p>d. Sequence the events in pregnancy.</p> <p>e. List and describe the stages of development from fertilization to birth.</p> <p>f. Describe the effects of aging on the reproductive systems of males and females.</p> <p>g. Describe the process and function of the menstrual cycle.</p> <p>h. Identify structures and membranes associate with the fetus.</p> <p>i. Describe the changes in the female body during pregnancy.</p> <p>j. Identify and describe the stages of labor.</p>	<p>B2.0</p> <p>B2.3</p> <p>B2.4</p> <p>B5.0</p> <p>B5.1</p> <p>B5.3</p> <p>B5.5</p> <p>B5.6</p>	<p><u>1</u></p> <p><u>2</u></p> <p><u>5</u></p> <p><u>6</u></p> <p><u>11</u></p>	<p><u>1</u></p> <p><u>2</u></p> <p><u>5</u></p> <p><u>6</u></p> <p><u>11</u></p>	<p>LS</p> <p>9-10</p> <p>11-12.6</p> <p>WS</p> <p>11-12.7</p> <p>RSTS</p> <p>9-10</p> <p>11-12.4</p>	

A-G Approved Key Assignments

1.	Students assemble the correct amino acid sequence given a strand of DNA. Every somatic cell contains an exact copy of an organism's DNA, which is used to build an organism's proteins. Students interpret the genetic code to determine amino acid sequence from mRNA codons. Students illustrate DNA/mRNA transcription in the nucleus and mRNA/tRNA translation at the ribosome to determine the correct amino acid sequence. <i>Assessment: Examination Unit(s) 7</i>
2.	Students identify various factors that affect the rate of enzyme activity in living cells. Students design an experiment to test factors that can affect the ability of the enzyme lipase to digest vegetable oil at varying temperature ranges and solutions of varying pH ranges. In their experiment, lab groups are to use the indicator phenol red as a method of detecting the process of fat digestion. This laboratory investigation reinforces the concepts of pH interpretation, acidic and basic solutions, monitoring temperature, and activation energy. <i>Assessment: Rubric Evaluation Unit(s) 7</i>
3.	This lab reinforces the biological concepts of diffusion and osmosis as two biological processes that allow cells to maintain homeostasis in the intracellular fluid and extracellular fluid. Students design experiments to investigate the relationship between solute concentration and the movement of molecules across semi-permeable membranes. Lab materials will include dialysis tubing, varying molarities of sucrose, and electric balances. If an electron balance is used, the percent change between initial and final masses must be calculated and graphed. <i>Assessment: Rubric Evaluation Unit(s) 7</i>
4.	Students describe the microscopic anatomy of skeletal muscle fibers and explain the role of myofibrils and myofilaments. Students identify structures associated with the neuromuscular junction and describe the sequence of events of the skeletal muscle fiber action potential and the sliding filament mechanism of contraction. Students distinguish between smooth and cardiac muscle tissue. Students examine prepared slides of muscle tissue. After sketching and labeling key features, students are given several unmarked slides. Students must determine the correct muscle tissue type based on their descriptions and observations made from the original slides, which were based on the structural differences between the three main types of muscle. <i>Assessment: Lab Practical, Examination, and Essay Unit(s) 8</i>
5.	Students will react to a given scenario that describes a knee injury. A young soccer player was running after the ball and came to a sudden stop while attempting to make a turn. The student determines that the scene is safe, and the general impression of this patient reveals a girl whose right knee is flexed and swollen. The student will perform a primary assessment using information from the scenario and will communicate with the victim, first responders, medical professionals, and parents using the appropriate terminology for each group. <i>Assessment: Performance Skills Rubric and Report Unit(s) 8</i>
6.	Students design an experiment to determine the distribution of two types of sensory receptors (Meissner's corpuscles, and Merkel disks) on various parts of the skin. Applications of force are limited to hands, arms, feet, face, and neck. Students utilize monofilaments that apply a force of 10 grams. Grids 2cm x 2cm are used for mapping. This lab investigation reinforces the gross and microscopic structures of thin and thick skin. <i>Assessment: Rubric Evaluation Unit(s) 8</i>
7.	Students design an experiment utilizing barbells, handgrips, or other types of sporting equipment to measure how a muscle performs after repeated use to determine the amount of tension generated by skeletal muscle during contraction and extension. The experiments include timed periods of work and timed periods of rest. This lab reinforces the concepts of skeletal muscle contraction and the physiology of neuromuscular junctions. <i>Assessment: Rubric Evaluation Unit(s) 8</i>
8.	Students put on the "doctor hat" and perform tests of the cranial nerve typically done during a physical examination on their lab partner. All observations are documented, and the identification of the cranial nerve responsible is recorded. Tests include the following activities: smiling, frowning, raising eyebrows, puffing cheeks, opening and closing the jaw, clenching the teeth, elevating and depressing shoulders, eye movement, pupillary responses, visual acuity, swallowing, Patellar reflex, and the Weber Test. <i>Assessment: Examination Unit(s) 9</i>

9.	Students will react to a given scenario focusing on head and spine injuries. A 50-year-old man has just been pulled from the river after he jumped 70 feet into the river from the bridge railing. The general impression is a conscious, thin, middle-aged man. The swift water rescue team has placed him on a long backboard. The student will perform a primary assessment using information from the scenario and will communicate with the victim, first responders, medical professionals, and bystanders using the appropriate terminology for each group. <i>Assessment: Performance Skills Rubric and Survey Report Unit(s) 9</i>
10.	Students design a lab to measure how fast the body responds to visual, auditory, and tactile stimuli. Students will have access to meter sticks calibrated in milliseconds, blindfolds, bells, and other materials. This lab investigation reinforces the pathway of neuronal action potential transmission generated in sensory receptors to the CNS and from the CNS to motor neurons and then to effector muscles. Students must describe a simple spinal reflex arc in their presentation. <i>Assessment: Rubric Evaluation Unit(s) 9</i>
11.	Students design an experiment to test how mild and vigorous exercise will affect their pulse rate. Their laboratory experiment must also include resting pulse rates, recovery pulse rates, and blood pressure measurements. Consistency and accuracy during repetitions must be verified. Students must be able to take accurate pulse rate measurements and blood pressure measurements using a sphygmomanometer and stethoscope. They practice taking blood pressure measurements prior to performing their lab. Students describe the relationship between changes in heart rate and blood pressure relative to changes in body position and work rate. Students determine the “fitness index” for an adult human. This lab reinforces concepts of blood flow through the heart systemic blood flow, and blood pressure. <i>Assessment: Rubric Evaluation Unit(s) 10</i>
12.	Students design and experiment to measure their own respiratory volume. Students use a wet spirometer with a disposable mouthpiece during their experiments. Volume capacity is measured at rest and at work. Experimental volume measurements should include tidal air volume, expiratory reserve volume, inspiratory reserve volume, and functional residual volume. This lab reinforces anatomical structures of the Respiratory System. <i>Assessment: Rubric Evaluation Unit(s) 10 & 11</i>
13.	Lab groups design and experiment for organic nutrient testing on a variety of foods, and then select one organic compound and describe how it is mechanically and chemically digested in all sections of the alimentary canal. A variety of food samples, indicator reagents, pH paper, and other materials should be available. This lab reinforces anatomical structures and physiological mechanism of digestion. <i>Assessment: Rubric Evaluation Unit(s) 11</i>
14.	Students will be given a scenario of a downed victim. Students will work in teams to access the scene, perform the primary survey, take action, and perform CPR. Each team will need to complete the appropriate survey documentation and be prepared to explain the results of the report to the patient and healthcare professional using terminology appropriate for the intended audience. <i>Assessment: Performance Skills Rubrics and Written Report Unit(s) 11</i>
15.	Using interactive software, models, and reproductive anatomy diagrams students will identify all female and male reproductive structures. <i>Assessment: Written Examination Unit(s) 12</i>

Standards Alignment

The curricula have been aligned with the CTE Model Curriculum Standards released in 2013. Each industry sector was updated to meet the increased rigor and relevancy requirements of the Common Core State Standards. The curriculum also includes the new Standards for Career Ready Practices.

Standards for Career Ready Practice

1. *Apply appropriate technical skills and academic knowledge.*
2. *Communicate clearly, effectively, and with reason.*
3. *Develop an education and career plan aligned with personal goals.*
4. *Apply technology to enhance productivity.*
5. *Utilize critical thinking to make sense of problems and persevere in solving them.*
6. *Practice personal health and understand financial literacy.*
7. *Act as a responsible citizen in the workplace and the community.*
8. *Model integrity, ethical leadership, and effective management.*
9. *Work productively in teams while integrating cultural and global competence.*
10. *Demonstrate creativity and innovation.*
11. *Employ valid and reliable research strategies.*
12. *Understand the environmental, social, and economic impacts of decisions.*

CTE Anchor Standards—Common Core English Language Arts Alignment

Anchor Standard 1: Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the industry sector alignment matrix for identification of standards. Note: alignment listed within each sector.

Anchor Standard 2: Communications

Language Standard: Acquire and accurately use general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the (career and college) readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. LS 9-10, 11-12.6

Anchor Standard 3: Career Planning and Management

Speaking and Listening Standard: Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SLS 11-12.2

Anchor Standard 4: Technology

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information.

Anchor Standard 5: Problem Solving and Critical Thinking

Writing Standard: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow, or broaden the inquiry when appropriate, and synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. WS 11-12.7

Anchor Standard 6: Health and Safety

Reading Standards for Science and Technical Subjects: Determine the meaning of symbols, keywords, and other domain-specific words and phrases as they are used in a specific scientific or technical context. RSTS 9-10, 11-12.4

Anchor Standard 7: Responsibility and Flexibility

Speaking and Listening Standard: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others' ideas and expressing their own clearly and persuasively. SLS 9-10, 11-12.1

Anchor Standard 8: Ethics and Legal Responsibilities

Speaking and Listening Standard: Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the work. SLS 11-12.1d

Anchor Standard 9: Leadership and Teamwork

Speaking and Listening Standard: Work with peers to promote civil, democratic discussions and decision making; set clear goals and deadlines; and establish individual roles as needed. SLS 11-12.1b

Anchor Standard 10: Technical Knowledge and Skills

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information. WS 11-12.6

Anchor Standard 11: Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the industry-sector anchor standards, pathway standards, and performance indicators in the classroom, laboratory, and workplace settings, and the career technical student organization. Note: no alignment evident for this standard. WS 11-12.6

CTE Model Curriculum Standards—Industry Sectors and Pathways

HSMT: Health Science and Medical Technology

B. Patient Care Pathway

- B2.0 Understand the basic structure and function of the human body and relate normal function to common disorders.*
- B2.3 Recognize common disease and disorders of the human body.*
- B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders.*
- B3.1 Apply mathematical computations related to health care procedures (metric and household, conversions, and measurements).*
- B4.1 Conduct basic interview to acquire new knowledge (e.g., medical and family histories).*
- B4.4 Collect and synthesize information or data about the patient's symptoms and vital signs.*
- B5.0 Know the definition, spelling, pronunciation, and use of appropriate terminology in the health care setting.*
- B5.1 Use medical terminology in patient care appropriate to communicate information and observations.*
- B5.3 Use roots, prefixes, and suffixes to communicate information.*
- B5.5 Know the basic structure of medical terms.*
- B5.6 Demonstrate the correct pronunciation of medical terms.*
- B7.0 Apply observation techniques to detect changes in the health status of patients.*
- B7.1 Demonstrate observation techniques.*
- B7.2 Differentiate between normal and abnormal patient health status.*
- B8.1 Explain the principles of body mechanics.*
- B8.4 Evaluate equipment for possible hazards.*
- B10.4 Demonstrate the use of appropriate personal protective equipment (PPE).*
- B10.5 Practice proper hand hygiene.*

ISTE Standards for Students

1. Empowered Learner- Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

a) Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them, and reflect on the learning process itself to improve learning outcomes.

b) Students build networks and customize their learning environments in ways that support the learning process.

c) Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways

d) Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

2. Digital Citizen- Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical.

a) Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

b) Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.

c) Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

d) Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

3. Knowledge Constructor- Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others.

a) Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

b) Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.

c) Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

d) Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories, and pursuing answers and solutions.

4. Innovative Designer- Students use a variety of technologies within a design process to identify and solve problems creating new, useful, or imaginative solutions.

a) Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts, or solving authentic problems.

b) Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

c) Students develop, test, and refine prototypes as part of a cyclical design process.

d) Students exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

5. Computational Thinker- Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

a) Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

b) Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

c) Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

d) Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

6. Creative Communicator- Students communicate clearly and express themselves creatively for a variety of purposes using platforms, tools, styles, formats, and digital media appropriate for their goals.

a) Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

b) Students create original works or responsibly repurpose or remix digital resources into new creations.

c) Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.

d) Students publish or present content that customizes the message and medium for their intended audiences.

7. Global Collaborator- Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

a) Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.

b) Students use collaborative technologies to work with others, including peers, experts, or community members, to examine issues and problems from multiple viewpoints.

c) Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

d) Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.