



## 2024 Health Science Core

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The Research and Curriculum Unit (RCU), located in Starkville, as part of Mississippi State University (MSU), was established to foster educational enhancements and innovations. In keeping with the land-grant mission of MSU, the RCU is dedicated to improving the quality of life for Mississippians. The RCU enhances the intellectual and professional development of Mississippi students and educators while applying knowledge and educational research to the lives of the people of the state. The RCU works within the contexts of curriculum development and revision, research, assessment, professional development, and industrial training.

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# Standards

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Standards and alignment crosswalks are referenced in the appendices. Depending on the curriculum, these crosswalks should identify alignment to the standards mentioned below, as well as possible related academic topics as required in the Subject Area Testing Program in Algebra I, Biology I, English II, and U.S. History from 1877, which could be integrated into the content of the units. Mississippi's CTE health science core curriculum is aligned to the following standards:

## **International Society for Technology in Education Standards (ISTE)**

Reprinted with permission from *ISTE Standards for Students* (2016). All rights reserved. Permission does not constitute an endorsement by ISTE ([iste.org](http://iste.org)).

## **College- and Career-Readiness Standards**

College- and career-readiness standards emphasize critical thinking, teamwork, and problem-solving skills. Students will learn the skills and abilities demanded by the workforce of today and the future. Mississippi adopted Mississippi College- and Career-Readiness Standards (MCCRS) to provide a consistent, clear understanding of what students are expected to learn and so teachers and parents know what they need to do to help them.

[mdek12.org/oae/college-and-career-readiness-standards](http://mdek12.org/oae/college-and-career-readiness-standards)

## **Framework for 21st Century Learning**

In defining 21st-century learning, the Partnership for 21st Century Skills has embraced key themes and skill areas that represent the essential knowledge for the 21st century: global awareness; financial, economic, business, and entrepreneurial literacy; civic literacy; health literacy; environmental literacy; learning and innovation skills; information, media, and technology skills; and life and career skills.

[battelleforkids.org/networks/p21/frameworks-resources](http://battelleforkids.org/networks/p21/frameworks-resources)

## Preface

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Secondary CTE programs in Mississippi face many challenges resulting from sweeping educational reforms at the national and state levels. Schools and teachers are increasingly being held accountable for providing applied learning activities to every student in the classroom. This accountability is measured through increased requirements for mastery and attainment of competency as documented through both formative and summative assessments. This document provides information, tools, and solutions that will aid students, teachers, and schools in creating and implementing applied, interactive, and innovative lessons. Through best practices, alignment with national standards and certifications, community partnerships, and a hands-on, student-centered concept, educators will be able to truly engage students in meaningful and collaborative learning opportunities.

The courses in this document reflect the statutory requirements as found in Section 37-3-49, *Mississippi Code of 1972*, as amended (Section 37-3-46). In addition, this curriculum reflects guidelines imposed by federal and state mandates (Laws, 1988, Ch. 487, §14; Laws, 1991, Ch. 423, §1; Laws, 1992, Ch. 519, §4 eff. from and after July 1, 1992; Strengthening Career and Technical Education for the 21st Century Act, 2019 [Perkins V]; and Every Student Succeeds Act, 2015).

# Mississippi Teacher Professional Resources

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The following are resources for Mississippi teachers:

Curriculum, Assessment, Professional Learning

Program resources can be found at the RCU's website, [rcu.msstate.edu](http://rcu.msstate.edu).

Learning Management System: An Online Resource

Learning management system information can be found at the RCU's website, under Professional Learning.

Should you need additional instructions, contact the RCU at 662.325.2510 or [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).



# Executive Summary

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## **Pathway Description**

Health science core is the first course for students in the health sciences career cluster. Currently, students in both the health care and clinical services or sports medicine pathways must take the health science core class before moving on to their specific pathway's material. This core class provides the students with a solid foundation to move ahead in any health care field of his or her choice. The topics covered include safety, infection control, legal and ethical practices, career exploration, communication and teamwork, medical terminology, body organization, and basic anatomy and physiology of each major body system, along with various common diseases and disorders associated with each system.

This course sets students on track to obtain a minimum of 100 hours of clinical-type experience by completion of the second course (HCCS). These hours can be documented in a digital or physical portfolio. It is recommended to spread these hours over the length of the program by giving students multiple opportunities to complete hours in the Health Science Core class. This clinical-type experience can include tours of healthcare facilities, guest speakers, participation in health fairs or health-related community service, laboratory and skills practice, classroom demonstrations, and observation or job shadowing experiences in various healthcare settings. Videos do not count toward this 100-hour requirement unless they are used in conjunction with hands-on training or classroom instruction. (e.g., CPR). This program also requires 35 of the 100 hours be recorded on the state-adopted digital portfolio platform. These 35 hours must meet the level four requirements detailed in the Mississippi Work-Based Learning Manual. The 35 hours are not in addition to the 100 program hours; rather, the 35 hours should be included in the 100 total hours required for program completion.

## **College, Career, and Certifications**

By implementing the standards set forth in the health science core curriculum, students who successfully master the material should have the necessary skills and fundamental knowledge to be successful in any health care career field. Students who complete this program will also have a great advantage in any postsecondary education he or she may choose. In addition, students whose programs meet additional criteria and approval by their respective agencies can earn certifications that could help them in the future or even allow them to work in a health care setting. Various certifications available include nurse assistant/aid, CPR, phlebotomist, pharmacy technician, patient care technician, and others.

## **Grade Level and Class Size Recommendations**

It is recommended that students enter this program as a freshman or sophomore. Exceptions to this are a district-level decision based on class size, enrollment numbers, and maturity of the student. Scheduling and/or operating more than one course in the same classroom/laboratory with the same teacher is not recommended. To enable the teacher to instruct students in skills on a one-on-one basis and to ensure all students have a good opportunity to job shadow/intern as much as possible, the recommended class size is no more than 12-15 students for both health science core and for the second course of their choice. Please be aware that health care facilities often require no more than a 10-to-1 student/teacher ratio to participate in job shadowing.

Having a class that is too large decreases the quality experience that the health science core curriculum is meant to be for the student.

### **Student Prerequisites**

For students to experience success in the program, the following student prerequisites are suggested:

1. C or higher in English (the previous year)
  2. C or higher in high school-level math (last course taken or the instructor can specify the level of math instruction needed)
  3. C or higher in Biology (or last science taken as approved by instructor)
  4. Instructor approval and Test of Adult Basic Education (TABE) reading score (eighth grade or higher)
- or**
1. TABE reading and math score (eighth grade or higher)
  2. Instructor approval
- or**
1. Instructor approval

### **Assessment**

The latest assessment blueprint for the curriculum can be found at [rcu.msstate.edu/curriculum](http://rcu.msstate.edu/curriculum).

### **Applied Academic Credit**

The latest academic credit information can be found at [mdek12.org/ese/approved-course-for-the-secondary-schools](http://mdek12.org/ese/approved-course-for-the-secondary-schools).

### **Teacher Licensure**

The latest teacher licensure information can be found at [mdek12.org/oel/apply-for-an-educator-license](http://mdek12.org/oel/apply-for-an-educator-license).

### **Professional Learning**

If you have specific questions about the content of any training sessions provided, please contact the RCU at 662.325.2510 or [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).

# Course Outlines

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## Option 1—Two 1-Carnegie-Unit Courses

This curriculum consists of two 1-credit courses, which should be completed in the following sequence:

1. **Health Science Core I—Course Code: 995102**
2. **Health Science Core II—Course Code: 995103**

### Course Description: Health Science Core I

The Health Science Core I course introduces students to the field of health science. Students will spend time researching and discovering the vast amount of career choices in health care, as well as be introduced to Health Occupations Students of America (HOSA), the student organization for health science. They will cover topics including safety, infection control, legal and ethical practices, and medical terminology. Health Science Core I will conclude with the basic anatomy and physiology of the integumentary system, along with common diseases and disorders that affect this system.

### Course Description: Health Science Core II

The Health Science Core II course continues with the basic anatomy and physiology of various body systems. These include the muscular, cardiovascular, respiratory, digestive, urinary, lymphatic, nervous, endocrine, and reproductive systems, along with sensory organs. Students will learn the signs, symptoms, treatments, and prevention methods of diseases/disorders associated with each system. The Health Science Core II class ends by preparing students for employment and for the next year of the program. Students will dive deeper into various careers of their choice and create a digital portfolio to be used for class and for career advancement.

### Health Science Core I—Course Code: 995102

Unit	Unit Title	Hours
1	Orientation and Introduction to Student Organizations	7
2	Safety in Healthcare	10
3	Career Preparation	12
4	Health Care Delivery Systems	8
5	Infection Awareness and Prevention	30
6	Legal and Ethical Practices in Health Care	14
7	Communication and Teamwork	12
8	Medical Terminology and Abbreviations	24
9	Body Organization	10
10	Integumentary System	13
<b>Total</b>		<b>140</b>

### Health Science Core II—Course Code: 995103

Unit	Unit Title	Hours
11	Skeletal System	18

12	Muscular System	20
13	Cardiovascular System	22
14	Respiratory System	13
15	Digestive System	15
16	Urinary System	12
17	Lymphatic System	5
18	Nervous System	12
19	Endocrine System	7
20	Sensory Organs	8
21	Reproductive System	8
<b>Total</b>		<b>140</b>

## Option 2—One 2-Carnegie Unit Course

This curriculum consists of one 2-credit course that should be completed.

### 1. Health Science Core—Course Code: 995100

**Course Description:** The Health Science Core course introduces students to the field of health science and gives a solid foundation in anatomy, physiology, and pathophysiology of common diseases and disorders in the major body systems. Students will spend time researching and discovering the vast amount of career choices in health care, as well as be introduced to HOSA. They will cover topics including safety, infection control, legal and ethical practices, and medical terminology. The course continues with the basic anatomy and physiology of various body systems. These include the integumentary, skeletal, muscular, cardiovascular, respiratory, digestive, urinary, lymphatic, nervous, endocrine, and reproductive systems, along with sensory organs. Students will learn the causes, signs, symptoms, treatments, and prevention methods of diseases/disorders associated with each system. The Health Science Core class ends by preparing students for employment and for the next year of the program. Students will dive deeper into various careers of their choice and create a portfolio to be used for class and for career advancement.

### Health Science Core—Course Code: 995100

Unit	Unit Title	Hours
1	Orientation and Introduction to Student Organizations	7
2	Safety in Healthcare	10
3	Career Preparation	12
4	Health Care Delivery Systems	8
5	Infection Awareness and Prevention	30
6	Legal and Ethical Practices in Health Care	14
7	Communication and Teamwork	12
8	Medical Terminology and Abbreviations	24
9	Body Organization	10
10	Integumentary System	13
11	Skeletal System	18
12	Muscular System	20
13	Cardiovascular System	22
14	Respiratory System	13
15	Digestive System	15
16	Urinary System	12
17	Lymphatic System	5
18	Nervous System	12
19	Endocrine System	7
20	Sensory Organs	8
21	Reproductive System	8
<b>Total</b>		<b>280</b>

# Career Pathway Outlook

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## Overview

The health science pathway covers the broad field of occupations related to health care and medicine. Health care is one of the top five fastest growing industries and one of the largest in the United States. The health sciences related fields such as nurse practitioner will generate up to 40% more new jobs in the coming years than any other industry according to the U.S. Bureau of Labor Statistics. In fact, 3 of the 20 fastest growing occupations in America are related to health care. Employment in home health care and nursing and residential care should increase rapidly as life expectancies rise and families need assistance caring for their elderly family members and thus rely more on long-term care facilities. New technologies will continue to enable earlier diagnoses of many diseases, which often increases the ability to treat conditions that were previously terminal. The health science pathway focuses on public health, health education, health care administration, or occupational health and safety. A shortlist of careers that this pathway focuses on contains positions like dietician, emergency medicine paramedic, licensed practitioner nurse (LPN), occupational therapist, physical therapist, pharmacist, physician assistant, and registered nurse (RN) among countless others. Health science professionals work in hospitals, dental offices and laboratories, governmental and private research centers. They also work within pharmaceutical and biotechnology companies, the community in general, within public agencies, and large health care organizations.

The health science pathway will target careers at the professional and technical levels in health care. Students enrolled in these courses should be well prepared to pursue degrees at the community college and four-year college level.

## Needs of the Future Workforce

Throughout 2022, the health care and social assistance national market added an average of 47,000 jobs per month and the pay increased by nearly 4.5% according to the U.S. Bureau of Labor Statistics. In Mississippi, the average employment growth total from 2020 to 2030, is projected to increase by 9.5% for all general occupations combined. The data given in Table 1.1 below, including the average hourly earnings, was compiled from the Mississippi Department of Employment Security in 2022.

Table 1.1: Current and Projected Occupation Report

<b>Description</b>	<b>Jobs, 2020</b>	<b>Projected Jobs, 2030</b>	<b>Change (Number)</b>	<b>Change (Percent)</b>	<b>Average Hourly Earnings, 2022</b>
Athletic Trainers	260	310	50	19.2%	\$24.07
Clinical Laboratory Technologists and Technicians	3,360	3,720	360	10.7%	\$21.84
Dentists (General)	690	740	50	7.2%	\$77.74
Diagnostic Medical Sonographers	680	800	120	17.6%	\$30.72
Dietitians and Nutritionists	730	850	120	16.4%	\$21.15

Emergency Medical Technicians and Paramedics	2,580	3,050	470	18.2%	\$20.09
Exercise Physiologists	2,360	2,600	240	10.2%	\$23.07
Family Medicine Physicians	940	1,100	160	17.0%	\$100.58
Home Health and Personal Care Aides	19,130	25,200	6,070	31.7%	\$10.77
Licensed Practical and Licensed Vocational Nurses	9,520	11,040	1,520	16%	\$19.97
Medical Assistants	3,660	4,480	820	22.4%	\$15.21
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians	3,440	3,860	420	12.2%	\$18.27
Nurse Practitioner	3,710	4,790	1,080	29.1%	\$53.73
Registered Nurses	29,270	33,220	3,950	13.5%	\$30.35
Nursing Assistants	12,840	15,350	2,510	19.5	\$12.35
Nursing Instructors and Teachers, Postsecondary	600	750	150	25%	\$36.09
Occupational Therapists	850	1,030	180	21.2%	\$42.03
Occupational Therapy Assistants	290	400	110	37.9%	\$28.93
Pharmacists	2,590	2,750	160	6.2%	\$57.33
Pharmacy Technicians	3,600	4,200	600	16.7%	\$16.57
Phlebotomists	1,170	1,420	250	21.4%	\$16.34
Physical Therapist Assistants	850	1,090	240	28.2%	\$26.35
Physical Therapists	1,580	1,940	360	22.8%	\$46.15
Physician Assistants	290	380	90	31%	\$35.85
Respiratory Therapists	1,460	1,780	320	21.9%	\$25.03
Speech-Language Pathologists	1,410	1,810	400	28.4%	\$33.38
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	1,960	2,300	340	17.3%	\$20.59
Veterinarian	640	760	120	18.8%	\$49.01
Veterinary Assistants and Laboratory Animal Caretakers	770	910	140	18.2%	\$12.09
Veterinary Technologists and Technicians	400	460	60	15%	\$13.61

*Source:* Mississippi Department of Employment Security; [mdes.ms.gov](http://mdes.ms.gov) (2022).

### **Perkins V Requirements and Academic Infusion**

The health science core curriculum meets Perkins V requirements of introducing students to and preparing them for high-skill, high-wage occupations in health care fields. It also offers students a program of study, including secondary, postsecondary, and institutions of higher learning courses, that will further prepare them for health care careers. Additionally, this curriculum is integrated with academic college- and career-readiness standards. Lastly, it focuses on ongoing and meaningful professional development for teachers as well as relationships with industry.

### **Transition to Postsecondary Education**

The latest articulation information for secondary to postsecondary can be found at the Mississippi Community College Board website, [mccb.edu](http://mccb.edu).



## **Best Practices**

### *Innovative Instructional Technologies*

Classrooms should be equipped with tools that will teach today's digital learners through applicable and modern practices. The health science core educator's goal should be to include teaching strategies that incorporate current technology. To make use of the latest online communication tools—wikis, blogs, podcasts, and social media platforms, for example—the classroom teacher is encouraged to use a learning management system that introduces students to education in an online environment and places more of the responsibility of learning on the student.

### *Differentiated Instruction*

Students learn in a variety of ways, and numerous factors—students' background, emotional health, and circumstances, for example—create unique learners. By providing various teaching and assessment strategies, students with various learning preferences can have more opportunities to succeed.

### *CTE Student Organizations*

Teachers should investigate opportunities to sponsor a student organization. In MS, HOSA is the premier organization that fosters the types of learning expected from the health science core curriculum, with multiple opportunities and outlets for health. HOSA provides participants and members with growth opportunities, competitive events, and opens the door to the world of health care careers and scholarship opportunities.

### *Cooperative Learning*

Cooperative learning can help students understand topics when independent learning cannot. Therefore, you will see several opportunities in the health science core curriculum for group work. To function in today's workforce, students need to be able to work collaboratively with others and solve problems without excessive conflict. The health science core curriculum provides opportunities for students to work together and help each other complete complex tasks. There are many field experiences within the health science core curriculum that will allow and encourage collaboration with professionals currently in the health care field.

### *Work-Based Learning*

Work-based learning is an extension of understanding competencies taught in the health science classroom. The health science program requires students to obtain a minimum of 35 clinical-type hours, which may include but is not limited to, clinicals or worksite field experiences, entrepreneurships, internships, pre-apprenticeships, school-based enterprises, job placements, and simulated worksites. These real-world connections and applications provide a link to all types of students regarding knowledge, skills, and professional dispositions. Thus, supervised collaboration and immersion into the health science industry are keys to students' success, knowledge, and skills development. For more information on embedded WBL, visit the Mississippi Work-Based Learning Manual on the RCU website, [rcu.msstate.edu](http://rcu.msstate.edu).

# Professional Organizations

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Association of Career and Technical Education  
[actonline.org](http://actonline.org)

International Society for Technology in Education  
[iste.org](http://iste.org)

## **National Organizations**

American Association for Respiratory Care  
[aarc.org](http://aarc.org)

American Cancer Society (MS Office)  
[cancer.org](http://cancer.org)

American Dental Assistants Association  
[dentalassistant.org](http://dentalassistant.org)

American Dental Association  
[ada.org](http://ada.org)

American Health Care Association  
[ahca.org](http://ahca.org)

American Heart Association (MS Offices)  
[heart.org](http://heart.org)

American Hospital Association  
[aha.org](http://aha.org)

American Medical Association  
[ama-assn.org](http://ama-assn.org)

American Red Cross National Headquarters  
[redcross.org](http://redcross.org)

American Society of Radiologic Technologists  
[asrt.org](http://asrt.org)

American Health Information Management Association  
[ahima.org](http://ahima.org)

American Nurses Association  
[nursingworld.org](http://nursingworld.org)

American Speech-Language-Hearing Association

[asha.org](http://asha.org)

American School Health Association

[ashaweb.org](http://ashaweb.org)

American Association for Men in Nursing

[aamn.org](http://aamn.org)

Association of Allied Health Programs

[www.asahp.org](http://www.asahp.org)

Association for Healthcare Documentation Integrity

[ahdionline.org](http://ahdionline.org)

Association for Professionals in Infection Control and Epidemiology

[apic.org](http://apic.org)

Center for Health and Health Care in Schools

[healthinschools.org](http://healthinschools.org)

Health Professions Network

[healthpronet.org](http://healthpronet.org)

Hospital Corporation of America

[hcahealthcare.com](http://hcahealthcare.com)

National Association of Emergency Medical Technicians

[naemt.org](http://naemt.org)

National Athletic Trainer's Association

[nata.org](http://nata.org)

National Health Council

[nationalhealthcouncil.org](http://nationalhealthcouncil.org)

Ovarian Cancer National Alliance

[ovariancancer.org](http://ovariancancer.org)

Society of Nuclear Medicine & Molecular Imaging

[snmmi.org](http://snmmi.org)

### **State Level Organizations**

Mississippi Nurses Association

[msnurses.org](http://msnurses.org)

The Diabetes Foundation of Mississippi

[msdiabetes.org](http://msdiabetes.org)

Mississippi Office of Healthy Schools—A Division of MDE  
[healthisacademic.org](http://healthisacademic.org)

American Lung Association  
[lung.org](http://lung.org)

**Specific Groups**

Nurses for a Healthier Tomorrow - Career information  
[nursesource.org](http://nursesource.org)

Nurse.com - Online CE source for nurses  
[nurse.com](http://nurse.com)

# Using This Document

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## **Competencies and Suggested Objectives**

A competency represents a general concept or performance that students are expected to master as a requirement for satisfactorily completing a unit. Students will be expected to receive instruction on all competencies. The suggested objectives represent the enabling and supporting knowledge and performances that will indicate mastery of the competency at the course level.

## **Teacher Resources**

All teachers should request to be added to the Canvas Resource Guide for their course. For questions or to be added to the guide, send a Help Desk ticket to the RCU by emailing [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).

## **Perkins V Quality Indicators and Enrichment Material**

Some of the units may include an enrichment section at the end. This material will greatly enhance the learning experiences of students. If the health science program is using a national certification, work-based learning, or another measure of accountability that aligns with Perkins V as a quality indicator, this material could very well be assessed on that quality indicator. It is the responsibility of the teacher to ensure all competencies for the selected quality indicator are covered throughout the year.

# Unit 1: Orientation and Introduction to Student Organizations

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<b>Competencies and Suggested Objectives</b>
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- |   |
|---|
| <ol style="list-style-type: none"><li>1. Describe the purpose of the course and related student organizations. <sup>DOK1</sup><ol style="list-style-type: none"><li>a. Identify student and course expectations.</li><li>b. Explore the health science student organization, HOSA.<ul style="list-style-type: none"><li>• Describe parliamentary procedures.</li><li>• Discuss officer roles and responsibilities.</li></ul></li><li>c. Discuss leadership and personal development in accordance with HOSA guidelines.</li></ol></li></ol> |
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## Unit 2: Safety in Health Care

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<b>Competencies and Suggested Objectives</b>	
1. Demonstrate personal and environmental safety practices. <sup>DOK2</sup>	
a. Apply principles of body mechanics.	
b. Based on regulations set by the Occupational Safety and Health Association (OSHA) and the Center for Disease Control and Prevention (CDC), apply safety techniques (personal and patient) in the health care setting to prevent accidents and injuries.	
2. Identify common safety hazards. <sup>DOK2</sup>	
a. Comply with safety signs, symbols, and labels in accordance with OSHA and the CDC.	
b. Recognize Safety Data Sheets (SDS) and discuss safety implications of handling hazardous materials (checking labels and checking solutions).	
3. Utilize emergency procedures and protocols. <sup>DOK3</sup>	
a. Practice fire safety and discuss fire evacuation plans in a health care setting. Include the following:	
• PASS – Pull, Aim, Squeeze, Sweep	
• RACE – Rescue, Activate, Contain, Extinguish/Evacuate	
b. Apply principles of basic emergency response in natural disasters and other emergencies to include:	
• Safe location	
• Contact emergency personnel	
• Follow facility protocols	

**Note:** Safety is to be taught as an ongoing part of the program. Students are required to complete a written safety test with 100% accuracy before entering the lab for simulations and projects. This test should be documented in each student's file.

**Note:** This unit will be ongoing throughout the year. Time allotted for this unit will be distributed over the entire year.

## Unit 3: Career Preparation

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<b>Competencies and Suggested Objectives</b>
1. Explore various careers in the health care field. <sup>DOK2</sup> <ol style="list-style-type: none"><li>Choose at least three specific careers from the list created in Unit 4.1.</li><li>Research the educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information of each one.</li><li>Based on research, develop a presentation explaining the three careers and why they were chosen.</li></ol>
2. Utilize the approved method of clinical hour documentation (e.g., AET or other state approved method of documentation). <sup>DOK2</sup>
3. Explore the various career options in the health care field. <sup>DOK1</sup> <ol style="list-style-type: none"><li>Research and list various career options.<ul style="list-style-type: none"><li>Emergency services</li><li>Respiratory care</li><li>Human growth and development</li><li>Sports medicine</li><li>Rehabilitative services</li><li>Medical services</li><li>Nursing services</li><li>Nutrition and dietetics</li><li>Mental health</li><li>Pharmacology</li><li>Laboratory services</li><li>Medical imaging</li><li>Health information management</li></ul></li></ol>
4. Relate the importance of lifelong learning to career success. <sup>DOK2</sup> <ol style="list-style-type: none"><li>Consider emergent technology (e.g., artificial intelligence, automation, telehealth, robotics, etc.).</li><li>Develop an oral and/or written report explaining the importance of lifelong learning in maintaining career relevance and advancement.</li></ol>

<b>Enrichment</b>
1. Conduct practice interviews or answer a list of possible interview questions.
2. Conduct a personality test or review previous results to facilitate discussion of individualized careers.



## Unit 4: Health Care Delivery Systems

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### Competencies and Suggested Objectives

1. Research and discuss health care delivery systems and health organizations. <sup>DOK1</sup>
  - a. Differentiate between health care delivery systems, including nonprofit and for-profit facilities.
    - Hospitals
    - Ambulatory/outpatient clinics
    - Long-term care
    - Home health
    - Medical and dental offices
    - Behavioral and mental health services
    - Public health
  - b. Identify health organizations and their respective roles.
    - Government:
      - Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), U.S. Food and Drug Administration (FDA), National Institute of Health (NIH), Centers for Medicare and Medicaid Services (CMS), U.S. Public Health Service (USPHS), U.S. Department of Veteran’s Affairs (VA)
    - Nonprofit organizations:
      - March of Dimes, American Heart Association, American Diabetes Association, American Red Cross, Alzheimer’s Association, American Lung Association
    - Global:
      - World Health Organization (WHO)
2. Relate the importance of lifelong learning to career success. <sup>DOK3</sup>
  - a. Considering 21st-century emergent technology (e.g., artificial intelligence, automation, telehealth, robotics, etc.).
  - b. Develop an oral and/or written report explaining the importance of lifelong learning in maintaining career relevance and advancement.

**Note:** Safety is to be taught as an ongoing part of the program. Students are required to complete a written safety test with 100% accuracy before entering the lab for simulations and projects. This test should be documented in each student’s file.

## Unit 5: Infection Awareness and Prevention

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### Competencies and Suggested Objectives

1. Explain the principles of infection control. <sup>DOK1</sup>
  - a. Research and explain:
    - Chain of infection
    - Mode of transmission: direct, indirect, vectors, common vehicle (air, food, water), health care associated infections (nosocomial), opportunistic.
    - Types of infections: endogenous, exogenous
    - Microorganisms: nonpathogenic, pathogenic, aerobic, anaerobic
  - b. Classify the following microorganisms and diseases:
    - Bacterial:
      - Meningitis
      - Methicillin-resistant staphylococcus
      - Pertussis
      - Pneumonia
      - Strep throat
      - Tetanus
      - Tuberculosis
    - Fungal:
      - Athlete's foot
      - Histoplasmosis
      - Ring Worm
      - Thrush
      - Yeast vaginitis
    - Parasites (Helminths):
      - Hook worms or flukes
      - Pin worms
      - Tape worms
    - Parasites (Rickettsia):
      - Rocky Mountain spotted fever
      - Typhus fever
    - Protozoa:
      - Amebic dysentery
      - Malaria
    - Viruses:
      - Chicken pox
      - Covid 19
      - Common cold
      - Hepatitis (A, B, C)
      - Herpes
      - HIV
      - Influenza (seasonal, H1N1, H5N1)
      - Measles

<ul style="list-style-type: none"> <li>○ Mumps</li> <li>○ Polio</li> <li>○ RSV</li> <li>○ Warts</li> <li>○ West Nile virus (WNV)</li> </ul> <p>c. Identify the levels of aseptic control.</p> <ul style="list-style-type: none"> <li>● Antisepsis</li> <li>● Disinfection</li> <li>● Sterilization</li> </ul> <p>d. Demonstrate the proper procedure for aseptic hand washing according to the CDC.</p>
<p>2. Explain standard precaution based on OSHA and CDC regulations. <sup>DOK3</sup></p> <p>a. Describe OSHA’s blood-borne pathogen standards.</p> <p>b. Explore employer requirements according to the Needle Stick Safety and Prevention Act.</p> <p>c. Demonstrate the basic rules of standard precaution.</p>
<p>3. Utilize the principles of sterile technique. <sup>DOK3</sup></p> <p>a. Demonstrate skills related to sterile technique.</p> <ul style="list-style-type: none"> <li>● Donning sterile gloves</li> <li>● Sterile dressing</li> <li>● Maintaining a sterile field</li> <li>● Wrapping instruments for sterilization</li> </ul>
<p>4. Explain the importance of maintaining transmission-based isolation precautions. <sup>DOK3</sup></p> <p>a. Identify and explain the types of isolation precautions needed to prevent the spread of communicable diseases (mentioned in 1.b.).</p> <ul style="list-style-type: none"> <li>● Airborne</li> <li>● Droplet</li> <li>● Contact</li> <li>● Reverse/protective</li> </ul> <p>b. Demonstrate the proper procedure, according to the CDC, for donning and doffing personal protective equipment (PPE).</p> <ul style="list-style-type: none"> <li>● Gowns</li> <li>● Masks</li> <li>● Goggles</li> <li>● Gloves</li> </ul>
<p>5. Research the impact of emerging technology on infection control. <sup>DOK3</sup></p>

<p><b>Enrichment</b></p>
<p>1. Discuss other prevalent or interesting diseases/infections, including:</p> <ul style="list-style-type: none"> <li>● Ebola/Marburg</li> <li>● Zika virus</li> <li>● Lyme disease</li> </ul> <p>2. Research and describe the following vaccinations and diseases they prevent:</p> <ul style="list-style-type: none"> <li>● Covid 19</li> <li>● DTaP</li> </ul>

- Hep B
- HPV
- Influenza
- Meningitis
- MMR
- Monkey Pox
- Polio
- Shingles
- Smallpox
- Varicella

3. Based on the research on vaccinations, facilitate a student led debate on the importance of vaccinations.
4. Investigate and apply the principles in the junior disease detective guide. (*See link to guide in teacher resource guide.*)

**Note:** Safety is to be taught as an ongoing part of the program. Students are required to complete a written safety test with 100% accuracy before entering the lab for simulations and projects. This test should be documented in each student's file.

**Note:** This unit will be ongoing throughout the year. Time allotted for this unit will be distributed over the entire year.

## Unit 6: Legal and Ethical Practices in Health Care

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<b>Competencies and Suggested Objectives</b>
1. Analyze legal responsibilities and implications of criminal and civil law. <sup>DOK1</sup> <ol style="list-style-type: none"><li>Define and discuss torts in relation to health care.<ul style="list-style-type: none"><li>Malpractice</li><li>Negligence</li><li>Assault and battery</li><li>Invasion of privacy</li><li>Abuse</li><li>Defamation of character (libel, slander)</li><li>False imprisonment</li></ul></li></ol>
2. Describe and demonstrate legal practices associated with health care. <sup>DOK2</sup> <ol style="list-style-type: none"><li>Apply the standards for safety, privacy, and confidentiality of health information, including topics such as the Health Insurance Portability and Accountability Act and privileged communications.</li><li>Describe advance directives, including topics such as living wills and durable power of attorney.</li><li>Define types of consent/contracts, including informed consent, implied contracts, and expressed contracts.</li><li>Research and discuss the meaning of scope of practice.</li></ol>
3. Utilize procedures for reporting activities and behaviors that affect the health, safety, and the welfare of others. <sup>DOK2</sup> <ol style="list-style-type: none"><li>Discuss the chain of command for reporting issues.</li><li>Complete an incident report.</li></ol>
4. Recognize and discuss ethical boundaries within the health care environment. <sup>DOK3</sup> <ol style="list-style-type: none"><li>Differentiate between ethical and legal issues impacting health care.</li><li>Identify and explain ethical dilemmas associated with organ donation, invitro fertilization, euthanasia, stem cell research, and vaccinations.</li></ol>
5. Identify cultural, social, and ethnic diversity within the health care environment. <sup>DOK3</sup> <ol style="list-style-type: none"><li>Compare religious, spiritual, and cultural—including ethnicity, race, religion, and gender—values as they impact health care.</li><li>Within a role-play situation, demonstrate respectful and empathetic treatment of all patients and clients.</li></ol>

<b>Enrichment</b>
1. Use with Competency 2: <ol style="list-style-type: none"><li>Summarize the American Hospital Association’s Patient Care Partnership (for acute care, formerly known as Patient’s Bill of Rights) and the Resident’s Bill of Rights (for long-term care).</li><li>Discuss scenarios and laws concerning various types of harassment/violence in the workplace.</li></ol>
2. Use with Competency 4:

- a. After completing each objective, facilitate a student led debate on one or multiple of the topics listed in the competency.

## Unit 7: Communication and Teamwork

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<b>Competencies and Suggested Objectives</b>	
1. Describe the concepts of effective communication. <sup>DOK2</sup>	
a. Interpret verbal and nonverbal communication.	
b. Recognize barriers to communication, including physical disabilities (aphasia, hearing loss, impaired vision), psychological barriers (attitudes, bias, prejudice, stereotypes), language barriers.	
c. Differentiate subjective and objective information.	
d. Recognize the elements of communication using a sender-receiver model.	
e. Demonstrate speaking and active listening skills.	
f. Demonstrate elements of proper written and electronic communication (e.g., spelling, grammar, and formatting).	
2. Compare the roles and responsibilities of individual members as part of the health care team. <sup>DOK2</sup>	
a. Describe roles and responsibilities of team members.	
• Examples of health care teams in a hospital and clinic setting.	
• Responsibilities of team members	
• Benefits of teamwork	
b. Recognize and demonstrate characteristics of effective teams.	
• Active participation	
• Cultural humility	
• Reliability	
• Civility	
• Flexibility	
• Trust	
• Commitment	
• Open to feedback	
• Collaboration	
• Positive attitude	
3. Explain the principles of interacting effectively and sensitively with all members of the health care team. <sup>DOK3</sup>	
a. Recognize methods for building positive team relationships, including mentorships and teambuilding.	
b. Analyze attributes and attitudes of an effective leader.	
• Characteristics: interpersonal skills, focused on results, positive	
• Types: autocratic, democratic, laissez-faire	
• Roles: sets vision, leads change, manages accountability	
c. Apply effective techniques for managing team conflict.	
• Negotiation	
• Clear expectations	
• Assertive communication	
• Mediation	
• Gather the facts	

## Unit 8: Medical Terminology and Abbreviations

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<b>Competencies and Suggested Objectives</b>
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| <ol style="list-style-type: none"><li>1. Introduce appropriate medical terminology and abbreviations as found in Appendix C. <sup>DOK1</sup><ol style="list-style-type: none"><li>a. Use roots, prefixes, and suffixes to communicate information.</li><li>b. Use medical abbreviations to communicate information.</li></ol></li></ol> |
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<b>Note:</b> This unit will be ongoing throughout the year. Time allotted for this unit will be distributed over the entire year.
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## Unit 9: Body Organization

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<b>Competencies and Suggested Objectives</b>
<p>1. Describe the basic organization of the body. <sup>DOK1</sup></p> <p>a. Identify the basic levels of organization of the human body.</p> <ul style="list-style-type: none"><li>• Chemical</li><li>• Cellular</li><li>• Tissue</li><li>• Organs</li><li>• Systems</li><li>• Organism</li></ul>
<p>2. Discuss the tissue organization of the body. <sup>DOK1</sup></p> <p>a. Identify the four major categories of tissues and their respective locations, structures, and basic functions.</p> <ul style="list-style-type: none"><li>• Nerve</li><li>• Epithelium</li><li>• Muscle (cardiac, smooth, skeletal)</li><li>• Connective (ligaments, tendons, fascia)</li></ul>
<p>3. Identify the body planes, directional terms, cavities, quadrants, and regions. <sup>DOK1</sup></p> <p>a. Body planes: sagittal, midsagittal, coronal/frontal, transverse/horizontal</p> <p>b. Directional terms: superior, inferior, anterior/ventral, posterior/dorsal, medial, lateral, proximal, distal, superficial, deep, cephalic, caudal</p> <p>c. Cavities: dorsal, cranial, nasal, oral, orbital, spinal, thoracic, abdominal, pelvic</p> <p>d. Quadrants: upper right, lower right, upper left, lower left</p> <p>e. Regions: Right/left hypochondriac, right/left lumbar, right/left iliac, epigastric, umbilical, hypogastric</p>

# Unit 10: Integumentary System

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<b>Competencies and Suggested Objectives</b>
<p>1. Discuss the structures and functions of the integumentary system. <sup>DOK1</sup></p> <p>a. Identify the parts comprising the integumentary system and their respective functions.</p> <ul style="list-style-type: none"><li>• Layers: epidermis, dermis, subcutaneous</li><li>• Structures: sudoriferous glands, sebaceous glands, hair follicles, hair shaft</li><li>• Functions: protection, sensory perception, temperature regulation (vasodilation, vasoconstriction), storage, absorption, excretion, production</li></ul> <p>b. Define and discuss pigmentation and related topics.</p> <ul style="list-style-type: none"><li>• Melanin</li><li>• Carotene</li><li>• Albino</li></ul> <p>c. Define and discuss skin discoloration and related topics:</p> <ul style="list-style-type: none"><li>• Erythema</li><li>• Jaundice</li><li>• Cyanosis</li></ul>
<p>2. Explain diseases and disorders of the integumentary system and related signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup></p> <p>a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the integumentary system.</p> <ul style="list-style-type: none"><li>• Acne vulgaris</li><li>• Athlete's foot</li><li>• Basal cell carcinoma</li><li>• Dermatitis</li><li>• Eczema</li><li>• Impetigo</li><li>• Melanoma</li><li>• Psoriasis</li><li>• Ringworm</li><li>• Squamous cell carcinoma</li><li>• Verrucae</li></ul> <p>b. Describe various skin eruptions.</p> <ul style="list-style-type: none"><li>• Crusts</li><li>• Cysts</li><li>• Macules</li><li>• Papules</li><li>• Pustules</li><li>• Ulcers</li><li>• Vesicles</li><li>• Wheals</li></ul>
<p>3. Research the impact of emerging technology on the integumentary system. <sup>DOK3</sup></p>

# Unit 11: Skeletal System

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## Competencies and Suggested Objectives

1. Compare the structures and functions of the skeletal system with its relationship to movement. <sup>DOK1</sup>
  - a. Identify the axial and appendicular bones.
  - b. Identify the parts of a bone.
    - Diaphysis
    - Endosteum
    - Epiphysis
    - Medullary canal
    - Periosteum
    - Red marrow
    - Yellow marrow
  - c. Explain the functions of the skeletal system.
    - Framework
    - Protection
    - Levers
    - Production of blood cells
    - Storage
  - d. Identify the types of joints and their related movements.
    - Diarthrosis or synovial
    - Amphiarthrosis
    - Synarthrosis
2. Discuss diseases and disorders of the skeletal system and related signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with skeletal diseases, disorders, and injuries.
    - Bursitis
    - Osteomyelitis
    - Osteoporosis
    - Osteoarthritis
    - Rheumatoid arthritis
    - Sprain
    - Ruptured disk
    - Dislocation
    - Spinal curvatures: scoliosis, lordosis, and kyphosis
    - Fractures: stress, comminuted, compound or open, simple or closed, depressed, green stick, impacted, spiral
3. Research the impact of emerging technology on the skeletal system. <sup>DOK3</sup>

# Unit 12: Muscular System

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## Competencies and Suggested Objectives

1. Compare the structures and functions of the muscular system with its relationship to movement. <sup>DOK1</sup>
  - a. Identify the three types of muscle.
    - Cardiac
    - Visceral/smooth
    - Skeletal
  - b. Define the characteristics of skeletal muscle.
    - Excitability
    - Contractibility
    - Extensibility
    - Elasticity
  - c. Identify major skeletal muscles.
    - Biceps brachii
    - Deltoid
    - Gastrocnemius
    - Gluteus maximus
    - Intercostals
    - Latissimus dorsi
    - Pectoralis major
    - Quadriceps femoris
    - Rectus abdominis
    - Sartorius
    - Sternocleidomastoid
    - Tibialis anterior
    - Trapezius
    - Triceps brachii
  - d. Explain the function of the muscles.
    - Movement
    - Produce heat and energy
    - Maintain Posture
    - Protect internal organs
  - e. Demonstrate active/passive range of motion, including adduction, abduction, flexion, extension, rotation, and circumduction.
2. Discuss diseases, disorders, and injury of the muscular system and related signs, symptoms, and treatment methods. <sup>DOK2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with muscular diseases and disorders.
    - Fibromyalgia
    - Muscle spasms
    - Muscular dystrophy

- Myasthenia gravis
- Strain

3. Research the impact of emerging technology on the muscular system. <sup>DOK3</sup>

# Unit 13: Cardiovascular System

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## Competencies and Suggested Objectives

1. Identify and discuss the structures and functions of the cardiovascular system and their role in maintaining homeostasis. <sup>DOK1</sup>
  - a. Identify the components of blood and their respective functions.
    - Plasma
    - Erythrocytes
    - Hemoglobin
    - Leukocytes
    - Thrombocytes
  - b. Identify the type of blood vessels and the action of each.
    - Aorta
    - Arteries
    - Arterioles
    - Capillaries
    - Inferior vena cava
    - Pulmonary artery
    - Pulmonary veins
    - Superior vena cava
    - Veins
    - Venules
  - c. Identify the anatomy of the heart.
    - Layers: endocardium, myocardium, pericardium/epicardium
    - Structures: septum, right/left atriums, right/left ventricles, tricuspid valve, pulmonary valve, bicuspid/mitral valve, aortic valve
  - d. Describe the electrical conduction pathway.
    - SA node
    - AV node
    - Bundle of HIS
    - Right and left bundle branches
    - Purkinje Fibers
  - e. Describe the pathway of pulmonary and systemic circulation.
  - f. Define systole and diastole.
2. Discuss diseases and disorders of the cardiovascular system and related signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with cardiovascular diseases and disorders.
    - Arteriosclerosis
    - Atherosclerosis
    - Congestive heart failure
    - Hypertension
    - Iron deficiency anemia

- Leukemia
- Myocardial infarction
- Sickle cell anemia

3. Research the impact of emerging technology on the cardiovascular system. <sup>DOK3</sup>

# Unit 14: Respiratory System

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<b>Competencies and Suggested Objectives</b>
<p>1. Describe the structures and functions of the respiratory system. <sup>DOK2</sup></p> <ul style="list-style-type: none"><li>a. Define inspiration and expiration.</li><li>b. Identify the structures of the respiratory system and their respective functions.<ul style="list-style-type: none"><li>• Alveoli</li><li>• Bronchi</li><li>• Bronchioles</li><li>• Epiglottis</li><li>• Larynx</li><li>• Lungs</li><li>• Nasal cavity</li><li>• Nasal septum</li><li>• Nose</li><li>• Pharynx</li><li>• Pleura</li><li>• Sinuses</li><li>• Trachea</li></ul></li><li>c. Differentiate among internal, external, and cellular respiration.</li></ul>
<p>2. Discuss diseases and disorders of the respiratory system and related signs, symptoms, and treatment methods. <sup>DOK2</sup></p> <ul style="list-style-type: none"><li>a. Identify the general signs, symptoms, treatment, and prevention methods associated with respiratory diseases and disorders.<ul style="list-style-type: none"><li>• Asthma</li><li>• Bronchitis</li><li>• COPD</li><li>• Covid 19</li><li>• Emphysema</li><li>• Influenza</li><li>• Lung cancer</li><li>• Pneumonia</li><li>• Sleep apnea</li><li>• Tuberculosis</li></ul></li></ul>
<p>3. Research the impact of emerging technology on the respiratory system. <sup>DOK3</sup></p>



# Unit 15: Digestive System

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## Competencies and Suggested Objectives

1. Describe the structures and functions of the digestive system. <sup>DOK1</sup>
  - a. Describe the structures comprising the alimentary canal and their respective functions regarding the digestive process (pathway of food, digestion, nutrient absorption).
    - Mouth: teeth, tongue, hard palate, soft palate
    - Pharynx
    - Esophagus
    - Cardiac/esophageal sphincter
    - Stomach (include rugae)
    - Pyloric sphincter
    - Small intestine (include villi)
      - Duodenum
      - Ileum
      - Jejunum
    - Large intestine
      - Cecum
      - Ascending colon
      - Transverse colon
      - Descending colon
      - Sigmoid colon
    - Rectum
    - Anus
  - b. Describe the accessory structures of the digestive system and their respective functions regarding the digestive process (pathway of food, digestion, nutrient absorption).
    - Salivary glands
    - Pancreas
    - Liver
    - Appendix
    - Gallbladder
2. Discuss diseases and disorders of the digestive system and related signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the digestive system.
    - Appendicitis
    - Cholecystitis
    - Cirrhosis
    - Diverticulitis
    - Gastric ulcer
    - GERD
    - Hepatitis type B (HBV)
    - Pancreatitis
    - Ulcerative colitis

3. Research the impact of emerging technology on the digestive system. <sup>DOK3</sup>

# Unit 16: Urinary System

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## Competencies and Suggested Objectives

1. Explain the structures and functions of the urinary system as they relate to the formation, composition, and elimination of urine. <sup>DOK1</sup>

a. Identify urinary system structures and their respective functions.

- Bladder (include rugae)
- Bowman's capsule
- Cortex
- Glomerulus
- Hilum
- Kidneys
- Medulla
- Nephrons
- Renal pelvis
- Ureters
- Urethra
- Urinary meatus

2. Discuss diseases and disorders of the urinary system and related causes, signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup>

a. Identify the general causes, signs, symptoms, treatment, and prevention methods associated with diseases of the urinary system.

- Cystitis
- Glomerulonephritis
- Pyelonephritis
- Renal calculus
- Renal failure
- Uremia
- Urethritis

b. Define disorders of the urinary system.

- Albuminuria
- Anuria
- Dysuria
- Hematuria
- Incontinence
- Nocturia
- Oliguria
- Polyuria
- Proteinuria
- Pyuria
- Retention

3. Research the impact of emerging technology on the urinary system. <sup>DOK3</sup>

## Unit 17: Lymphatic System

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<b>Competencies and Suggested Objectives</b>
1. Explain the structures and functions of the lymphatic system. <sup>DOK1</sup> a. Identify structures of the lymphatic system and their respective functions. <ul style="list-style-type: none"><li>• Tonsils</li><li>• Spleen</li><li>• Lymph nodes</li><li>• Thymus</li></ul>
2. Discuss diseases and disorders of the lymphatic system and related causes, signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup> a. Identify the general causes, signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the lymphatic system. <ul style="list-style-type: none"><li>• Adenitis</li><li>• Hodgkin's disease</li><li>• Splenomegaly</li><li>• Tonsillitis</li></ul>
3. Research the impact of emerging technology on the lymphatic system. <sup>DOK3</sup>

# Unit 18: Nervous System

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<b>Competencies and Suggested Objectives</b>
<p>1. Describe the structures and functions of the nervous system. <sup>DOK1</sup></p> <p>a. Identify the major structures of the nervous system and their respective functions.</p> <ul style="list-style-type: none"><li>• Cerebellum</li><li>• Cerebrum</li><li>• Midbrain: pons, medulla oblongata</li><li>• Diencephalon: thalamus, hypothalamus</li><li>• Spinal cord</li><li>• Meninges: dura mater, arachnoid membrane, pia mater</li><li>• Ventricles</li><li>• Cerebral spinal fluid</li></ul> <p>b. Describe the divisions of the nervous system.</p> <ul style="list-style-type: none"><li>• Central nervous system</li><li>• Peripheral nervous system</li><li>• Sympathetic</li><li>• Parasympathetic</li></ul> <p>c. Identify the structures of a neuron and the conduction process of a nerve impulse.</p> <ul style="list-style-type: none"><li>• Dendrites</li><li>• Axon</li><li>• Myelin sheath</li><li>• Synapse</li><li>• Neurotransmitters</li></ul>
<p>2. Discuss diseases and disorders of the nervous system and related causes, signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup></p> <p>a. Identify the general causes, signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the nervous system.</p> <ul style="list-style-type: none"><li>• Alzheimer's disease</li><li>• Amyotrophic lateral sclerosis</li><li>• Cerebral palsy</li><li>• Cerebrovascular accident</li><li>• Dementia</li><li>• Epilepsy</li><li>• Meningitis</li><li>• Multiple sclerosis</li><li>• Parkinson's disease</li><li>• Shingles</li><li>• Traumatic Brain Injury/Concussion</li></ul>
<p>3. Research the impact of emerging technology on the nervous system. <sup>DOK3</sup></p>

# Unit 19: Endocrine System

<b>Competencies and Suggested Objectives</b>	
1. Identify the structures and functions of the endocrine system. <sup>DOK1</sup>	<ol style="list-style-type: none"> <li>a. Differentiate between endocrine and exocrine.</li> <li>b. Identify the structures comprising the endocrine system and their respective functions. (see table below)</li> </ol>
2. Discuss diseases and disorders of the endocrine system and related causes, signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup>	<ol style="list-style-type: none"> <li>a. Identify the general causes, signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the endocrine system.           <ul style="list-style-type: none"> <li>• Acromegaly</li> <li>• Cushing’s syndrome</li> <li>• Diabetes mellitus (Type 1 and 2)</li> <li>• Dwarfism</li> <li>• Giantism</li> <li>• Graves’ disease</li> <li>• Hyperthyroidism</li> <li>• Hypothyroidism</li> </ul> </li> </ol>
3. Research the impact of emerging technology on the endocrine system. <sup>DOK3</sup>	

<b>Endocrine Table</b>		
<b>Gland</b>	<b>Hormone</b>	<b>Action</b>
Pituitary (Anterior Lobe)	ACTH-adrenocorticotropic	Stimulates growth and secretion of the cortex of the adrenal gland
	TSH-thyrotropin	Stimulates growth and secretion of the thyroid gland
	GH-somatotropin	Growth hormone; stimulates normal body growth
Pituitary (Posterior Lobe)	ADH-vasopressin	Antidiuretic hormone; promotes reabsorption of water in kidneys, constricts blood vessels
Thyroid	Thyroxine & tri-iodothyronine	Increase metabolic rate; stimulate physical and mental growth; regulate metabolism of carbohydrates, fats, and proteins
Adrenal (Cortex)	Glucocorticoids: <ul style="list-style-type: none"> <li>• Cortisol-hydrocortisone</li> <li>• Cortisone</li> </ul>	Aide in metabolism of proteins, fats, and carbohydrates; increase amount of glucose in blood; provide resistance to stress; depress immune response (anti-inflammatory)
	Gonadocorticoids: <ul style="list-style-type: none"> <li>• Estrogens</li> <li>• Androgens</li> </ul>	Act as sex hormones <ul style="list-style-type: none"> <li>• Stimulate female sexual characteristics</li> <li>• Stimulate male sexual characteristics</li> </ul>
Adrenal (Medulla)	Epinephrine (adrenaline)	Activates sympathetic nervous system; acts in times of stress to increase cardiac output and increase blood pressure
	Norepinephrine	Activates body in stress situations
Pancreas	Insulin	Used in metabolism of glucose (sugar) by promoting entry of glucose into cells to decrease blood glucose levels; promotes transport of fatty acids and amino acids (proteins) into the cells

## Unit 20: Sensory Organs

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### Competencies and Suggested Objectives

1. Identify the basic structures and functions associated with the sensory organs. <sup>DOK1</sup>

a. Identify sensory organs' structures and describe their respective functions.

- Eye:
  - Aqueous humor
  - Choroid coat
  - Conjunctiva
  - Cornea
  - Iris
  - Lacrimal glands
  - Lens
  - Pupil
  - Retina
  - Sclera
  - Vitreous Humor
- Ear:
  - Auditory canal
  - Cochlea
  - Eustachian Tube
  - Organ of Corti
  - Ossicles
  - Pinna/Auricle
  - Semicircular canal
  - Tympanic membrane
- Tongue:
  - Papillae
- Nose:
  - Olfactory receptors

2. Discuss diseases and disorders of the sensory organs. <sup>DOK2</sup>

a. Identify the general causes, signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the sensory organs.

- Amblyopia
- Astigmatism
- Cataract
- Conjunctivitis
- Glaucoma
- Hearing loss (conductive, sensory)
- Meniere's disease
- Otitis externa
- Otitis media
- Otosclerosis
- Strabismus

3. Research the impact of emerging technology on the sensory organs. <sup>DOK3</sup>



## Unit 21: Reproductive System

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### Competencies and Suggested Objectives

1. Discuss the structures and functions of the male and female reproductive systems. <sup>DOK1</sup>
  - a. Identify the major structures of the male and female reproductive system and their respective functions.
    - Male:
      - Cowper's gland
      - Ejaculatory ducts
      - Epididymis
      - Penis
      - Prostate gland
      - Scrotum
      - Seminal vesicles
      - Testes
      - Urethra
      - Vas deferens
    - Female:
      - Bartholin's glands
      - Breasts
      - Fallopian tubes
      - Ovaries
      - Perineum
      - Uterus: endometrium
      - Vagina
      - Vulva: mons pubis, labia majora, labia minora
2. Discuss diseases and disorders of the reproductive system and related signs, symptoms, treatment, and prevention methods. <sup>DOK2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the reproductive systems.
    - Breast cancer
    - Cervical cancer
    - Endometriosis
    - Epididymitis
    - Orchitis
    - Ovarian cancer
    - Pelvic inflammatory disease
    - Premenstrual syndrome
    - Prostate cancer
    - Prostatic hypertrophy
    - Testicular cancer
    - Uterine cancer
  - b. Identify the general signs, symptoms, treatment, and prevention methods associated with sexually transmitted infections (STIs).

- Human Immunodeficiency Virus
- Chlamydia
- Gonorrhea
- Herpes
- Human Papillomavirus
- Pubic lice
- Syphilis
- Trichomoniasis

3. Research the impact of emerging technology on the reproductive system. <sup>DOK3</sup>

# Student Competency Profile

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Student's Name: \_\_\_\_\_

This record is intended to serve as a method of noting student achievement of the competencies in each unit. It can be duplicated for each student, and it can serve as a cumulative record of competencies achieved in the course.

In the blank before each competency, place the date on which the student mastered the competency.

<b>Unit 1: Orientation and Introduction to Student Organizations</b>		
	1.	Describe the purpose of the course and related student organizations.
<b>Unit 2: Safety in Health Care</b>		
	1.	Demonstrate personal and environmental safety practices.
	2.	Identify common safety hazards.
	3.	Utilize emergency procedures and protocols.
<b>Unit 3: Career Preparation</b>		
	1.	Explore various careers in the health care field.
	2.	Utilize the approved method of clinical hour documentation (e.g., AET or other state approved method of documentation).
	3.	Explore the various career options in the health care field.
	4.	Relate the importance of lifelong learning to career success.
<b>Unit 4: Health Care Delivery Systems</b>		
	1.	Research and discuss health care delivery systems and health organizations.
	2.	Relate the importance of lifelong learning to career success.
<b>Unit 5: Infection Awareness and Prevention</b>		
	1.	Explain the principles of infection control.
	2.	Explain standard precaution based on OSHA and CDC regulations.
	3.	Utilize the principles of sterile technique
	4.	Explain the importance of maintaining transmission-based isolation precautions.
	5.	Research the impact of emerging technology on infection control.
<b>Unit 6: Legal and Ethical Practices in Health Care</b>		
	1.	Analyze legal responsibilities and implications of criminal and civil law.
	2.	Describe and demonstrate legal practices associated with health care.
	3.	Utilize procedures for reporting activities and behaviors that affect the health, safety, and the welfare of others.
	4.	Recognize and discuss ethical boundaries within the health care environment.

	5.	Identify cultural, social, and ethnic diversity within the health care environment
<b>Unit 7: Communication and Teamwork</b>		
	1.	Describe the concepts of effective communication.
	2.	Compare the roles and responsibilities of individual members as part of the health care team.
	3.	Explain the principles of interacting effectively and sensitively with all members of the health care team.
<b>Unit 8: Medical Terminology and Abbreviations</b>		
	1.	Introduce appropriate medical terminology and abbreviations as found in Appendix C.
<b>Unit 9: Body Organization</b>		
	1.	Describe the basic organization of the body.
	2.	Discuss the tissue organization of the body.
	3.	Identify the body planes, directional terms, cavities, quadrants and regions.
<b>Unit 10: Integumentary System</b>		
	1.	Discuss the structures and functions of the integumentary system.
	2.	Explain diseases and disorders of the integumentary system and related signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the integumentary system.
<b>Unit 11: Skeletal System</b>		
	1.	Compare the structures and functions of the skeletal system with its relationship to movement.
	2.	Discuss diseases and disorders of the skeletal system and related signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the skeletal system.
<b>Unit 12: Muscular System</b>		
	1.	Compare the structures and functions of the muscular system with its relationship to movement.
	2.	Discuss diseases, disorders, and injury of the muscular system and related signs, symptoms, and treatment methods.
	3.	Research the impact of emerging technology on the muscular system.
<b>Unit 13: Cardiovascular System</b>		
	1.	Identify and discuss the structures and functions of the cardiovascular system and their role in maintaining homeostasis.
	2.	Discuss diseases and disorders of the cardiovascular system and related signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the cardiovascular system.
<b>Unit 14: Respiratory System</b>		
	1.	Describe the structures and functions of the respiratory system.

	2.	Discuss diseases and disorders of the respiratory system and related signs, symptoms, and treatment methods.
	3.	Research the impact of emerging technology on the respiratory system.
<b>Unit 15: Digestive System</b>		
	1.	Describe the structures and functions of the digestive system.
	2.	Discuss diseases and disorders of the digestive system and related signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the digestive system.
<b>Unit 16: Urinary System</b>		
	1.	Explain the structures and functions of the urinary system as they relate to the formation, composition, and elimination of urine.
	2.	Discuss diseases and disorders of the urinary system and related causes, signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the urinary system.
<b>Unit 17: Lymphatic System</b>		
	1.	Explain the structures and functions of the lymphatic system.
	2.	Discuss diseases and disorders of the lymphatic system and related causes, signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the lymphatic system.
<b>Unit 18: Nervous System</b>		
	1.	Describe the structures and functions of the nervous system.
	2.	Discuss diseases and disorders of the nervous system and related causes, signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the nervous system.
<b>Unit 19: Endocrine System</b>		
	1.	Identify the structures and functions of the endocrine system.
	2.	Discuss diseases and disorders of the endocrine system and related causes, signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the endocrine system.
<b>Unit 20: Sensory Organs</b>		
	1.	Identify the basic structures and functions associated with the sensory organs.
	2.	Discuss diseases and disorders of the sensory organs.
	3.	Research the impact of emerging technology on the sensory organs
<b>Unit 21: Reproductive System</b>		
	1.	Discuss the structures and functions of the male and female reproductive systems.
	2.	Discuss diseases and disorders of the reproductive system and related signs, symptoms, treatment, and prevention methods.
	3.	Research the impact of emerging technology on the reproductive system.

# Appendix A: National Health Science Standards

	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
<b>Standards</b>																							
NCHSE-1.1				X	X		X	X		X	X	X		X	X	X	X	X	X	X	X	X	X
NCHSE-1.2		X				X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X
NCHSE-1.3					X	X		X	X	X	X	X	X	X	X	X			X		X	X	X
NCHSE-2.1		X	X	X			X	X	X	X			X	X	X	X	X	X	X	X			
NCHSE-2.2				X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	
NCHSE-2.3			X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X				X
NCHSE-3.1		X	X			X	X			X					X	X	X	X	X			X	X
NCHSE-4.1		X	X	X		X	X		X	X	X	X	X	X	X	X	X			X			
NCHSE-4.2			X	X					X	X	X	X	X	X	X	X	X	X	X		X		X
NCHSE-4.3		X	X	X	X	X	X	X		X	X	X	X	X	X		X	X		X			X
NCHSE-4.4			X			X	X		X	X		X	X	X	X	X	X		X			X	
NCHSE-5.1		X		X				X	X	X		X	X	X		X	X	X	X				X
NCHSE-5.2		X	X				X	X	X	X	X	X	X	X	X	X	X	X	X				X
NCHSE-6.1			X		X						X	X	X	X	X	X	X	X		X			
NCHSE-6.2		X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X			X	
NCHSE-7.1					X		X	X	X	X				X	X				X				X
NCHSE-7.2		X		X	X	X			X		X			X	X	X	X						
NCHSE-7.3		X			X			X	X		X	X	X		X		X	X	X				X
NCHSE-7.4		X			X	X	X	X		X	X			X	X	X	X	X				X	
NCHSE-7.5		X		X		X	X	X	X	X	X			X	X		X			X			
NCHSE-8.1			X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NCHSE-8.2			X				X		X	X	X	X					X	X	X				
NCHSE-9.1		X		X	X	X		X		X			X	X	X	X	X	X					
NCHSE-9.2		X		X	X	X	X		X				X	X	X	X			X			X	
NCHSE-10.1			X	X	X	X	X	X		X			X	X	X		X			X			X
NCHSE-11.1		X	X	X			X		X	X		X			X	X	X	X	X				

## National Consortium for Health Science Education-National Health Science Standards

The National Health Science Standards provide a clear and consistent understanding of industry and postsecondary expectations for health science teachers and students. These content standards are broad and frame the essential knowledge common across all health professions. Utilizing input from business and industry experts, these standards are designed to prepare students to be college and career ready.

These standards provide the foundation for health science curriculum design, instruction, and assessment, but they are not limited to the content listed in each of the eleven National Health Science Standards.

### Foundation Standard 1 Academic Foundation

Understand human anatomy, physiology, common diseases and disorders, and medical math principles.

#### 1.1 Human Anatomy and Physiology

1. Describe the organization of the human body and directional terms.

#### 1.2 Diseases and Disorders

1. Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders, including, but not limited to the following:
2. Describe biomedical therapies as they relate to the prevention, pathology, and treatment of disease.

#### 1.3 Medical Mathematics

1. Demonstrate competency using basic math skills and mathematical conversions as they relate to healthcare.

2. Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results.
3. Demonstrate use of the 24-hour clock/military time.

## **Foundation Standard 2 Communications**

Demonstrate methods of delivering and obtaining information, while communicating effectively.

### **2.1 Concepts of Effective Communication**

1. Model verbal and nonverbal therapeutic communication.
2. Identify common barriers to communication.
3. Distinguish between subjective and objective information.
4. Interpret elements of the communication process using sender-message-receiver feedback model.
5. Modify communication to meet the needs of the patient/client and to be appropriate to the situation.
6. Describe appropriate interactions with patients throughout various stages of psychosocial development.

### **2.2 Medical Terminology**

1. Use common roots, prefixes, and suffixes to communicate information.
2. Interpret common medical abbreviations to communicate information.
3. Written Communication Skills
4. Use proper elements of written and electronic communication (spelling, grammar, and formatting).
5. Prepare examples of technical and informative writing.
6. Demonstrate appropriate use of digital communication in a work environment, such as email, text, and social media.

## **Foundation Standard 3 Systems**

Identify how key systems affect services performed and quality of care.

### **3.1 Healthcare Delivery Systems**

1. Differentiate healthcare delivery systems and healthcare related agencies.
2. the healthcare consumer's rights and responsibilities within the healthcare system.
3. Analyze the impact of emerging issues on healthcare delivery systems.
4. Analyze healthcare economics and related terms.

## **Foundation Standard 4 Employability Skills**

Use employability skills to enhance employment opportunities and job satisfaction.

### **4.1 Personal Traits of the Health Professional**

1. Identify personal traits and attitudes desirable in a career ready member of a health team.
2. Summarize professional standards as they apply to hygiene, dress, language, confidentiality, and behavior.

### **4.2 Employability Skills**

1. Apply employability/soft skills in healthcare.

### **4.3 Career Decision-making**

1. Research levels of education, credentialing requirements, and employment trends in health professions.
2. Distinguish differences among careers within a health science pathway.

### **4.4 Employability Preparation**

1. Develop components of a personal portfolio.
2. Identify strategies for pursuing employment.

## **Foundation Standard 5 Legal Responsibilities**

Describe legal responsibilities, limitations, and implications on healthcare worker actions.

## **5.1 Legal Responsibilities and Implications**

1. Analyze legal responsibilities and implications of criminal and civil law.

## **5.2 Legal Practices**

1. Apply standards for the safety, privacy, and confidentiality of health information.
2. Describe advance directives.
3. Summarize the essential characteristics of a patient's basic rights within a healthcare setting.
4. Differentiate informed and implied consent.
5. Describe the concept of scope of practice.
6. Interpret procedures for reporting activities and behaviors that affect the health, safety, and welfare of others (incident report).

## **Foundation Standard 6 Ethics**

Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.

### **6.1 Ethical Practice**

1. Differentiate between ethical and legal issues impacting healthcare.
2. Identify ethical issues and their implications related to healthcare.

### **6.2 Cultural, Social, and Ethnic Diversity**

1. Discuss religious, social, and cultural values as they impact healthcare.
2. Demonstrate respectful and empathetic treatment of all patients/clients/families.

## **Foundation Standard 7 Safety Practices**

Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.

### **7.1 Infection Control**

1. Explain principles of infection transmission.
2. Differentiate methods of controlling the spread and growth of pathogens.

### **7.2 Personal Safety**

1. Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations.
2. Demonstrate principles of body mechanics during patient care.

### **7.3 Environmental Safety**

1. Apply safety techniques in the work environment.

### **7.4 Common Safety Hazards**

1. Observe all safety standards related to the occupational exposure to hazardous chemicals standard (Safety Data Sheets [SDS]).
2. Comply with safety signs, symbols, and labels.

### **7.5 Emergency Procedures and Protocols**

1. Practice fire safety in a healthcare setting.
2. Apply principles of basic emergency response in natural disasters and other emergencies (safe location, contact emergency personnel, follow facility protocols).

## **Foundation Standard 8 Teamwork**

Identify roles and responsibilities of individual members as part of the healthcare team.

### **8.1 Healthcare Teams**

1. Evaluate roles and responsibilities of healthcare team members.
2. Identify characteristics of effective teams.

### **8.2 Team Member Participation**

1. Recognize methods for building positive team relationships.
2. Analyze attributes and attitudes of an effective leader.



3. Apply effective techniques for managing team conflict.
4. Evaluate why teamwork is an important part of healthcare and how it improves patient care.

### **Foundation Standard 9 Health Maintenance Practices**

Differentiate between wellness and disease. Promote disease prevention and model healthy behaviors.

#### **9.1 Healthy Behaviors**

1. Promote self-care behaviors of health and wellness.
2. Examine various aspects of behavioral health.
3. Describe public health strategies for prevention of disease.
4. Investigate complementary and alternative health practices as they relate to wellness and disease prevention.

#### **9.2 Healthcare Across the Lifespan**

1. Discuss physical, mental, social, and behavioral development and its impact on healthcare.
2. Identify socioeconomic determinants of health and wellness.

### **Foundation Standard 10 Technical Skills**

Apply and demonstrate technical skills and knowledge common to health career specialties.

#### **10.1 Technical Skills**

1. Demonstrate procedures for measuring and recording vital signs in both normal and abnormal ranges - including but not limited to:
2. Obtain training or certification in:

### **Foundation Standard 11 Information Technology in Healthcare**

Apply information technology practices common across health professions.

#### **11.1 Key principles, components, and practices of health information systems (HIS)**

1. Identify components of an electronic health record (EHR) and/or electronic medical record (EMR).
2. Explore different types of health data collection tools.
3. Create electronic documentation that reflects timeliness, completeness, and accuracy.
4. Examine information systems policies, procedures, and regulations as required by national, state, and local entities.

## Appendix B: 21st Century Skills

	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
<b>Standards</b>																						
CS1		X		X	X						X			X		X		X		X	X	
CS2		X	X								X			X		X			X			X
CS3		X	X	X																X		
CS4		X		X																		X
CS5																			X			
CS6		X	X		X	X	X	X	X	X	X	X	X			X	X	X		X	X	X
CS7		X			X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		
CS8		X			X						X	X				X	X				X	X
CS9		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CS10			X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CS11					X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
CS12		X		X																X		X
CS13		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CS14		X		X							X				X	X			X			X
CS15			X		X		X	X	X	X	X	X	X			X	X	X	X			X
CS16		X	X	X							X			X		X		X	X	X		

### CSS1-21st Century Themes

#### CS1 Global Awareness

- Using 21st century skills to understand and address global issues
- Learning from and working collaboratively with individuals representing diverse cultures, religions, and lifestyles in a spirit of mutual respect and open dialogue in personal, work, and community contexts
- Understanding other nations and cultures, including the use of non-English languages

#### CS2 Financial, Economic, Business, and Entrepreneurial Literacy

- Knowing how to make appropriate personal economic choices
- Understanding the role of the economy in society
- Using entrepreneurial skills to enhance workplace productivity and career options

#### CS3 Civic Literacy

- Participating effectively in civic life through knowing how to stay informed and understanding governmental processes
- Exercising the rights and obligations of citizenship at local, state, national, and global levels
- Understanding the local and global implications of civic decisions

#### CS4 Health Literacy

- Obtaining, interpreting, and understanding basic health information and services and using such information and services in ways that enhance health
- Understanding preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance, and stress reduction
- Using available information to make appropriate health-related decisions
- Establishing and monitoring personal and family health goals
- Understanding national and international public health and safety issues

#### CS5 Environmental Literacy

1. Demonstrating knowledge and understanding of the environment and the circumstances and conditions affecting it, particularly as relates to air, climate, land, food, energy, water, and ecosystems
2. Demonstrating knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.)
3. Investigating and analyzing environmental issues and make accurate conclusions about effective solutions
4. Taking individual and collective action toward addressing environmental challenges (e.g., participating in global actions, designing solutions that inspire action on environmental issues)

#### CSS2-Learning and Innovation Skills

##### **CS6 Creativity and Innovation**

1. Think creatively
2. Work creatively with others
3. Implement innovations

##### **CS7 Critical Thinking and Problem Solving**

1. Reason effectively
2. Use systems thinking
3. Make judgments and decisions
4. Solve problems

##### **CS8 Communication and Collaboration**

1. Communicate clearly
2. Collaborate with others

#### CSS3-Information, Media and Technology Skills

##### **CS9 Information Literacy**

1. Access and evaluate information
2. Use and manage information

##### **CS10 Media Literacy**

1. Analyze media
2. Create media products

##### **CS11 ICT Literacy**

1. Apply technology effectively

#### CSS4-Life and Career Skills

##### **CS12 Flexibility and Adaptability**

1. Adapt to change
2. Be flexible

##### **CS13 Initiative and Self-Direction**

1. Manage goals and time
2. Work independently
3. Be self-directed learners

##### **CS14 Social and Cross-Cultural Skills**

1. Interact effectively with others

2. Work effectively in diverse teams
- CS15 Productivity and Accountability**
1. Manage projects
  2. Produce results
- CS16 Leadership and Responsibility**
1. Guide and lead others
  2. Be responsible to others

## Appendix C: Medical Terminology Chart

Medical Roots, Prefixes, and Suffixes				
Medical Term	Meaning	Topics		
gen-	original, production	Body Organization		
supra-	above, over	Body Organization		
trans-	through, across, beyond	Body Organization		
cyt-	cell	Body Organization		
cauda-	tail	Body Organization		
sub-	under, beneath, below	Body Organization		
viscero-	organ	Body Organization		
physio-	nature	Body Organization		
dors-	back	Body Organization		
later-	side	Body Organization		
pro-	in front of, before	Body Organization		
pre-	in front of, before	Body Organization		
neo-	new	Body Organization		
post	after, behind in time	Body Organization		
intra-	within	Body Organization		
inter-	between	Body Organization		
infra-	beneath	Body Organization		
ventr-	front	Body Organization		
infer-	under	Body Organization		
poster-	back part	Body Organization		
proxim-	nearest	Body Organization		
morph-	form	Body Organization		
splanchn-	internal organs	Body Organization		
med-	middle	Body Organization		
celio-	abdomen	Body Organization	Digestive	
bucc(o)-	cheek	Body Organization	Digestive	
retr(o)-	backwards	Body Organization	Urinary	Communication
cardi-	heart	Circulatory		
angi-	vessel (usually blood)	Circulatory		
hyper-	above, more than normal	Circulatory		
hypo-	under, beneath, deficient	Circulatory		
hem(at)-	blood	Circulatory		
rhexis-	break, burst	Circulatory		
-penia	decrease	Circulatory		
-ectasis	expansion	Circulatory		
leuk-	white	Circulatory		
steno-	narrow, contracted	Circulatory		
erythro-	red	Circulatory		
vaso-	vessel	Circulatory		
cor-	heart	Circulatory		
phleb-	vein	Circulatory		
sept-	wall, fence	Circulatory		
pariet-	wall	Circulatory		
strict-	to draw tight, narrowing	Circulatory		
thromb-	lump, clot	Circulatory		
arter-	artery	Circulatory		
vena-	vein	Circulatory		
eury-	broad	Circulatory		
-gram	record, write	Circulatory	Reproductive	Communication
brady-	slow	Circulatory	Respiratory	
-itis	inflammation	Communication		
plast-	surgical repair, plastic repair	Communication		
path-	disease	Communication		
-ectomy	surgical removal of all or part of	Communication		
-osis	condition, any condition	Communication		
-ologist	a specialist in the study of	Communication		
-ology	study of	Communication		
end-	inside, within	Communication		
-oid	like, resembling	Communication		
contra-	against, counter	Communication		

-iasis	condition, formation of, presence of	Communication		
anti-	against	Communication		
astr-	star-shaped	Communication		
iso-	equal	Communication		
-tope	place	Communication		
somato-	body	Communication		
scirr(h)-	hard	Communication		
antr-	cavity or chamber	Communication		
corne-	horny, hornlike	Communication		
plak-	plate	Communication		
kerat-	horny, horny tissue	Communication		
furca-	fork-shaped	Communication		
radic-	root	Communication		
radi-	ray	Communication		
fistul-	pipe, a narrow passage	Communication		
ependym-	wrapping, a covering	Communication		
cine-	move, movement	Communication		
gemin-	twin, double	Communication		
gran-	grain, particle	Communication		
en-	in	Communication		
mechano-	machine	Communication		
dynam-	power	Communication		
traumat-	wound, injury	Communication		
trich-	hair	Communication		
an-, a-	without, not	Communication		
turbin-	shaped like a top	Communication		
ameb-	change	Communication		
semi-	half	Communication		
therm-	heat	Communication		
syn-, sym-	together	Communication		
ante-	before	Communication		
ex-	out, away from	Communication		
lien-	spleen	Communication		
tumor	swelling	Communication		
sarc-	flesh	Communication		
proli-	offspring	Communication		
macro-	large	Communication		
mal-	bad	Communication		
basi-	base	Communication		
eu-	good	Communication		
ambi-	both	Communication		
amphi-	around, on both sides	Communication		
brachy-	short	Communication		
cau-	burn	Communication		
fiss-	split	Communication		
ger-	old	Communication		
heter-	other, different from	Communication		
hom-	same	Communication		
cata-	down	Communication		
platy-	flat	Communication		
pseud-	false	Communication		
apo-	away from	Communication		
di-	twice	Communication		
mi-	less	Communication		
dis-	apart	Communication		
fac-	make, do	Communication		
sta-	stand	Communication		
volv-	to roll	Communication		
per-	throughout	Communication		
meta-	beyond, change, transformation	Communication		
gastr-	stomach	Digestive		
enter-	intestines (usually small)	Digestive		
hepat-	liver	Digestive		
gingiv-	gum	Digestive		
chole-	bile	Digestive		
scop-	look, observe	Digestive		

-ostmy	to create an opening	Digestive		
lip-	fat	Digestive		
-rrhaphy	suture, suturing	Digestive		
dent-	teeth	Digestive		
-emesis	vomiting	Digestive		
odont-	tooth	Digestive		
cheil-	lip	Digestive		
bili-	bile	Digestive		
cec-	blind passage	Digestive		
pyle-, pyloro-	gate	Digestive		
stoma-	mouth or opening	Digestive		
lapar-	abdominal wall	Digestive		
phage	to eat	Digestive		
ptyal-	saliva	Digestive		
oment-	covering, (of internal abdominal organs)	Digestive		
peps-, pept-	digest	Digestive		
appendic-	appendix	Digestive		
splen-	spleen	Digestive		
duodeno-	duodenum	Digestive		
col-	colon	Digestive		
esophagi-	esophagus	Digestive		
ile-	ileum	Digestive		
glyco-	sweet, sugar	Digestive	Endocrine	
dia-	through	Digestive	Respiratory	
glosso-	tongue	Digestive	Sensory	
lingua-	tongue	Digestive	Sensory	
or-	mouth	Digestive	Sensory	
lith-	stone	Digestive	Urinary	
rug-	wrinkle, fold, crease	Digestive	Urinary	
para-	beside, beyond	Endocrine		
-crine	to secrete	Endocrine		
metabol(e)-	change	Endocrine		
hormone-	excite or set in motion	Endocrine		
pharmac-	drug	Endocrine		
thyro-	thyroid	Endocrine		
megal-	enlarged	Endocrine	Lymphatic	
strept-	twist	Infection Control		
spiro-	coil	Infection Control		
myco-	fungus	Infection Control	Integumentary	
dermat-	skin	Integumentary		
-oma	tumor	Integumentary		
epi-	upon, in addition to	Integumentary		
melan-	black	Integumentary		
squam-	scale	Integumentary		
macul-	spot (or stain)	Integumentary		
onych-	nail, claw	Integumentary		
pilo-	hair	Integumentary		
helio-	sun, light	Integumentary		
edema-	swelling (by fluid)	Integumentary		
cut-	skin	Integumentary		
tegument	covering or skin	Integumentary		
pachy-	thick	Integumentary		
necr-	dead	Integumentary		
malign-	bad, harmful	Integumentary	Lymphatic	
aden-	gland	Lymphatic		
carcin-	cancer	Lymphatic		
benign	mild, not cancerous	Lymphatic		
onco-	tumor, swelling or mass	Lymphatic		
lymph-	watery fluid	Lymphatic		
spasm	involuntary contraction	Muscular		
-algia	pain, painful condition	Muscular		
my-	muscle	Muscular		
-trophy	development, growth	Muscular		
plasia-	development or growth	Muscular		
histo-	tissue	Muscular		
facia	sheet, band	Muscular		

colla-	glue, gelatin like	Muscular	
vuls(e)-	twitch or pull	Muscular	
tens-	stretch	Muscular	
spas-	pull, draw	Muscular	
bi-	two, double, both	Muscular	
tri-	three	Muscular	
lig-	ligament	Muscular	
therap-	therapy	Muscular	
duct-	tube, lead or draw	Muscular	
pect-	chest	Muscular	
ton-	stretch	Muscular	
leio-	smooth	Muscular	
cerebr-	brain	Nervous	
hemi-	half	Nervous	
psycho-	mind	Nervous	
mani-	madness, mental disturbance	Nervous	
hydro-	water	Nervous	
-esthesia	sensation, feeling	Nervous	
mening-	membrane	Nervous	
encephal-	brain	Nervous	
thalam-	inner chamber	Nervous	
plexus	braid, an interweaving, or network	Nervous	
dendr-	tree, branching (as in nervous system)	Nervous	
-asthenia	weakness	Nervous	
ment-	mind	Nervous	
hypno-	sleep	Nervous	
dura	hard	Nervous	
phren-	mind	Nervous	
sedat-	quiet, calm	Nervous	
gangli-	swelling, knot-like mass	Nervous	
micr-	small	Nervous	
phob-	fear	Nervous	
ramus	branch	Nervous	
neuro-	nerve (nervous system)	Nervous	
-plegia	paralysis	Nervous	
somni-	sleep	Nervous	
schiz-	split	Nervous	
sphenic-	wedge, wedge-shaped	Nervous	Communication
hyster-	uterus (womb)	Reproductive	
mast-	breast	Reproductive	
-cele	hernia, tumor or swelling	Reproductive	
semen	seed	Reproductive	
ovar-	egg (female reproduction cell)	Reproductive	
lact-	milk	Reproductive	
colp(o)-	hollow, vagina	Reproductive	
orchi-	testis	Reproductive	
umbilic-	navel	Reproductive	
salpingo-	tube	Reproductive	
adnexa	ties, connections	Reproductive	
part-	labor, bring forth	Reproductive	
oophor-	ovary (female reproductive gland)	Reproductive	
gravid	pregnant	Reproductive	
labi-	lip	Reproductive	
mamm-	breast	Reproductive	
metr-	uterus	Reproductive	
pan-	all	Reproductive	
thel-	nipple	Reproductive	
vestibule	entrance	Reproductive	
puer-	child	Reproductive	
cryo-	cold	Reproductive	
ovario-	ovary	Reproductive	
urethr-	urethra	Reproductive	
utero-	uterus	Reproductive	
gyn-	female	Reproductive	
-rrhag	burst, burst forth	Reproductive	
-rrhe	flow	Reproductive	



blast-	bud	Reproductive	
proct-	anus	Reproductive	Digestive
rhin-	nose	Respiratory	
cyan-	blue	Respiratory	
lobo-	section	Respiratory	
-centesis	puncture	Respiratory	
cilia	eyelash	Respiratory	
trachel-	neck, neck like	Respiratory	
pneum-	lung, air	Respiratory	
pulmon-	lung	Respiratory	
alveol-	cavity, socket	Respiratory	
aer-	air	Respiratory	
pleur-	pleura (membrane), rib, side	Respiratory	
pharyng-	pharynx	Respiratory	
laryng-	larynx	Respiratory	
bronch-	bronchus	Respiratory	
phrag-	fence	Respiratory	
thorac-	chest	Respiratory	Body Organization
-otomy	cut into, incision into	Sensory	
blephar-	eyelid	Sensory	
ophthalm-	eye	Sensory	
-ptosis	falling, drooping	Sensory	
cantho-	angle at the end of the eyelid	Sensory	
myring-	eardrum	Sensory	
oto-	ear	Sensory	
lacrim-	tear	Sensory	
palpebr-	eyelid	Sensory	
aur-	ear	Sensory	
acoust(i)	hearing, sound	Sensory	
phon-	voice, sound	Sensory	
tympan-	eardrum or its enclosure	Sensory	
ocul-	eye	Sensory	
dacry-	tear	Sensory	
iris	rainbow (eye membrane)	Sensory	
phot-	light	Sensory	
osmo-	odor	Sensory	
phak-	lens	Sensory	
lal-	speech	Sensory	
olfact-	smell	Sensory	
xer-	dry	Sensory	
scler(a)-	hard	Sensory	Integumentary
arthr-	joint	Skeletal	
-malacia	soft, soft condition	Skeletal	
crani-	skull	Skeletal	
cervic-	neck	Skeletal	
chondr-	cartilage	Skeletal	
ost-	bone	Skeletal	
cost-	rib	Skeletal	
acro-	extremities	Skeletal	
burso-	sac	Skeletal	
-desis	binding, fixation	Skeletal	
dyn-	pain	Skeletal	
cephal-	head	Skeletal	
auto-	self	Skeletal	
spondyl-	spinal column or vertebra	Skeletal	
myel-	marrow (spinal cord)	Skeletal	
hallux	great toe, big toe	Skeletal	
tarso-	ankle region, or framework of the eyelid	Skeletal	
pod-	foot	Skeletal	
sinus	hollow space	Skeletal	
dactyl-	finger, toe	Skeletal	
tarso-	ankle region	Skeletal	
cheir-, chir-	hand	Skeletal	
digit	finger, toe	Skeletal	
grad-	walk, take steps	Skeletal	
maxill-	upper jawbone	Skeletal	

ab-	away from, not	Skeletal		
lumbo-	loins	Skeletal		
pelvi-	pelvis	Skeletal		
ili-	ilium	Skeletal		
vert-	turn	Skeletal		
capit-	head	Skeletal		
clas-	break	Skeletal		
orth-	straight	Skeletal		
scol-	curved	Skeletal		
lept-	slender	Skeletal		
rachi-	spinal column	Skeletal		
sacro-	sacrum	Skeletal	Body Organization	
peri-	about, around	Skeletal	Circulatory	Body Organization
calc-	heel, stone	Skeletal	Urinary	
nephr-	kidney	Urinary		
cyst-	sac containing fluid, bladder	Urinary		
-lysis	loosening, destruction, set free	Urinary		
trip-	rub, friction	Urinary		
-pexy	suspension, fixation	Urinary		
vesic-	bladder	Urinary		
ren-	kidney	Urinary		
dys-	bad, out of order	Urinary		
poly-	many or much	Urinary		
glom-	ball	Urinary		
adreno-	adrenal gland	Urinary		
ureter	ureter	Urinary		

<b>Medical Abbreviations</b>			
<b>Abbreviation</b>	<b>Meaning</b>	<b>Topics</b>	
ax	axillary	Body Organization	
A & P	anatomy and physiology	Body Organization	
CT	computerized tomography	Body Organization	
AED	automated external defibrillator	Circulatory	
BP	blood pressure	Circulatory	
CBC	complete blood count	Circulatory	
CPR	cardiopulmonary resuscitation	Circulatory	
EKG, ECG	electrocardiogram	Circulatory	
RBC	red blood cell	Circulatory	
WBC	white blood cells	Circulatory	
Hgb	hemoglobin	Circulatory	
Hct	hematocrit	Circulatory	
MI	myocardial infarction	Circulatory	
IV	intravenous	Circulatory	Endocrine
adm	admission	Communication	
ATC	Certified Athletic Trainer	Communication	
ASAP	as soon as possible	Communication	
bid	twice a day	Communication	
c	with	Communication	
MD	Medical Doctor	Communication	
RN	registered nurse	Communication	
R/O	rule out	Communication	
Rx	prescription, take, treatment	Communication	
s	without	Communication	
ss	one half	Communication	
STAT	immediately	Communication	
T	temperature	Communication	
tid	three times a day	Communication	
TPR	temperature, pulse, respiration	Communication	
VS	vital signs	Communication	
wt	weight	Communication	
WNL	within normal limits	Communication	
D/C	discontinue	Communication	
ht	height	Communication	
hx	history	Communication	
LTC	long-term care	Communication	
L	left	Communication	
LPN, LVN	licensed practical (vocational) nurse	Communication	
N/A	not applicable	Communication	
neg	negative	Communication	
OR	operating room	Communication	
p	after	Communication	
prn	as necessary	Communication	
pt	patient	Communication	
q2h	every 2 hours	Communication	
qhs	every night at bedtime	Communication	
qs	quantity sufficient	Communication	
qid	four times a day	Communication	
R	right	Communication	
RN	Registered Nurse	Communication	
tab	tablet	Communication	Endocrine
ac	before meals	Digestive	
BM	bowel movement	Digestive	
CHO	carbohydrate	Digestive	
cl liq	clear liquids	Digestive	
NG	nasogastric	Digestive	
GB	gallbladder	Digestive	
NPO	nothing by mouth	Digestive	
pc	after meals	Digestive	
po	by mouth	Digestive	
FBS	fasting blood sugar	Digestive	Endocrine
BMR	basal metabolic rate	Endocrine	
OTC	over the counter	Endocrine	
PPE	personal protective equipment	Infection Control	

Dx	diagnosis	Integumentary	
NKA	no known allergies	Lymphatic	
BMI	body mass index	Muscular	
c/o	complains of	Muscular	
IM	intramuscular	Muscular	
ROM	range of motion	Muscular	
CC	chief complaint	Nervous	
EEG	electroencephalogram	Nervous	
DNR	do not resuscitate	Nervous	
LOC	level of consciousness	Nervous	
STD	sexually transmitted disease	Reproductive	
FBAO	foreign body airway obstruction	Respiratory	
HOB	head of bed	Respiratory	
hs	hour of sleep, bedtime	Respiratory	
O2	oxygen	Respiratory	
R	respiration	Respiratory	
amb	ambulate	Skeletal	
MRI	magnetic resonance imaging	Skeletal	
ad lib	freely, at will	Skeletal	Muscular
AROM	active range of motion	Skeletal	Muscular
PROM	passive range of motion	Skeletal	Muscular
w/c	wheelchair	Skeletal	Muscular
OOB	out of bed	Skeletal	Muscular
BRP	bathroom privileges	Urinary	
UA	urinalysis	Urinary	
FF	force fluids	Urinary	
noct	night	Urinary	