

Title 7: Education K-12

Part 57: Mississippi Secondary Curriculum Frameworks in Career and Technical Education,  
Health Science, Health Science Core



Mississippi Secondary Curriculum Frameworks in Career and Technical Education,  
Health Science

## 2020 Health Science Core

Program CIP: 51.00000 – Health Services/Allied Health/Health Sciences, General

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Published by

Office of Career and Technical Education  
Mississippi Department of Education  
Jackson, MS 39205

Research and Curriculum Unit  
Mississippi State University  
Mississippi State, MS 39762

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 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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# Acknowledgments

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The health science core curriculum was presented to the Mississippi Board of Education on January 16, 2020. The following persons are serving on the State Board at this time:

Dr. Carey M. Wright, state superintendent of education  
Dr. Jason S. Dean, chair  
Mr. Buddy Bailey, vice chair  
Mrs. Rosemary G. Aultman  
Dr. Karen J. Elam  
Dr. John R. Kelly  
Ms. Nancy Collins  
Mrs. Brittany Rye  
Mr. Sean Suggs  
Ms. Shelby Dean, Student Representative  
Mr. Omar G. Jamil, Student Representative

The following MDE and RCU managers and specialists assisted in the development of the health science core curriculum:

Wendy Clemons, associate superintendent of education for the Office of Career and Technical Education (CTE) and Workforce Development at the Mississippi Department of Education (MDE), supported the RCU and the teachers throughout the development of the framework and supporting materials.  
Dr. Aimee Brown, bureau director for the Office of Career and Technical Education, supported the developmental and implementation process of the curriculum framework and supporting materials.  
Sam Watts, instructional design specialist for the RCU at MSU, researched and authored this framework. [sam.watts@rcu.msstate.edu](mailto:sam.watts@rcu.msstate.edu)

Special thanks are extended to the teachers who contributed teaching and assessment materials that are included in the framework and supporting materials:

Jemeica Arnold, Millsaps Career and Technology Center, Starkville  
Brianna Bean, Jackson County Technology Center, Vancleave  
Kellie Cauthen, Choctaw County Career and Technology Center, Ackerman  
Donna Chrestman, Desoto County Career and Technology Center West, Horn Lake  
Latisha Collier, St. Martin High School, Ocean Springs  
Judy Dalgo, Ocean Springs Career and Technical Education Center, Ocean Springs  
Deanna Dunaway, Lamar County Career and Technology Center, Purvis  
Judy Grice, Forrest County Agricultural High School, Brooklyn  
Kalilah Kemp, Carl Keen Career and Technology Center, Clarksdale  
Brian Maskew, Hattiesburg High School, Hattiesburg  
Sharon Murphey, Quitman County Career and Technology Center, Marks  
Mary Slaughter, Madison County Career and Technology Center, Madison  
Shelly Varnon, Pontotoc Ridge Career and Technology Center, Pontotoc

Also, special thanks are given to the industry and university members who contributed their time, insight, and expertise to the development of this curriculum:

Emily Newman, nursing instructor and simulation lab coordinator, Delta State University, Cleveland  
Dr. Maria Scott, department chair and associate professor of nursing, Mississippi University for Women, Columbus  
Curnis Upkins, Jr., vice president of human resources and workforce services, Mississippi Hospital Association, Madison  
LaNelle Weems, director for the Mississippi Center for Quality and Workforce, Mississippi Hospital Association, Madison

Appreciation is expressed to the following professionals who provided guidance and insight throughout the development process:

Dr. Estelle Watts, program coordinator—health science specialist, Office of CTE and Workforce Development, MDE, Jackson  
Betsey Smith, director, RCU at MSU  
Brad Skelton, curriculum manager, RCU at MSU  
Melissa Luckett, instructional design specialist, RCU at MSU

# Standards

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Standards and alignment crosswalks are referenced in the appendices. Mississippi's CTE health science core is aligned to the following standards:

## **National Health Science Standards**

*The National Health Science Standards* were developed by the National Consortium on Health Science Education. These standards “provide a clear and consistent understanding of industry and postsecondary expectations for health science teachers and students.” The standards are designed to help prepare students to be college and/or career ready by giving them the essential knowledge and skills common across most health professions.

[healthscienceconsortium.org/national-health-science-standards](http://healthscienceconsortium.org/national-health-science-standards)

## **College- and Career-Ready 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 Ready 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.

[mde.k12.ms.us/MCCRS](http://mde.k12.ms.us/MCCRS)

## **International Society for Technology in Education Standards**

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

## **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. *21 Framework Definitions*. Published 2019.

[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; Carl D. Perkins Vocational Education Act IV, 2007; 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, call 662.325.2510.



# 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.

Both the health care and clinical services program and sports medicine program require a minimum of 100 hours of clinical-type experience to be obtained by the program's completion. It is recommended to spread these hours out among the length of the program by beginning to give students multiple opportunities to complete some hours in the health science core class. This clinical-type experience can include: tours of health care facilities, guest speakers, participation in health fairs or health-related community service, laboratory/skills practice, demonstration in the classroom, and observation or job-shadowing experiences in various health care settings. Videos do not count toward this 100-hour requirement, unless they are used in conjunction with a hands-on training or class of some kind (i.e., CPR).

## **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 10th grader. 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. Instructor approval and 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

It is strongly recommended that students complete this health science core course with a grade of C or higher to advance to the next course of choice.

### **Assessment**

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

### **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 CTE teacher licensure information can be found at [mdek12.org/OTL/OEL/career&technical](http://mdek12.org/OTL/OEL/career&technical)

### **Professional Learning**

If you have specific questions about the content of any of training sessions provided, please contact the RCU at 662.325.2510.

# 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 HOSA-Future Health Professionals (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 and skeletal systems, along with common diseases and disorders that affect each 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 portfolio to be used for class and for career advancement.

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

Unit	Unit Name	Hours
1	Orientation and Introduction to Student Organizations	4.5
2	Safety in Health Care	12
3	Infection Control	30
4	Careers in Health Care	12
5	Legal and Ethical Practices in Health Care	12
6	Communication and Teamwork	7.5
7	Medical Terminology and Abbreviations	18
8	Body Organization	9
9	Integumentary System	10.5
10	Skeletal System	15
Total		130.5

**Health Sciences Core II — Course Code: 995103**

Unit	Unit Name	Hours
11	Muscular System	15
12	Cardiovascular System	18
13	Respiratory System	12
14	Digestive System	15
15	Urinary System	12
16	Lymphatic System	4.5
17	Nervous System	12
18	Endocrine System	7.5
19	Sensory Organs	7.5
20	Reproductive System	7.5
21	Employability Preparation	7.5
Total		118.5

## Option 2—One Two-Carnegie-Unit Course

This curriculum consists of one 2-credit course:

### Health Science Core—Course Code: 995100

#### Course Description: Health Science Core

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 disorders 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 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 Name	Hours
1	Orientation and Introduction to Student Organizations	4.5
2	Safety in Health Care	12
3	Infection Control	30
4	Careers in Health Care	12
5	Legal and Ethical Practices in Health Care	12
6	Communication and Teamwork	7.5
7	Medical Terminology and Abbreviations	18
8	Body Organization	9
9	Integumentary System	10.5
10	Skeletal System	15
11	Muscular System	15
12	Cardiovascular System	18
13	Respiratory System	12
14	Digestive System	15
15	Urinary System	12
16	Lymphatic System	4.5
17	Nervous System	12
18	Endocrine System	7.5
19	Sensory Organs	7.5
20	Reproductive System	7.5
21	Employability Preparation	7.5
Total		249

# Research Synopsis

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## Introduction

The health science pathway covers the broad field of occupations related to health care and medicine. Health care is the fastest growing industry and one of the largest in the United States. The field alone will generate more new jobs in the coming years than any other industry, largely in response to rapid growth in the elderly population. In fact, 11 of the 20 fastest growing occupations in America are related to health care. Employment in home-health, 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. Industry growth will also occur as a result of the shift from inpatient to less expensive outpatient and home-health care because of improvements in diagnostic tests and surgical procedures, along with patients' desires to be treated at home. Rapid growth is expected for workers in occupations concentrated outside the inpatient hospital sector, such as physical and occupational therapists and personal and home-health workers. Traditional inpatient hospital positions are no longer the only option for many future health care workers.

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 university level.

## Needs of the Future Workforce

The following table contains information that is specific to Mississippi. On average, national growth and earnings are higher for most jobs. For comparison, the average projected employment growth for all occupations together in Mississippi is 5.2%. These projections are from 2016-2026. The average earnings are for the year 2018.

Description	Current Jobs (2016)	Projected Jobs (2026)	Change (#)	Change (%)	Median Annual Earnings
Athletic Trainers	220	250	30	13.6	\$46,900
Dentists (General)	630	640	10	1.6	\$182,520
Dieticians/Nutritionists	520	560	40	7.7	\$49,110
Diagnosing Medical Sonographers	730	830	100	13.7	\$64,770
Emergency Medical Technicians and Paramedics	2150	2230	80	3.7	\$37,070
Exercise Physiologists	40	50	10	25.0	\$44,840
Family/General Practitioners	940	960	20	2.1	\$218,640
Home Health Aides	4,770	6,060	1,290	27.0	\$22,120
Medical Assistants	2,900	3,260	360	12.4	\$30,390
Medical and Clinical Laboratory Technologists/Technicians	1,260/1,460	1,320/1,530	60/70	4.8	\$46,150

Medical Records and Health Information Technicians	2,050	2,170	120	5.9	\$33,320
Mental Health Counselors	840	920	80	9.5	\$38,630
Nurse, LPN	8,960	9,210	250	2.8	\$37,280
Nurse, RN	29,380	32,350	2970	10.1	\$57,700
Nurse Practitioner	2,470	3,000	530	21.5	\$107,280
Nursing Assistants	12,860	13,950	1,090	8.5	\$22,790
Nursing Instructors, Postsecondary	500	620	120	24.0	\$75,050
Occupational Therapists	960	1,100	140	14.6	\$81,400
Occupational Therapy Assistants	340	400	60	17.7	\$57,440
Pharmacists	2,540	2,620	80	3.2	\$122,080
Pharmacy Technicians	3,630	3,960	330	9.1	\$30,480
Phlebotomists	990	1,090	100	10.1	\$27,770
Physical Therapists	1,710	1,960	250	14.6	\$88,270
Physical Therapy Assistant	930	1,090	160	17.2	\$48,400
Physician Assistants	250	310	60	24.0	\$70,190
Respiratory Therapists	1,470	1,790	320	21.8	\$48,810
Speech Language Pathologists	1,390	1,560	170	12.2	\$64,260
Veterinarian	490	540	50	10.2	\$76,100
Veterinarian Technologists and Technicians	570	630	60	10.5	\$34,580
Veterinarian Assistants	970	1,090	120	12.4	\$23,820

**Source:** Retrieved from the Mississippi Department of Employment Security labor market information website on March 27, 2019. [mdes.ms.gov/information-center/labor-market-information](https://mdes.ms.gov/information-center/labor-market-information)

### Perkins IV Requirements

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

### Curriculum Content: Summary of Standards

The standards to be included in the health science core curriculum are the National Health Education Standards from the National Consortium for Health Science Education, the *MS College and Career Readiness Standards for English/Language Arts*, the *MS College and Career Readiness Standards for Human Anatomy and Physiology*, the Framework 21st Century Skills, and International Society for Technology in Education standards. Combining these standards to create this document will result in highly skilled, well-rounded students who are prepared to enter a postsecondary academic or career and technical program. They will also be prepared to compete academically at a national level, as these standards are designed to prepare students for success in community colleges, institutes of higher learning, and the workforce.

**Academic Infusion**

The health science core curriculum is aligned to the *Mississippi College and Career Readiness Standards for Human Anatomy and Physiology*. Alignment crosswalks can be found in the appendices.

**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 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—create unique learners. By providing various teaching and assessment strategies, students with various learning preferences can have more opportunity to succeed.

### *Career and Technical Education Student Organizations*

Teachers should investigate opportunities to sponsor a student organization. HOSA is the main health science student organization in Mississippi, while SkillsUSA has some health science competitions as well. This curriculum is aligned with some HOSA competitive events standards. These organizations will foster the types of learning expected from the health science core curriculum. Student organizations provide participants/members with growth opportunities and competitive events, as well as open the doors to the world of health science 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 program that will allow and encourage collaboration with professionals currently in the health care field.

### *Field Experience*

Field experience is an extension of understanding competencies taught in the health science classroom. The two-year health science program requires students to obtain a minimum of 100 clinical-type hours, which should include, but is not limited to, field trips, observations, job-shadowing, and preferably some sort of volunteer, internship, or apprenticeship experience. These real-world connections and applications link all types of students to knowledge, skills, and professional dispositions. Thus, supervised collaboration and immersion into the health care world around the students are keys to students' success, knowledge, and skills development.

**Conclusions**

The health science core curriculum will prepare students with the necessary skills and knowledge to advance into any health care field for further education and training. The foundational terminology, concepts, and medical skills practice provided for students in this curriculum will enable them to confidently move forward in their secondary health science program, as well as move on to the workforce, postsecondary education/training, or to an institution of higher learning upon graduation.

# Professional Organizations

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**Association of Career and Technical Education**

[acteonline.org](http://acteonline.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**

[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)

**Websites for 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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## **Suggested Time on Task**

This section indicates an estimated number of clock hours of instruction that should be required to teach the competencies and objectives of the unit. A minimum of 140 hours of instruction is required for each Carnegie unit credit. The curriculum framework should account for approximately 75-80% of the time in the course. The remaining percentage of class time will include instruction in nontested material, hours of clinical-type experience, review for end of course testing, and special projects.

## **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.

## **Integrated Academic Topics, 21st Century Skills and Information and Communication Technology Literacy Standards, ACT College Readiness Standards, and Technology Standards for Students**

This section identifies 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 are integrated into the content of the unit. Research-based teaching strategies also incorporate ACT College Readiness standards. This section also identifies the 21st Century Skills and information and communication technology literacy skills. In addition, national technology standards for students associated with the competencies and suggested objectives for the unit are also identified.

## **Teacher Resource Document**

The teacher resources document contains references, lesson ideas, websites, teaching and assessment strategies, scenarios, skills to master, and other resources divided up by unit. This document will be updated periodically by RCU staff. Please check it regularly for new information in each unit. If you have something you would like to add, or a question about something in the document, simply contact the RCU and ask for the instructional design specialist for your program or email the IDS directly. The teacher resource document can be downloaded at [rcu.msstate.edu/Curriculum/CurriculumDownload.aspx](http://rcu.msstate.edu/Curriculum/CurriculumDownload.aspx).

## **Enrichment Material**

Many of the units include an enrichment section at the end. This section of material will not be tested on the Mississippi Career Planning and Assessment System (MS-CPAS), however it will greatly enhance the learning experiences for the students. It is suggested to use the enrichment material when needed or desired by the teacher, and if time allows in the class.

# Unit 1: Orientation and Introduction to Student Organizations

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Competencies and Suggested Objectives
<ol style="list-style-type: none"><li>1. Describe the purpose of the course and related student organizations. <sup>DOK 1</sup><ol style="list-style-type: none"><li>a. Identify student and course expectations.</li><li>b. Explore health science student organizations, such as 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>



\*Refer to your *Teacher Resource Document* for resources and strategies. Click [HERE](#) and find your pathway to download it.

## Unit 2: Safety in Health Care

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<b>Competencies and Suggested Objectives</b>	
1. Demonstrate personal and environmental safety practices. <sup>DOK 2</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 in order to prevent accidents and injuries.	
2. Identify common safety hazards. <sup>DOK 2</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>DOK 2</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	
<b>NOTE: The content from this unit should be reinforced throughout the program.</b>	

\*Refer to your **Teacher Resource Document** for resources and strategies. Click [HERE](#) and find your pathway to download it.

## Unit 3: Infection Control

### Competencies and Suggested Objectives

1. Explain the principles of infection control. <sup>DOK 1</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
      - Common cold
      - Hepatitis (A, B, C)
      - Herpes
      - HIV
      - Influenza (seasonal, H1N1, H5N1)
      - Measles
      - Mumps
      - Polio
      - RSV
      - Warts
      - West Nile virus (WNV)
  - c. Identify the levels of aseptic control.
    - Antisepsis
    - Disinfection
    - Sterilization
  - d. Demonstrate the proper procedure for aseptic hand washing according to the CDC.



2. Explain standard precaution based on OSHA and CDC regulations. <sup>DOK 1</sup> a. Describe OSHA’s blood-borne pathogen standards. b. Explore employer requirements according to the Needle Stick Safety and Prevention Act. c. Demonstrate the basic rules of standard precaution.								
3. Utilize the principles of sterile technique. <sup>DOK 2</sup> a. Demonstrate skills related to sterile technique. <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>								
4. Explain the importance of maintaining transmission-based isolation precautions. <sup>DOK 3</sup> a. Identify and explain the types of isolation precautions needed to prevent the spread of communicable diseases (mentioned in 1.b.). <ul style="list-style-type: none"><li>• Airborne</li><li>• Droplet</li><li>• Contact</li><li>• Reverse/protective</li></ul> b. Demonstrate the proper procedure, according to the CDC, for donning and doffing personal protective equipment (PPE). <ul style="list-style-type: none"><li>• Gowns</li><li>• Masks</li><li>• Goggles</li><li>• Gloves</li></ul>								
<b>NOTE: The content from this unit should be reinforced throughout the program. *</b>								
<b>Enrichment</b> 1. Discuss other prevalent or interesting diseases/infections, including: <ul style="list-style-type: none"><li>• Ebola/Marburg</li><li>• Zika virus</li><li>• Lyme disease</li></ul> 2. Research and describe the following vaccinations and diseases they prevent: <table><tr><td>• DTaP</td><td>• Varicella</td><td>• Meningitis</td><td>• MMR</td></tr><tr><td>• Polio</td><td>• HPV</td><td>• Influenza</td><td>• Hep B</td></tr></table> 3. Based on the research on vaccinations, facilitate a student led debate on the importance of vaccinations.	• DTaP	• Varicella	• Meningitis	• MMR	• Polio	• HPV	• Influenza	• Hep B
• DTaP	• Varicella	• Meningitis	• MMR					
• Polio	• HPV	• Influenza	• Hep B					

\*Refer to your **Teacher Resource Document** for resources and strategies. Click [HERE](#) and find your pathway to download it.

## Unit 4: Careers in Health Care

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Competencies and Suggested Objectives															
<p>1. Explore the various career options in the health care field. <sup>DOK 1</sup></p> <p>a. Research and list various career options.</p> <table border="0"> <tr> <td>• Emergency services</td><td>• Respiratory care</td></tr> <tr> <td>• Human growth and development</td><td>• Mental health</td></tr> <tr> <td>• Sports medicine</td><td>• Pharmacology</td></tr> <tr> <td>• Rehabilitative services</td><td>• Laboratory services</td></tr> <tr> <td>• Medical services</td><td>• Medical imaging</td></tr> <tr> <td>• Nursing services</td><td>• Health information management</td></tr> <tr> <td>• Nutrition and dietetics</td><td></td></tr> </table> <p style="text-align: right;"><b>*NOTE: This will be used in Unit 21*</b></p>		• Emergency services	• Respiratory care	• Human growth and development	• Mental health	• Sports medicine	• Pharmacology	• Rehabilitative services	• Laboratory services	• Medical services	• Medical imaging	• Nursing services	• Health information management	• Nutrition and dietetics	
• Emergency services	• Respiratory care														
• Human growth and development	• Mental health														
• Sports medicine	• Pharmacology														
• Rehabilitative services	• Laboratory services														
• Medical services	• Medical imaging														
• Nursing services	• Health information management														
• Nutrition and dietetics															
<p>2. Research and discuss health care delivery systems and health organizations. <sup>DOK 1</sup></p> <p>a. Differentiate between health care delivery systems, including nonprofit and for-profit facilities.</p> <ul style="list-style-type: none"> <li>• Hospitals</li> <li>• Ambulatory/outpatient clinics</li> <li>• Long-term care</li> <li>• Home health</li> <li>• Medical and dental offices</li> <li>• Mental health services</li> <li>• Public health</li> </ul> <p>b. Identify health organizations and their respective roles.</p> <ul style="list-style-type: none"> <li>• Government: CDC, OSHA, Federal Drug Administration, National Institute of Health, World Health Organization, centers for Medicare and Medicaid, public health systems/health departments, Veteran's Administration</li> <li>• Nonprofit organizations: March of Dimes, American Heart Association, American Diabetes Association, American Red Cross, Alzheimer's Association, American Lung Association</li> </ul>															
<p>3. Relate the importance of lifelong learning to career success. <sup>DOK3</sup></p> <p>a. Considering 21st-century emergent technology (e.g., artificial intelligence, automation, telehealth, robotics, etc.), develop an oral and/or written report explaining the importance of lifelong learning in maintaining career relevance and advancement.</p>															

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## Unit 5: 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>DOK 1</sup>	
a. 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>	
2. Describe and demonstrate legal practices associated with health care. <sup>DOK 2</sup>	
a. 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.	
b. Describe advance directives, including topics such as living wills and durable power of attorney.	
c. Define types of consent/contracts, including informed consent, implied contracts, and expressed contracts.	
d. Research and discuss the meaning of scope of practice.	
3. Utilize procedures for reporting activities and behaviors that affect the health, safety, and the welfare of others. <sup>DOK 2</sup>	
a. Discuss the chain of command for reporting issues.	
b. Complete an incident report.	
4. Recognize and discuss ethical boundaries within the health care environment. <sup>DOK 3</sup>	
a. Differentiate between ethical and legal issues impacting health care.	
b. Identify and explain ethical dilemmas associated with organ donation, invitro fertilization, euthanasia, stem cell research, and vaccinations.	

## Enrichment

1. Identify cultural, social, and ethnic diversity within the health care environment.
  - a. Compare religious, spiritual and cultural—including ethnicity, race, religion, and gender—values as they impact health care.
  - b. Within a role-play situation, demonstrate respectful and empathetic treatment of all patients and clients.
2. Use with Competency 2:
  - a. 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).
  - b. Discuss scenarios and laws concerning various types of harassment/violence in the workplace.
3. 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.

\*Refer to your **Teacher Resource Document** for resources and strategies. Click [HERE](#) and find your pathway to download it.

## Unit 6: Communication and Teamwork

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<b>Competencies and Suggested Objectives</b>	
1. Describe the concepts of effective communication. <sup>DOK 2</sup>	
<ul style="list-style-type: none"> <li>a. Interpret verbal and nonverbal communication.</li> <li>b. Recognize barriers to communication, including physical disabilities (aphasia, hearing loss, impaired vision) and psychological barriers (attitudes, bias, prejudice, stereotypes).</li> <li>c. Differentiate subjective and objective information.</li> <li>d. Recognize the elements of communication using a sender-receiver model.</li> <li>e. Demonstrate speaking and active listening skills.</li> <li>f. Demonstrate elements of proper written and electronic communication (spelling, grammar, formatting).</li> </ul>	
2. Compare the roles and responsibilities of individual members as part of the health care team. <sup>DOK 2</sup>	
<ul style="list-style-type: none"> <li>a. Describe roles and responsibilities of team members. <ul style="list-style-type: none"> <li>• Examples of health care teams in a hospital and clinic setting.</li> <li>• Responsibilities of team members</li> <li>• Benefits of teamwork</li> </ul> </li> <li>b. Recognize and demonstrate characteristics of effective teams. <ul style="list-style-type: none"> <li>• Active participation</li> <li>• Civility</li> <li>• Commitment</li> <li>• Common goals</li> <li>• Cultural sensitivity</li> <li>• Flexibility</li> <li>• Open to feedback</li> <li>• Positive attitude</li> <li>• Reliability</li> <li>• Trust</li> <li>• Value individual contributions</li> </ul> </li> </ul>	
3. Explain the principles of interacting effectively and sensitively with all members of the health care team. <sup>DOK 2</sup>	
<ul style="list-style-type: none"> <li>a. Recognize methods for building positive team relationships, including mentorships and teambuilding.</li> <li>b. Analyze attributes and attitudes of an effective leader. <ul style="list-style-type: none"> <li>• Characteristics: interpersonal skills, focused on results, positive</li> <li>• Types: autocratic, democratic, laissez faire</li> <li>• Roles: sets vision, leads change, manages accountability</li> </ul> </li> <li>c. Apply effective techniques for managing team conflict. <ul style="list-style-type: none"> <li>• Negotiation</li> <li>• Assertive communication</li> <li>• Gather the facts</li> <li>• Clear expectations</li> <li>• Mediation</li> </ul> </li> </ul>	

\*Refer to your **Teacher Resource Document** for resources and strategies. Click [HERE](#) and find your pathway to download it.

# Unit 7: Medical Terminology and Abbreviations

## Competencies and Suggested Objectives

1. Introduce appropriate medical terminology and abbreviations. <sup>DOK 1</sup>
  - a. Use roots, prefixes, and suffixes to communicate information.
  - b. Use medical abbreviations to communicate information.

\*Refer to your **Teacher Resource Document** for resources and strategies. Click [HERE](#) and find your pathway to download it.

## Medical Roots, Prefixes, and Suffixes

<u>Medical Term</u>	<u>Meaning</u>	<u>Topic</u>
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

## Medical Abbreviations

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<b><u>Abbreviation</u></b>	<b><u>Meaning</u></b>	<b><u>Topic</u></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

## Unit 8: Body Organization

Competencies and Suggested Objectives	
1. Describe the basic organization of the body. <sup>DOK 1</sup>	
a. Identify the basic levels of organization of the human body.	
<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>	
b. Identify the four major categories of tissues and their respective locations, structures, and basic functions.	
<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>	
2. Identify the body planes, directional terms, cavities, quadrants and regions. <sup>DOK 1</sup>	
a. Body planes: sagittal, midsagittal, coronal/frontal, transverse/horizontal	
b. Directional terms: superior, inferior, anterior/ventral, posterior/dorsal, medial, lateral, proximal, distal, superficial, deep	
c. Cavities: dorsal, cranial, spinal, thoracic, abdominal, pelvic	
d. Quadrants: upper right, lower right, upper left, lower left	
e. Regions: Right/left hypochondriac, right/left lumbar, right/left iliac, epigastric, umbilical, hypogastric	

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## Unit 9: Integumentary System

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<b>Competencies and Suggested Objectives</b>																					
<p>1. Discuss the structures and functions of the integumentary system. <sup>DOK 1</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>DOK 2</sup></p> <p>a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the integumentary system.</p> <table border="0"> <tbody> <tr> <td>• acne vulgaris</td><td>• melanoma</td></tr> <tr> <td>• athlete's foot</td><td>• psoriasis</td></tr> <tr> <td>• basal cell carcinoma</td><td>• ringworm</td></tr> <tr> <td>• dermatitis</td><td>• squamous cell carcinoma</td></tr> <tr> <td>• eczema</td><td>• verrucae</td></tr> <tr> <td>• impetigo</td><td></td></tr> </tbody> </table> <p>b. Describe various skin eruptions.</p> <table border="0"> <tbody> <tr> <td>• Macules</td><td>• Crusts</td></tr> <tr> <td>• Papules</td><td>• Wheals</td></tr> <tr> <td>• Vesicles</td><td>• Ulcers</td></tr> <tr> <td>• Pustules</td><td>• Cysts</td></tr> </tbody> </table>		• acne vulgaris	• melanoma	• athlete's foot	• psoriasis	• basal cell carcinoma	• ringworm	• dermatitis	• squamous cell carcinoma	• eczema	• verrucae	• impetigo		• Macules	• Crusts	• Papules	• Wheals	• Vesicles	• Ulcers	• Pustules	• Cysts
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## Unit 10: 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>DOK 1</sup>
  - a. Identify the axial and appendicular bones.
  - b. Identify the parts of a bone.
    - Diaphysis
    - Epiphysis
    - Yellow marrow
    - Red marrow
    - Medullary canal
    - Endosteum
    - Periosteum
  - 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>DOK 2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with skeletal diseases, disorders, and injuries.
    - Bursitis
    - Osteoarthritis
    - Ruptured disk
    - Osteomyelitis
    - Rheumatoid arthritis
    - Dislocation
    - Osteoporosis
    - Sprain
    - Spinal curvatures: scoliosis, lordosis, and kyphosis
    - Fractures: colles, comminuted, compound or open, simple or close, depressed, green stick, impacted, spiral

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# Unit 11: Muscular System

<b>Competencies and Suggested Objectives</b>			
<p>1. Compare the structures and functions of the muscular system with its relationship to movement. <sup>DOK 1</sup></p> <p>a. Identify the three types of muscle.</p> <ul style="list-style-type: none"> <li>• Cardiac</li> <li>• Visceral/smooth</li> <li>• Skeletal</li> </ul> <p>b. Define the characteristics of skeletal muscle.</p> <ul style="list-style-type: none"> <li>• Excitability</li> <li>• Contractibility</li> <li>• Extensibility</li> <li>• Elasticity</li> </ul> <p>c. Identify major skeletal muscles.</p> <table border="0"> <tr> <td> <ul style="list-style-type: none"> <li>• Sternocleidomastoid</li> <li>• Trapezius</li> <li>• Deltoid</li> <li>• Biceps brachii</li> <li>• Triceps brachii</li> <li>• Pectoralis major</li> <li>• Intercostals</li> </ul> </td><td> <ul style="list-style-type: none"> <li>• Rectus abdominis</li> <li>• Latissimus dorsi</li> <li>• Gluteus maximus</li> <li>• Sartorius</li> <li>• Quadriceps femoris</li> <li>• Tibialis anterior</li> <li>• Gastrocnemius</li> </ul> </td></tr> </table> <p>d. Explain the function of the muscles.</p> <ul style="list-style-type: none"> <li>• Movement</li> <li>• Produce heat and energy</li> <li>• Maintain Posture</li> <li>• Protect internal organs</li> </ul> <p>e. Demonstrate active/passive range of motion, including adduction, abduction, flexion, extension, rotation, and circumduction.</p>		<ul style="list-style-type: none"> <li>• Sternocleidomastoid</li> <li>• Trapezius</li> <li>• Deltoid</li> <li>• Biceps brachii</li> <li>• Triceps brachii</li> <li>• Pectoralis major</li> <li>• Intercostals</li> </ul>	<ul style="list-style-type: none"> <li>• Rectus abdominis</li> <li>• Latissimus dorsi</li> <li>• Gluteus maximus</li> <li>• Sartorius</li> <li>• Quadriceps femoris</li> <li>• Tibialis anterior</li> <li>• Gastrocnemius</li> </ul>
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<p>2. Discuss diseases, disorders, and injury of the muscular system and related signs, symptoms, and treatment methods. <sup>DOK 2</sup></p> <p>a. Identify the general signs, symptoms, treatment, and prevention methods associated with muscular diseases and disorders.</p> <table border="0"> <tr> <td> <ul style="list-style-type: none"> <li>• Fibromyalgia</li> <li>• Muscular dystrophy</li> <li>• Myasthenia gravis</li> </ul> </td><td> <ul style="list-style-type: none"> <li>• Muscle spasms</li> <li>• Strain</li> </ul> </td></tr> </table>		<ul style="list-style-type: none"> <li>• Fibromyalgia</li> <li>• Muscular dystrophy</li> <li>• Myasthenia gravis</li> </ul>	<ul style="list-style-type: none"> <li>• Muscle spasms</li> <li>• Strain</li> </ul>
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## Unit 12: Cardiovascular System

### Competencies and Suggested Objectives

1. Identify and discuss the structures and functions of the cardiovascular system and their role in maintaining homeostasis. <sup>DOK 1</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.
    - Arteries
    - Arterioles
    - Capillaries
    - Venules
    - Veins
    - Aorta
    - Superior vena cava
    - Inferior vena cava
    - Pulmonary artery
    - Pulmonary veins
  - 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>DOK 2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with cardiovascular diseases and disorders.
    - Iron deficiency anemia
    - Leukemia
    - Arteriosclerosis
    - Atherosclerosis
    - Sickle cell anemia
    - Hypertension
    - Myocardial infarction
    - Congestive heart failure

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## Unit 13: Respiratory System

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### Competencies and Suggested Objectives

1. Describe the structures and functions of the respiratory system. <sup>DOK 2</sup>
  - a. Define inspiration and expiration.
  - b. Identify the structures of the respiratory system and their respective functions.
    - Nose
    - Nasal septum
    - Nasal cavity
    - Sinuses
    - Pharynx
    - Larynx
    - Lungs
    - Trachea
    - Epiglottis
    - Bronchi
    - Bronchioles
    - Alveoli
    - Pleura
  - b. Differentiate among internal, external, and cellular respiration.
2. Discuss diseases and disorders of the respiratory system and related signs, symptoms, and treatment methods. <sup>DOK 2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with respiratory diseases and disorders.
    - Asthma
    - Bronchitis
    - COPD
    - Emphysema
    - Sleep apnea
    - Lung cancer
    - Pneumonia
    - Influenza
    - Tuberculosis

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## Unit 14: Digestive System

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### Competencies and Suggested Objectives

1. Describe the structures and functions of the digestive system. <sup>DOK 1</sup>
  - a. Describe the structures comprising the alimentary canal and their respective functions in regard to 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)
      - i. Duodenum
      - ii. Ileum
      - iii. Jejunum
    - Large intestine
      - i. Cecum
      - ii. Ascending colon
      - iii. Transverse colon
      - iv. Descending colon
      - v. Sigmoid colon
    - Rectum
    - Anus
  - b. Describe the accessory structures of the digestive system and their respective functions in regard to 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>DOK 2</sup>
  - a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the digestive system.

• Appendicitis	• GERD	• Diverticulitis
• Cholecystitis	• Pancreatitis	• Hepatitis type B (HBV)
• Cirrhosis	• Ulcerative colitis	

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## Unit 15: Urinary System

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<b>Competencies and Suggested Objectives</b>	
1. Explain the structures and functions of the urinary system as they relate to the formation, composition, and elimination of urine. <sup>DOK 1</sup>	
a. Identify urinary system structures and their respective functions.	
<ul style="list-style-type: none"> <li>• Bladder (include rugae)</li> <li>• Bowman's capsule</li> <li>• Cortex</li> <li>• Glomerulus</li> <li>• Hilum</li> <li>• Kidneys</li> </ul>	<ul style="list-style-type: none"> <li>• Medulla</li> <li>• Nephrons</li> <li>• Renal pelvis</li> <li>• Ureters</li> <li>• Urethra</li> <li>• Urinary meatus</li> </ul>
2. Discuss diseases and disorders of the urinary system and related signs, symptoms, treatment, and prevention methods. <sup>DOK 2</sup>	
a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases of the urinary system.	
<ul style="list-style-type: none"> <li>• Cystitis</li> <li>• Glomerulonephritis</li> <li>• Pyelonephritis</li> <li>• Renal calculus</li> </ul>	<ul style="list-style-type: none"> <li>• Renal failure</li> <li>• Uremia</li> <li>• Urethritis</li> </ul>
b. Define disorders of the urinary system.	
<ul style="list-style-type: none"> <li>• Albuminuria</li> <li>• Anuria</li> <li>• Dysuria</li> <li>• Hematuria</li> <li>• Incontinence</li> <li>• Nocturia</li> </ul>	<ul style="list-style-type: none"> <li>• Oliguria</li> <li>• Polyuria</li> <li>• Proteinuria</li> <li>• Pyuria</li> <li>• Retention</li> </ul>

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## Unit 16: Lymphatic System

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<b>Competencies and Suggested Objectives</b>	
1. Explain the structures and functions of the lymphatic system. <sup>DOK 1</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 signs, symptoms, treatment, and prevention methods. <sup>DOK 2</sup>	
a. Identify the general 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>	

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## Unit 17: Nervous System

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Competencies and Suggested Objectives	
1. Describe the structures and functions of the nervous system. <sup>DOK 1</sup>	
a. Identify the major structures of the nervous system and their respective functions.	
<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>	
b. Describe the divisions of the nervous system.	
<ul style="list-style-type: none"><li>• Central nervous system</li><li>• Peripheral nervous system</li><li>• Sympathetic</li><li>• Parasympathetic</li></ul>	
c. Identify the structures of a neuron and the conduction process of a nerve impulse.	
<ul style="list-style-type: none"><li>• Dendrites</li><li>• Axon</li><li>• Myelin sheath</li><li>• Synapse</li><li>• Neurotransmitters</li></ul>	
2. Discuss diseases and disorders of the nervous system and related signs, symptoms, treatment, and prevention methods. <sup>DOK 2</sup>	
a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the nervous system.	
<ul style="list-style-type: none"><li>• Amyotrophic lateral sclerosis</li><li>• Parkinson's disease</li><li>• Cerebral palsy</li><li>• Cerebrovascular accident</li></ul>	<ul style="list-style-type: none"><li>• Multiple sclerosis</li><li>• Meningitis</li><li>• Shingles</li><li>• Epilepsy</li></ul>

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## Unit 18: Endocrine System

<b>Competencies and Suggested Objectives</b>	
1. Identify the structures and functions of the endocrine system. <sup>DOK 1</sup>	
a. Differentiate between endocrine and exocrine.	
b. Identify the following structures comprising the endocrine system and their respective functions.	
2. Discuss diseases and disorders of the endocrine system and related signs, symptoms, treatment, and prevention methods. <sup>DOK 2</sup>	
a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the endocrine system.	
• Acromegaly	• Giantism
• Graves' disease	• Dwarfism
• Cushing's syndrome	• Hyperthyroidism
• Diabetes mellitus	• Hypothyroidism

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<b>GLAND</b>	<b>HORMONE</b>	<b>ACTION</b>
<b>Pituitary</b> (Anterior Lobe)	ACTH-adrenocorticotrophic	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
<b>Pituitary</b> (Posterior Lobe)	ADH-vasopressin	Antidiuretic hormone; promotes reabsorption of water in kidneys, constricts blood vessels
<b>Thyroid</b>	Thyroxine & tri-iodothyronine	Increase metabolic rate; stimulate physical and mental growth; regulate metabolism of carbohydrates, fats, and proteins
<b>Adrenal</b> (Cortex)	Glucocorticoids —Cortisol-hydrocortisone —Cortisone	Aide in metabolism of proteins, fats, and carbohydrates; increase amount of glucose in blood; provide resistance to stress; depress immune response (anti-inflammatory)
	Gonadocorticoids —Estrogens —Androgens	Act as sex hormones —Stimulate female sexual characteristics —Stimulate male sexual characteristics
<b>Adrenal</b> (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
<b>Pancreas</b>	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 19: Sensory Organs

<b>Competencies and Suggested Objectives</b>			
<p>1. Identify the basic structures and functions associated with the sensory organs. <sup>DOK 1</sup></p> <p>a. Identify sensory organs' structures and describe their respective functions.</p> <table> <tr> <td> <p>Eye:</p> <ul style="list-style-type: none"> <li>• Aqueous humor</li> <li>• Choroid coat</li> <li>• Conjunctiva</li> <li>• Cornea</li> <li>• Iris</li> <li>• Lacrimal glands</li> <li>• Lens</li> <li>• Pupil</li> <li>• Retina</li> <li>• Sclera</li> <li>• Vitreous Humor</li> </ul> </td><td> <p>Ear:</p> <ul style="list-style-type: none"> <li>• Pinna/Auricle</li> <li>• Auditory canal</li> <li>• Tympanic membrane</li> <li>• Ossicles</li> <li>• Eustachian Tube</li> <li>• Cochlea</li> <li>• Organ of Corti</li> <li>• Semicircular canal</li> </ul> <p>Tongue:</p> <ul style="list-style-type: none"> <li>• Papillae</li> </ul> <p>Nose:</p> <ul style="list-style-type: none"> <li>• Olfactory receptors</li> </ul> </td></tr> </table>		<p>Eye:</p> <ul style="list-style-type: none"> <li>• Aqueous humor</li> <li>• Choroid coat</li> <li>• Conjunctiva</li> <li>• Cornea</li> <li>• Iris</li> <li>• Lacrimal glands</li> <li>• Lens</li> <li>• Pupil</li> <li>• Retina</li> <li>• Sclera</li> <li>• Vitreous Humor</li> </ul>	<p>Ear:</p> <ul style="list-style-type: none"> <li>• Pinna/Auricle</li> <li>• Auditory canal</li> <li>• Tympanic membrane</li> <li>• Ossicles</li> <li>• Eustachian Tube</li> <li>• Cochlea</li> <li>• Organ of Corti</li> <li>• Semicircular canal</li> </ul> <p>Tongue:</p> <ul style="list-style-type: none"> <li>• Papillae</li> </ul> <p>Nose:</p> <ul style="list-style-type: none"> <li>• Olfactory receptors</li> </ul>
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<p>2. Discuss diseases and disorders of the sensory organs. <sup>DOK 2</sup></p> <p>a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the sensory organs.</p> <table> <tr> <td> <ul style="list-style-type: none"> <li>• Amblyopia</li> <li>• Astigmatism</li> <li>• Cataract</li> <li>• Conjunctivitis</li> <li>• Glaucoma</li> <li>• Hearing loss (conductive, sensory)</li> </ul> </td><td> <ul style="list-style-type: none"> <li>• Meniere's disease</li> <li>• Strabismus</li> <li>• Otitis externa</li> <li>• Otitis media</li> <li>• Otosclerosis</li> </ul> </td></tr> </table>		<ul style="list-style-type: none"> <li>• Amblyopia</li> <li>• Astigmatism</li> <li>• Cataract</li> <li>• Conjunctivitis</li> <li>• Glaucoma</li> <li>• Hearing loss (conductive, sensory)</li> </ul>	<ul style="list-style-type: none"> <li>• Meniere's disease</li> <li>• Strabismus</li> <li>• Otitis externa</li> <li>• Otitis media</li> <li>• Otosclerosis</li> </ul>
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\*Refer to your **Teacher Resource Document** for resources and strategies. Click [HERE](#) and find your pathway to download it.

## Unit 20: Reproductive System

<b>Competencies and Suggested Objectives</b>																										
<p>1. Discuss the structures and functions of the male and female reproductive systems. <sup>DOK 1</sup></p> <p>a. Identify the major structures of the male and female reproductive system and their respective functions.</p> <p>Male:</p> <ul style="list-style-type: none"> <li>• Testes</li> <li>• Scrotum</li> <li>• Epididymis</li> <li>• Vas deferens</li> <li>• Seminal vesicles</li> <li>• Ejaculatory ducts</li> <li>• Prostate gland</li> <li>• Cowper's gland</li> <li>• Urethra</li> <li>• Penis</li> </ul> <p>Female:</p> <ul style="list-style-type: none"> <li>• Ovaries</li> <li>• Fallopian tubes</li> <li>• Uterus: endometrium</li> <li>• Vagina</li> <li>• Bartholin's glands</li> <li>• Vulva: mons pubis, labia majora, labia minora</li> <li>• Perineum</li> <li>• Breasts</li> </ul>																										
<p>2. Discuss diseases and disorders of the reproductive system and related signs, symptoms, treatment, and prevention methods. <sup>DOK 2</sup></p> <p>a. Identify the general signs, symptoms, treatment, and prevention methods associated with diseases and disorders of the reproductive systems and sexually transmitted infections (STIs).</p> <table border="0"> <tr> <td>• Breast cancer</td><td>• Orchitis</td><td>• Prostate cancer</td></tr> <tr> <td>• Cervical cancer</td><td>• Ovarian cancer</td><td>• Prostatic hypertrophy</td></tr> <tr> <td>• Endometriosis</td><td>• Pelvic inflammatory disease</td><td>• Testicular cancer</td></tr> <tr> <td>• Epididymitis</td><td>• Premenstrual syndrome</td><td>• Uterine cancer</td></tr> </table> <table border="0"> <tr> <td>STIs</td><td>• Herpes</td><td>• Pubic lice</td></tr> <tr> <td></td><td>• Chlamydia</td><td>• Syphilis</td></tr> <tr> <td></td><td>• Gonorrhea</td><td>• Trichomoniasis</td></tr> <tr> <td></td><td>• Acquired immune deficiency syndrome</td><td>• Human Papillomavirus</td></tr> </table>			• Breast cancer	• Orchitis	• Prostate cancer	• Cervical cancer	• Ovarian cancer	• Prostatic hypertrophy	• Endometriosis	• Pelvic inflammatory disease	• Testicular cancer	• Epididymitis	• Premenstrual syndrome	• Uterine cancer	STIs	• Herpes	• Pubic lice		• Chlamydia	• Syphilis		• Gonorrhea	• Trichomoniasis		• Acquired immune deficiency syndrome	• Human Papillomavirus
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	• Acquired immune deficiency syndrome	• Human Papillomavirus																								

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## Unit 21: Employability Preparation

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<b>Competencies and Suggested Objectives</b>	
1. Explore various careers in the health care field. <sup>DOK 2</sup>	
a. Choose at least three specific careers from the list created in Unit 4.1. Research the educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information of each one.	
b. Based on research, develop a presentation explaining the three careers and why they were chosen.	
2. Utilize career resources to develop a comprehensive class/career portfolio. <sup>DOK 2</sup>	
a. Identify and demonstrate proper file storage, sharing, and maintenance techniques (ex., various cloud storage options, email, online collaborative platforms).	
b. Research and initiate a student career information portfolio using ePortfolios (if ePortfolio is unavailable, use paper documentation).	
• Title page	
• Table of contents (pages numbered or hyperlink to contents)	
• Introduction/purpose of each course project	
• Valid professional email address	
• Resume and cover letter	
• Awards/certifications	
c. Discuss how this will be used in the next year of the secondary program.	
d. Discuss and develop strategies to utilize this portfolio for college and career opportunities.	
<b>Enrichment</b>	
1. Conduct practice interviews or answer a list of possible interview questions.	

\*Refer to your **Teacher Resource Document** for resources and strategies. Click [HERE](#) and find your pathway to download it.

# 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: Infection Control</b>		
	1.	Explain the principles of infection control.
	2.	Explain standard precaution based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations.
	3.	Utilize the principles of sterile technique.
	4.	Explain the importance of maintaining transmission-based isolation precautions.
<b>Unit 4: Careers in Health Care</b>		
	1.	Explore the various career options in the health care field.
	2.	Research and discuss health care delivery systems and health organizations.
	3.	Relate the importance of lifelong learning to career success.
<b>Unit 5: 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.
<b>Unit 6: 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 7: Medical Terminology and Abbreviations</b>		
	1.	Introduce appropriate medical terminology and abbreviations.
<b>Unit 8: Body Organization</b>		
	1.	Describe the basic organization of the body.
	2.	Identify the body planes, directional terms, cavities, quadrants and regions.
<b>Unit 9: 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 and symptoms, treatment, and prevention methods.
<b>Unit 10: 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.
<b>Unit 11: 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.
<b>Unit 12: 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.
<b>Unit 13: 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.
<b>Unit 14: 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.
<b>Unit 15: 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 signs, symptoms, treatment, and prevention methods.

<b>Unit 16: Lymphatic System</b>		
	1.	Explain the structures and functions of the lymphatic system.
	2.	Discuss diseases and disorders of the lymphatic system and related signs, symptoms, treatment, and prevention methods.
<b>Unit 17: Nervous System</b>		
	1.	Describe the structures and functions of the nervous system.
	2.	Discuss diseases and disorders of the nervous system and related signs, symptoms, treatment, and prevention methods.
<b>Unit 18: Endocrine System</b>		
	1.	Identify the structures and functions of the endocrine system.
	2.	Discuss diseases and disorders of the endocrine system and related signs, symptoms, treatment, and prevention methods.
<b>Unit 19: Sensory Organs</b>		
	1.	Identify the basic structures and functions associated with the sensory organs.
	2.	Discuss diseases and disorders of the sensory organs.
<b>Unit 20: 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.
<b>Unit 21: Employability Preparation</b>		
	1.	Explore various careers in the health care field.
	2.	Utilize career resources to develop a comprehensive class/career portfolio.

Source: *Miss. Code Ann. §§ 37-1-3 and 37-31-103*

# Appendix A: NCHSE 2015 National Health science Standards

Standard	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
NCHSE-1.11								X	X	X				X	X		X			X	X	
NCHSE-1.12								X	X					X	X					X	X	
NCHSE-1.13						X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
NCHSE-1.21								X		X	X	X	X	X	X	X	X	X	X	X	X	
NCHSE-1.22										X				X								
NCHSE-1.23						X															X	
NCHSE-1.31																						X
NCHSE-1.32																						
NCHSE-1.33																						
NCHSE-2.11		X			X	X	X										X			X		X
NCHSE-2.12		X					X													X		
NCHSE-2.13							X															
NCHSE-2.14						X	X															
NCHSE-2.15		X	X	X	X	X	X															X
NCHSE-2.16		X	X			X	X													X	X	
NCHSE-2.21			X	X		X	X	X	X	X	X	X	X	X	X	X	X			X	X	X
NCHSE-2.22						X	X	X	X	X	X	X	X	X	X	X				X	X	X
NCHSE-2.31		X	X		X	X	X	X	X						X	X						X
NCHSE-2.32			X		X	X	X	X						X	X							X
NCHSE-3.11			X		X																	
NCHSE-3.12					X																	
NCHSE-3.13					X																	
NCHSE-3.14																						
NCHSE-4.11		X																				
NCHSE-4.12		X																				
NCHSE-4.21		X					X															
NCHSE-4.31																						X
NCHSE-4.32							X															X
NCHSE-4.41																						X
NCHSE-4.42																						X
NCHSE-5.11						X		X														
NCHSE-5.21						X																
NCHSE-5.22						X																
NCHSE-5.23						X																
NCHSE-5.24						X																
NCHSE-6.11						X																
NCHSE-6.12						X																
NCHSE-6.13						X																
NCHSE-6.21														X	X							
NCHSE-6.22														X	X							
NCHSE-7.11				X				X						X	X						X	
NCHSE-7.12				X										X	X					X	X	
NCHSE-7.21			X	X	X									X						X	X	
NCHSE-7.22			X																		X	
NCHSE-7.31			X											X								
NCHSE-7.41			X											X								
NCHSE-7.42			X											X								
NCHSE-7.51			X																			
NCHSE-7.52			X																			
NCHSE-8.11		X					X													X		
NCHSE-8.12		X					X															
NCHSE-8.21		X					X															
NCHSE-8.22		X					X															
NCHSE-8.23		X					X															



NCHSE-9.11								X		X	X	X	X	X	X	X	X	X	X	X	
NCHSE-9.12								X		X	X	X	X	X	X	X	X	X	X	X	
NCHSE-9.13										X	X	X	X	X	X		X	X	X	X	
NCHSE-10.11								X						X	X						
NCHSE-10.12								X						X	X						
NCHSE-11.11						X	X	X													
NCHSE-11.12																					
NCHSE-11.13								X													
NCHSE-11.14							X	X													
NCHSE-11.15						X	X														X
NCHSE-11.21						X	X											X	X		
NCHSE-11.22																					
NCHSE-11.23						X															
NCHSE-11.24						X															
NCHSE-11.25																					
NCHSE-11.31		X	X		X		X														X
NCHSE-11.32																					X
NCHSE-11.33																					X
NCHSE-11.34							X														X
NCHSE-11.35													X	X							X
NCHSE-11.36							X														X

## **National Consortium for Health science Education**

### **National Health science Standards - May 2015**

The National Health science Standards provide a clear and consistent understanding of industry and post-secondary expectations for health science teachers and students. These standards are designed to provide the essential knowledge common across health professions to prepare and increase the number of students that are college and career ready.

### **Foundation Standard 1: Academic Foundation**

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

#### **1.1 Human Anatomy and Physiology**

1.11 Identify basic levels of organization of the human body.

- Chemical
- Cellular
- Tissue
- Organs
- Systems
- Organism

1.12 Identify body planes, directional terms, cavities, and quadrants.

- Body planes (sagittal, mid-sagittal, coronal/frontal, transverse/horizontal)
- Directional terms (superior, inferior, anterior/ventral, posterior/dorsal, medial, lateral, proximal, distal, superficial, and deep)
- Cavities (dorsal, cranial, spinal, thoracic, abdominal, and pelvic)
- Quadrants (upper right, lower right, upper left, and lower left)

1.13 Analyze basic structures and functions of human body systems (skeletal, muscular, integumentary, cardiovascular, lymphatic, respiratory, nervous, special senses, endocrine, digestive, urinary, and reproductive).

- Skeletal (bone anatomy, axial and appendicular skeletal bones, functions of bones, ligaments, types of joints)
- Muscular (microscopic anatomy of muscle tissue, types of muscle, locations of skeletal muscles, functions of muscles, tendons, directional movements)
- Integumentary (layers, structures and functions of skin)
- Cardiovascular (components of blood, structures and functions of blood components, structures and functions of the cardiovascular system, conduction system of the heart, cardiac cycle)

- e. Lymphatic (structures and functions of lymphatic system, movement of lymph fluid)
- f. Respiratory (structures and functions of respiratory system, physiology of respiration)
- g. Nervous (structures and functions of nervous tissue and system, organization of nervous system)
- h. Special senses (structures and functions of eye, ear, nose and tongue; identify senses for sight, hearing, smell, taste, touch)
- i. Endocrine (endocrine versus exocrine, structures and functions of endocrine system, hormones, regulation of hormones)
- j. Digestive (structures and functions of gastrointestinal tract, chemical and mechanical digestion, structures and functions of accessory organs)
- k. Urinary (structures and functions of urinary system, gross and microscopic anatomy, process of urine formation, urine composition, homeostatic balance)
- l. Reproductive (structures and functions of male and female reproductive systems, formation of gametes, hormone production and effects, menstrual cycle, and conception)

## **1.2 Diseases and Disorders**

- 1.21 Describe common diseases and disorders of each body system (such as: cancer, diabetes, dementia, stroke, heart disease, tuberculosis, hepatitis, COPD, kidney disease, arthritis, ulcers).
  - a. Etiology
  - b. Pathology
  - c. Diagnosis
  - d. Treatment
  - e. Prevention
- 1.22 Discuss research related to emerging diseases and disorders (such as: autism, VRSA, PTSD, Listeria, seasonal flu).
- 1.23 Describe biomedical therapies as they relate to the prevention, pathology, and treatment of disease.
  - a. Gene testing
  - b. Gene therapy
  - c. Human proteomics
  - d. Cloning
  - e. Stem cell research

## **1.3 Medical Mathematics**

- 1.31 Demonstrate competency in basic math skills and mathematical conversions as they relate to healthcare.
  - a. Metric system (such as: centi, milli, kilo)
  - b. Mathematical (average, ratios, fractions, percentages, addition, subtraction, multiplication, division)
  - c. Conversions (height, weight/mass, length, volume, temperature, household measurements)
- 1.32 Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results.
- 1.33 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**

- 2.11 Model verbal and nonverbal communication.
- 2.12 Identify common barriers to communication.
  - a. Physical disabilities (aphasia, hearing loss, impaired vision)
  - b. Psychological barriers (attitudes, bias, prejudice, stereotyping)
- 2.13 Identify the differences between subjective and objective information.
- 2.14 Interpret elements of communication using basic sender-receiver-message-feedback model.
- 2.15 Practice speaking and active listening skills.
- 2.16 Modify communication to meet the needs of the patient/client and be appropriate to the situation.

## **2.2 Medical Terminology**

2.21 Use common roots, prefixes, and suffixes to communicate information.

2.22 Interpret medical abbreviations to communicate information.

- a. Common abbreviations
- b. Joint Commission official “Do Not Use List”

## **2.3 Written Communication Skills**

2.31 Utilize proper elements of written and electronic communication (spelling, grammar, and formatting).

2.32 Prepare examples of technical, informative, and creative writing.

## **Foundation Standard 3: Systems**

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

### **3.1 Healthcare Delivery Systems**

3.11 Compare healthcare delivery systems.

- a. Non-profit and for profit (such as: hospitals, ambulatory facilities, long-term care facilities, home health, medical and dental offices, mental health services)
- b. Government (such as: CDC, FDA, WHO, OSHA, Public Health systems/Health Departments, Veteran’s Administration)
- c. Non-profit (such as: March of Dimes, American Heart Association)

3.12 Describe the responsibilities of consumers within the healthcare system (such as: self-advocacy, patient compliance, provider and consumer obligations).

3.13 Assess the impact of emerging issues on healthcare delivery systems (such as: technology, epidemiology, bioethics, socioeconomic).

3.14 Discuss healthcare economics and common methods of payment for healthcare.

- a. Private health insurance (such as: Blue Cross, Affordable Care Act - ACA)
- b. Managed care (such as: HMOs, PPOs, medical home)
- c. Government programs (Medicare, Medicaid, Tricare, and Workers’ Compensation)

## **Foundation Standard 4: Employability Skills**

Utilize employability skills to enhance employment opportunities and job satisfaction.

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

4.11 Identify personal traits and attitudes desirable in a member of the career ready healthcare team.

- a. Acceptance of criticism
- b. Competence
- c. Dependability
- d. Discretion
- e. Empathy
- f. Enthusiasm
- g. Honesty
- h. Initiative
- i. Patience
- j. Responsibility
- k. Self-motivation
- l. Tact
- m. Team player
- n. Willingness to learn

4.12 Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior.

## **4.2 Employability Skills**

4.21 Apply employability skills in healthcare.

- a. Chain of command
- b. Correct grammar
- c. Decision making
- d. Flexible
- e. Initiative
- f. Integrity
- g. Loyalty
- h. Positive attitude
- i. Professional characteristics
- j. Prompt and prepared
- k. Responsibility
- l. Scope of practice
- m. Teamwork
- n. Willing to learn

## **4.3 Career Decision-making**

4.31 Research levels of education, credentialing requirements, and employment trends in health professions.

4.32 Distinguish differences among careers within health science pathways (diagnostic services, therapeutic services, health informatics, support services, or biotechnology research and development).

## **4.4 Employability Preparation**

4.41 Develop components of a personal portfolio.

- a. Letter of introduction
- b. Resume
- c. Sample Projects
- d. Writing Sample
- e. Work-based Learning Documentation
- f. Oral Report
- g. Service Learning/Community Service
- h. Credentials
- i. Technology Skills
- j. Leadership Examples

4.42 Identify strategies for pursuing employment (social media, personal networking, job sites, internships).

## **Foundation Standard 5: Legal Responsibilities**

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

### **5.1 Legal Responsibilities and Implications**

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

- a. Malpractice
- b. Negligence
- c. Assault
- d. Battery
- e. Invasion of privacy
- f. Abuse
- g. Libel
- h. Slander

## **5.2 Legal Practices**

- 5.21 Apply standards for the safety, privacy and confidentiality of health information (HIPAA, privileged communication).
- 5.22 Describe advance directives.
- 5.23 Summarize the essential characteristics of a patient's basic rights within a healthcare setting.
- 5.24 Define informed consent.
- 5.25 Explain laws governing harassment and scope of practice.

## **Foundation Standard 6: Ethics**

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

### **6.1 Ethical Practice**

- 6.11 Differentiate between ethical and legal issues impacting healthcare.
- 6.12 Identify ethical issues and their implications related to healthcare (such as: organ donation, *in vitro* fertilization, euthanasia, scope of practice, ethics committee).
- 6.13 Utilize procedures for reporting activities and behaviors that affect the health, safety, and welfare of others (such as: incident report).

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

- 6.21 Discuss religious and cultural values as they impact healthcare (such as: ethnicity, race, religion, gender).
- 6.22 Demonstrate respectful and empathetic treatment of ALL patients/clients (such as: customer service, patient satisfaction, civility).

## **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**

- 7.11 Explain principles of infection control.
  - a. Chain of infection
  - b. Mode of transmission (direct, indirect, vectors, common vehicle [air, food, water], healthcare-associated infections [nosocomial], opportunistic)
  - c. Microorganisms (non-pathogenic, pathogenic, aerobic, anaerobic)
  - d. Classifications (bacteria, protozoa, fungi, viruses, parasites)
- 7.12 Differentiate methods of controlling the spread and growth of microorganisms.
  - a. Aseptic control (antisepsis, disinfection, sterilization, sterile technique)
  - b. Standard precautions
  - c. Isolation precautions
  - d. Blood borne pathogen precautions
  - e. Vaccinations

### **7.2 Personal Safety**

- 7.21 Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations.
- 7.22 Demonstrate principles of body mechanics.

### **7.3 Environmental Safety**

- 7.31 Apply safety techniques in the work environment.
  - a. Ergonomics
  - b. Safe operation of equipment
  - c. Patient/client safety measures (check area for safety)

## **7.4 Common Safety Hazards**

7.41 Observe all safety standards related to the Occupational Exposure to Hazardous Chemicals Standard (Safety Data Sheets (SDSs)). ([www.osha.gov](http://www.osha.gov))

7.42 Comply with safety signs, symbols, and labels.

## **7.5 Emergency Procedures and Protocols**

7.51 Practice fire safety in a healthcare setting.

7.52 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**

8.11 Evaluate roles and responsibilities of team members.

- a. Examples of healthcare teams
- b. Responsibilities of team members
- c. Benefits of teamwork

8.12 Identify characteristics of effective teams.

- a. Active participation
- b. Commitment
- c. Common goals
- d. Cultural sensitivity
- e. Flexibility
- f. Open to feedback
- g. Positive attitude
- h. Reliability
- i. Trust
- j. Value individual contributions

### **8.2 Team Member Participation**

8.21 Recognize methods for building positive team relationships (such as: mentorships and teambuilding).

8.22 Analyze attributes and attitudes of an effective leader.

- a. Characteristics (interpersonal skills, focused on results, positive)
- b. Types (autocratic, democratic, laissez faire)
- c. Roles (sets vision, leads change, manages accountability)

8.23 Apply effective techniques for managing team conflict (negotiation, assertive communication, gather the facts, clear expectations, mediation).

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

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

### **9.1 Healthy Behaviors**

9.11 Promote behaviors of health and wellness (such as: nutrition, weight control, exercise, sleep habits).

9.12 Describe strategies for prevention of disease.

- a. Routine physical exams
- b. Medical, dental, and mental health screenings
- c. Community health education outreach programs
- d. Immunizations
- e. Stress management
- f. Avoid risky behaviors

9.13 Investigate complementary and alternative health practices as they relate to wellness and disease prevention (such as: Eastern medicine, holistic medicine, homeopathy, manipulative and natural therapies).

**\*Foundation Standard 10: Technical Skills**

Apply technical skills required for all career specialties and demonstrate skills and knowledge as appropriate.

**10.1 Technical Skills**

10.11 Apply procedures for measuring and recording vital signs including the normal ranges (temperature, pulse, respirations, blood pressure, pain).

10.12 Obtain training or certification in cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), foreign body airway obstruction (FBAO) and first aid.

\*Additional technical skills may be included in a program of study based on career specialties.

**Foundation Standard 11: Information Technology Applications**

Utilize and understand information technology applications common across health professions.

**11.1 Key Principles of Health Information Systems**

11.11 Identify types of data collected in Electronic Health Records/Electronic Medical Records (EHR or EMR) (such as: history and physical, medications, diagnostic tests, patient demographics).

11.12 Explore different types of health record data collection tools (such as: patient monitoring equipment, telemedicine, phone application, and medical wearable devices).

11.13 Identify the types and content of an EHR/EMR (such as: pharmacy, laboratory, radiology).

11.14 Create documentation in EHR/EMRs that reflect timeliness, completeness, and accuracy.

11.15 Adhere to information systems policies, procedures, and regulations as required by national, state, and local entities.

**11.2 Privacy and Confidentiality of Health Information**

11.21 Apply fundamentals of privacy and confidentiality policies and procedures (HIPAA).

11.22 Identify legal and regulatory requirements related to the use of personal health information (such as: Health Information Technology Act—HITECH Act, American Recovery and Reinvestment Act—ARRA).

11.23 Identify common policies and procedures for proper access, disclosure and protection of personal health information (such as: passwords, administrative safeguards, database security).

11.24 Describe consequences of inappropriate use of health data in terms of disciplinary action.

11.25 Understand the principle to correct inaccurate information/errors entered into an EHR/EMR (such as: adding, clarifying, and correcting information).

**11.3 Basic Computer Skills**

11.31 Apply basic computer concepts and terminology necessary to use computers and other mobile devices.

11.32 Demonstrate basic computer troubleshooting procedures (such as: restart, check power supply, refresh browser, check settings).

11.33 Demonstrate use of file organization and information storage.

11.34 Identify uses of basic word processing, spreadsheet, and database applications.

11.35 Evaluate validity of web-based resources.

11.36 Demonstrate appropriate usage of email and social media in a work environment (such as: work-related communications, personal texting on own time, appropriate language and content, use full language sentences).

## Appendix B: Certified Nursing Aide (CNA)

Standard	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
CNA 1.1							X	X	X													X
CNA 1.2				X																		
CNA 1.3			X																			
CNA 1.4																						
CNA 1.5						X																
CNA 2.1																						
CNA 2.2																						
CNA 2.3																						
CNA 2.4						X				X	X	X	X	X	X	X	X	X	X	X	X	
CNA 2.5																						
CNA 3.1																						
CNA 3.2																						
CNA 3.3																						
CNA 3.4																						
CNA 3.5																						
CNA 3.6																						
CNA 3.7										X												
CNA 3.8																						
CNA 4.1							X															
CNA 4.2																						
CNA 4.3							X															
CNA 4.4																						
CNA 4.5																						
CNA 5.1																						
CNA 5.2							X															
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CNA 5.4							X															
CNA 5.5																						
CNA 6.1																						
CNA 6.2																						
CNA 6.3											X											
CNA 6.4																						
CNA 6.5																X						
CNA 6.6																						
CNA 7.1						X																
CNA 7.2																						
CNA 7.3							X															
CNA 7.4																						
CNA 7.5																						

### Certified Nursing Aide

The curriculum of the nurse aide training program must include—

**(1) At least a total of 16 hours of training in the following areas prior to any direct contact with a resident:**

- (i) Communication and interpersonal skills;
- (ii) Infection control;
- (iii) Safety/emergency procedures, including the Heimlich maneuver;
- (iv) Promoting residents' independence; and
- (v) Respecting residents' rights.

**(2) Basic nursing skills:**

- (i) Taking and recording vital signs;
- (ii) Measuring and recording height and weight;
- (iii) Caring for the residents' environment;



- (iv) Recognizing abnormal changes in body functioning and the importance of reporting such changes to a supervisor; and
- (v) Caring for residents when death is imminent.

**(3) Personal care skills, including, but not limited to:**

- (i) Bathing;
- (ii) Grooming, including mouth care;
- (iii) Dressing;
- (iv) Toileting;
- (v) Assisting with eating and hydration;
- (vi) Proper feeding techniques;
- (vii) Skin care; and
- (viii) Transfers, positioning, and turning.

**(4) Mental health and social service needs:**

- (i) Modifying aide's behavior in response to residents' behavior;
- (ii) Awareness of developmental tasks associated with the aging process;
- (iii) How to respond to resident behavior;
- (iv) Allowing the resident to make personal choices, providing and reinforcing other behavior consistent with the resident's dignity; and
- (v) Using the resident's family as a source of emotional support.

**(5) Care of cognitively impaired residents:**

- (i) Techniques for addressing the unique needs and behaviors of individual with dementia (Alzheimer's and others);
- (ii) Communicating with cognitively impaired residents;
- (iii) Understanding the behavior of cognitively impaired residents;
- (iv) Appropriate responses to the behavior of cognitively impaired residents; and
- (v) Methods of reducing the effects of cognitive impairments.

**(6) Basic restorative services:**

- (i) Training the resident in self care according to the resident's abilities;
- (ii) Use of assistive devices in transferring, ambulation, eating, and dressing;
- (iii) Maintenance of range of motion;
- (iv) Proper turning and positioning in bed and chair;
- (v) Bowel and bladder training; and
- (vi) Care and use of prosthetic and orthotic devices.

**(7) Residents' Rights.**

- (i) Providing privacy and maintenance of confidentiality;
- (ii) Promoting the residents' right to make personal choices to accommodate their needs;
- (iii) Giving assistance in resolving grievances and disputes;
- (iv) Providing needed assistance in getting to and participating in resident and family groups and other activities;
- (v) Maintaining care and security of residents' personal possessions;

## Appendix C: 21st Century Skills

	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Standard																						
CS1		X	X	X	X	X	X			X	X		X					X		X	X	X
CS2		X	X		X	X																
CS3		X	X		X	X													X			
CS4			X	X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	
CS5						X				X	X											
CS6		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	X	X
CS8		X	X	X	X	X	X	X		X	X	X	X	X	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
CS10						X	X			X	X											X
CS11			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CS12		X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CS13		X	X	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	X	X	X	X	X	X	X	X	X	X	X	X
CS15		X		X		X	X			X	X	X	X	X	X	X	X	X	X	X	X	X
CS16		X	X	X		X	X			X	X			X	X					X	X	X

### CSS1-21st Century Themes

#### CS1 Global Awareness

1. Using 21st century skills to understand and address global issues
2. 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
3. Understanding other nations and cultures, including the use of non-English languages

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

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

#### CS3 Civic Literacy

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

#### CS4 Health Literacy

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

#### CS5 Environmental Literacy

1. Demonstrate 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. Demonstrate knowledge and understanding of society's impact on the natural world (e.g., population growth, population development, resource consumption rate, etc.).

3. Investigate and analyze environmental issues, and make accurate conclusions about effective solutions.
4. Take 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 D: International Society for Technology in Education Standards (ISTE)

	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Standard																						
T1			X	X	X					X	X	X	X	X	X	X	X			X	X	X
T2				X		X	X													X	X	X
T3						X	X			X	X	X	X	X	X	X	X	X	X	X	X	X
T4																						
T5																				X	X	
T6				X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
T7				X		X	X							X	X			X	X	X	X	X

- T1** Empowered Learner  
**T2** Digital Citizen  
**T3** Knowledge Constructor  
**T4** Innovative Designer  
**T5** Computational Thinker  
**T6** Creative Communicator  
**T7** Global Collaborator

### **T1** Empowered Learner

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

- Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
- Build networks and customize their learning environments in ways that support the learning process.
- Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
- Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

### **T2** Digital Citizen

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

- Cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
- Engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
- Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
- Manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

### **T3** Knowledge Constructor

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

- Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
- Evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

- c. Curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
- d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

**T4 Innovative Designer**

Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. Students:

- a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
- b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
- c. Develop, test and refine prototypes as part of a cyclical design process.
- d. Exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

**T5 Computational Thinker**

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

- a. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
- b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
- c. Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
- d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

**T6 Creative Communicator**

Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. Students:

- a. Choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
- b. Create original works or responsibly repurpose or remix digital resources into new creations.
- c. Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
- d. Publish or present content that customizes the message and medium for their intended audiences.

**T7 Global Collaborator**

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

- a. Use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.
- b. Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
- c. Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
- d. Explore local and global issues and use collaborative technologies to work with others to investigate solutions.

## Appendix E: College and Career Ready Standards – Human Anatomy and Physiology

	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Standard																						
HAP 1.1								X	X	X	X	X	X	X	X	X	X	X	X	X	X	
HAP 1.2								X	X	X	X	X	X	X	X	X	X	X	X	X	X	
HAP 1.3								X	X	X	X	X	X	X	X	X	X	X	X	X	X	
HAP 2.1						X		X	X											X		
HAP 2.2																						
HAP 2.3*																						
HAP 3.1								X	X	X												
HAP 3.2										X												
HAP 3.3										X												
HAP 3.4*																						
HAP 4.1									X		X											
HAP 4.2									X		X											
HAP 4.3								X			X											
HAP 4.4											X											
HAP 4.5											X											
HAP 4.6								X			X											
HAP 4.7*																						
HAP 5.1									X			X								X		
HAP 5.2									X													
HAP 5.3									X													
HAP 5.4												X										
HAP 5.5									X			X										
HAP 5.6																						
HAP 5.7								X				X										
HAP 5.8*																						
HAP 6.1								X	X									X				
HAP 6.2								X														
HAP 6.3								X	X									X				
HAP 6.4																		X				
HAP 6.5*																						
HAP 6.6																		X				
HAP 6.7								X														
HAP 6.8																		X				
HAP 6.9*																						
HAP 7.1								X	X										X			
HAP 7.2																			X			
HAP 7.3																			X			
HAP 7.4																			X			
HAP 7.5*																						
HAP 8.1									X												X	
HAP 8.2																					X	
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HAP 8.5																						
HAP 8.6																						
HAP 8.7						X															X	
HAP 9.1								X	X													
HAP 9.2																						
HAP 9.3								X					X									
HAP 9.4*																						
HAP 10.1								X	X				X									
HAP 10.2								X	X				X									
HAP 10.3													X									
HAP 10.4																						



HAP.3.4 Enrichment: Use an engineering design process to design and model/simulate effective treatments for skin disorders (e.g., tissue grafts).\*

**HAP.4 Students will investigate the structures and functions of the skeletal system including the cause and effect of diseases and disorders.**

HAP.4.1 Use models to compare the structure and function of the skeletal system. HAP.4.2 Develop and use models to identify and classify major bones as part of the appendicular or axial skeleton.

HAP.4.3 Identify and classify types of joints and their movement.

HAP.4.4 Demonstrate an understanding of the growth and development of the skeletal system, differentiating between endochondral and intramembranous ossification. HAP.4.5 Construct explanations detailing how mechanisms (e.g.,  $\text{Ca}^{2+}$  regulation) are used by the skeletal system to maintain homeostasis. HAP.4.6 Research and analyze various pathological conditions (e.g., bone fractures, osteoporosis, bone cancers, various types of arthritis, and carpal tunnel syndrome).

HAP.4.7 Enrichment: Use an engineering design process to develop, model, and test effective treatments for bone disorders (i.e., prosthetics).\*

**HAP.5 Students will investigate the structures and functions of the muscular system, including the cause and effect of diseases and disorders.**

HAP.5.1 Develop and use models to illustrate muscle structure, muscle locations and groups, actions, origins, and insertions.

HAP.5.2 Describe the structure and function of the skeletal muscle fiber and the motor unit.

HAP.5.3 Explain the molecular mechanism of muscle contraction and relaxation. HAP.5.4 Use models to locate the major muscles and investigate the movements controlled by each muscle.

HAP.5.5 Compare and contrast the anatomy and physiology of the three types of muscle tissue.

HAP.5.6 Use technology to plan and conduct an investigation that demonstrates the physiology of muscle contraction, muscle fatigue, or muscle tone. Collect and analyze data to interpret results, then explain and communicate conclusions.

HAP.5.7 Research and analyze the causes and effects of various pathological conditions, (e.g., fibromyalgia, muscular dystrophy, cerebral palsy, muscle cramps/strains, and tendonitis).

HAP.5.8 Enrichment: Use an engineering design process to develop effective ergonomic devices to prevent muscle fatigue and strain (e.g., carpal tunnel, exoskeletons for paralysis, or training plans to prevent strains/sprains/cramps).\*

**HAP. 6 Students will investigate the structures and functions of the nervous system, including the cause and effect of diseases and disorders.**

HAP.6.1 Describe and evaluate how the nervous system functions and interconnects with all other body systems.

HAP.6.2 Analyze the structure and function of neurons and their supporting neuroglia cells (e.g. astrocytes, oligodendrocytes, Schwann cells, microglial).

HAP.6.3 Discuss the structure and function of the brain and spinal cord.

HAP.6.4 Compare and contrast the structures and functions of the central and peripheral nervous systems. Investigate how the systems interact to maintain homeostasis (e.g., reflex responses, sensory responses).

HAP.6.5 Enrichment: Plan and conduct an experiment to test reflex response rates under varying conditions. Using technology, construct graphs in order to analyze and interpret data to explain and communicate conclusions.

HAP.6.6 Describe the major characteristics of the autonomic nervous system. Contrast the roles of the sympathetic and parasympathetic nervous systems in maintaining homeostasis.

HAP.6.7 Describe the structure and function of the special senses (i.e., vision, hearing, taste, and olfaction).

HAP.6.8 Research and analyze the causes and effects of various pathological conditions (e.g., addiction, depression, schizophrenia, Alzheimer's, sports-related chronic traumatic encephalopathy [CTE], dementia, chronic migraine, stroke, and epilepsy).



HAP.6.9 Enrichment: Use an engineering design process to develop, model, and test preventative devices for neurological injuries and/or disorders (e.g., concussion-proof helmets or possible medications for addiction and depression).\*

**HAP.7 Students will demonstrate an understanding of the major organs of the endocrine system and the associated hormonal production and regulation.**

HAP.7.1 Obtain, evaluate, and communicate information to illustrate that the endocrine glands secrete hormones that help the body maintain homeostasis through feedback mechanisms.

HAP.7.2 Discuss the function of each endocrine gland and the various hormones secreted.

HAP.7.3 Model specific mechanisms through which the endocrine system maintains homeostasis (e.g., insulin/glucagon and glucose regulation; T3 / T4 and metabolic rates; calcitonin/parathyroid and calcium regulation; antidiuretic hormone and water balance; growth hormone; and cortisol and stress).

HAP.7.4 Research and analyze the effects of various pathological conditions (e.g., diabetes mellitus, pituitary dwarfism, Graves' disease, Cushing's syndrome, hypothyroidism, and obesity).

HAP.7.5 Enrichment: Use an engineering design process to develop effective treatments for endocrine disorders (e.g., methods to regulate hormonal imbalance).\*

**HAP. 8 Students will investigate the structures and functions of the male and female reproductive system, including the cause and effect of diseases and disorders.**

HAP.8.1 Compare and contrast the structure and function of the male and female reproductive systems.

HAP.8.2 Describe the male reproductive anatomy and relate structure to sperm production and release.

HAP.8.3 Describe the female reproductive anatomy and relate structure to egg production and release.

HAP.8.4 Construct explanations detailing the role of hormones in the regulation of sperm and egg development. Analyze the role of negative feedback in regulation of the female menstrual cycle and pregnancy.

HAP.8.5 Evaluate and communicate information about various contraceptive methods to prevent fertilization and/or implantation.

HAP.8.6 Describe the changes that occur during embryonic/fetal development, birth, and the growth and development from infancy, childhood, and adolescence to adult.

HAP.8.7 Research and analyze the causes and effects of various pathological conditions (e.g., infertility, ovarian cysts, endometriosis, sexually transmitted diseases, and ectopic pregnancy).

Research current treatments for infertility.

**HAP.9 Students will analyze the structure and functions of blood and its role in maintaining homeostasis.**

HAP.9.1 Describe the structure, function, and origin of the cellular components and plasma components of blood.

HAP.9.2 Distinguish the cellular difference between the ABO blood groups and investigate blood type differences utilizing antibodies to determine compatible donors and recipients.

HAP.9.3 Research and analyze the causes and effects of various pathological conditions (e.g., anemia, malaria, leukemia, hemophilia, and blood doping).

HAP.9.4 Enrichment: Use an engineering design process to develop effective treatments for blood disorders (e.g., methods to regulate blood cell counts or blood doping tests).\*

**HAP.10 Students will investigate the structures and functions of the cardiovascular system, including the cause and effect of diseases and disorders.**

HAP.10.1 Design and use models to investigate the functions of the organs of the cardiovascular system.

HAP.10.2 Describe the flow of blood through the pulmonary system and systemic circulation.

HAP.10.3 Investigate the structure and function of different types of blood vessels (e.g., arteries, capillaries, veins). Identify the role each plays in the transport and exchange of materials.

HAP.10.4 Demonstrate the role of valves in regulating blood flow.

HAP.10.5 Plan and conduct an investigation to test the effects of various stimuli on heart rate and/or blood pressure. Construct graphs to analyze data and communicate conclusions.

HAP.10.6 Research and analyze the effects of various pathological conditions (e.g., hypertension, myocardial infarction, mitral valve prolapse, varicose veins, and arrhythmia).

HAP.10.7 Enrichment: Use an engineering design process to develop, model, and test effective treatments for cardiovascular diseases (e.g., methods to regulate heart rate, artificial replacement valves, open blood vessels, or strengthening leaky valves).\*

**HAP. 11 Students will investigate the structures and functions of the lymphatic system, including the cause and effect of diseases and disorders.**

HAP.11.1 Analyze the functions of leukocytes, lymph, and lymphatic organs in the immune system.

HAP.11.2 Compare the primary functions of the lymphatic system and its relationship to the cardiovascular system.

HAP.11.3 Compare and contrast the body's non-specific and specific lines of defense, including an analysis of the roles of various leukocytes: basophils, eosinophils, neutrophils, monocytes, and lymphocytes.

HAP.11.4 Correlate the functions of the spleen, thymus, lymph nodes, and lymphocytes to the development of immunity.

HAP.11.5 Differentiate the role of B-lymphocytes and T-lymphocytes in the development of humoral and cell-mediated immunity and primary and secondary immune responses.

HAP.11.6 Investigate various forms of acquired and passive immunity (e.g., fetal immunity, breastfed babies, vaccinations, and plasma donations).

HAP.11.7 Research and analyze the causes and effects of various pathological conditions (e.g., viral infections, auto-immune disorders, immunodeficiency disorders, and lymphomas).

**HAP. 12 Students will investigate the structures and functions of the respiratory system, including the cause and effect of diseases and disorders.**

HAP.12.1 Design and use models to illustrate the functions of the organs of the respiratory system.

HAP.12.2 Describe structural adaptations of the respiratory tract and relate these structural features to the function of preparing incoming air for gas exchange at the alveolus.

HAP.12.3 Identify the five mechanics of gas exchange: pulmonary ventilation, external respiration, transport gases, internal respiration, and cellular respiration.

HAP.12.4 Enrichment: Use an engineering design process to develop a model of the mechanisms that support breathing, and illustrate the inverse relationship between volume and pressure in the thoracic cavity.\*

HAP.12.5 Research and analyze the causes and effects of various pathological conditions (e.g., asthma, bronchitis, pneumonia, and COPD).

HAP.12.6 Research and discuss new environmental causes of respiratory distress (e.g., e-cigarettes, environmental pollutants, and changes in inhaled gas composition).

**HAP.13 Students will investigate the structures and functions of the digestive system, including the cause and effect of diseases and disorders.**

HAP.13.1 Analyze the structure-function relationship in organs of the digestive system. HAP.13.2 Use models to describe structural adaptations present in each organ of the tract and correlate the structures to specific processing of food at each stage (e.g., types of teeth; muscular, elastic wall and mucous lining of the stomach; villi and microvilli of the small intestine; and sphincters along the digestive tract).

HAP.13.3 Identify the accessory organs (i.e., salivary glands, liver, gallbladder, and pancreas) for digestion and describe their function.

HAP.13.4 Plan and conduct an experiment to illustrate the necessity of mechanical digestion for efficient chemical digestion.

HAP.13.5 Research and analyze the activity of digestive enzymes within different organs of the digestive tract, connecting enzyme function to environmental factors such as pH. HAP.13.6 Evaluate the role of hormones (i.e., gastrin, leptin, and insulin) in the regulation of hunger and satiety/fullness. HAP.13.7 Research and analyze the causes and effects of various pathological conditions (e.g., GERD/acid reflux, stomach ulcers, lactose intolerance, irritable bowel syndrome, gallstones, appendicitis, and hormonal imbalances and obesity). HAP.13.8 Enrichment: Use an engineering design process to develop effective treatments for gastrointestinal diseases (e.g., methods to regulate stomach acids or soothe ulcers, treat food intolerance, and dietary requirements/modifications).\*

**HAP.14 Students will investigate the structures and functions of the urinary system, including the cause and effect of diseases and disorders.**

HAP.14.1 Understand the structure and function of the urinary system in relation to maintenance of homeostasis.

HAP.14.2 Describe the processes of filtration and selective reabsorption within the nephrons as it relates to the formation of urine and excretion of excess materials in the blood.

HAP.14.3 Investigate relationship between urine composition and the maintenance of blood sugar, blood pressure, and blood volume.

HAP.14.4 Enrichment: Conduct a urinalysis to compare the composition of urine from various “patients.”

HAP.14.5 Develop and use models to illustrate the path of urine through the urinary tract. HAP.14.6 Research and analyze the causes and effects of various pathological conditions and other kidney abnormalities (e.g., kidney stones, urinary tract infections, gout, dialysis, and incontinence).

## Appendix F: College and Career Ready Standards – English Language Arts

Standard	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
RI.9.3																						
RI.9.5																						
RI.9.6																						
RI.9.7																						
RI.9.8																						
RI.9.9																						
W.9.1						X																X
W.9.2			X		X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X
W.9.3					X	X																
W.9.4			X		X	X				X	X	X	X	X	X	X	X	X	X	X	X	X
W.9.5			X							X	X	X	X	X	X	X	X	X	X	X	X	X
W.9.6			X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	X
W.9.7					X					X	X	X	X	X	X	X	X	X	X	X	X	X
W.9.8			X							X	X	X	X	X	X	X	X	X	X	X	X	X
W.9.9										X	X	X	X	X	X	X	X	X	X	X	X	X
W.9.10																						X
SL.9.1			X		X					X	X	X	X	X	X	X	X	X	X	X	X	X
SL.9.2			X		X			X		X	X	X	X	X	X	X	X	X	X	X	X	X
SL.9.3																						
SL.9.4			X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X
SL.9.5			X		X					X	X	X	X	X	X	X	X	X	X	X	X	X
SL.9.6			X							X	X	X	X	X	X							X
L.9.1			X		X	X				X	X	X	X	X	X	X	X	X	X	X	X	X
L.9.2			X					X		X	X	X	X	X	X	X	X	X	X	X	X	X
L.9.3														X	X					X	X	X
L.9.4			X		X	X	X							X	X							X
L.9.5								X														
L.9.6			X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
RH.9-10.1														X	X	X	X	X	X	X	X	
RH.9-10.2														X	X	X	X	X	X	X	X	X
RH.9-10.3										X	X	X	X	X	X							
RH.9-10.4			X		X			X														X
RH.9-10.5																						
RH.9-10.6																						
RH.9-10.7					X	X								X	X	X	X					
RH.9-10.8																						
RH.9-10.9										X	X	X	X	X	X	X	X					
RH.9-10.10																						
RST.9-10.1														X	X	X	X					
RST.9-10.2														X	X	X	X					
RST.9-10.3																						
RST.9-10.4			X			X	X	X		X	X	X	X	X	X	X	X					
RST.9-10.5				X				X		X	X	X	X									X
RST.9-10.6														X	X	X	X					
RST.9-10.7								X						X	X	X	X			X	X	X
RST.9-10.8																						
RST.9-10.9																						
RST.9-10.10																						
WHST.9-10.1					X	X								X	X	X	X					
WHST.9-10.2														X	X	X	X					
WHST.9-10.3														X	X	X	X					X
WHST.9-10.5																						X
WHST.9-10.6			X	X	X	X	X			X	X	X	X	X	X	X	X	X	X			X
WHST.9-10.7										X	X	X	X									

WHST.9-10.8										X	X	X	X	X	X	X	X	X			
WHST.9-10.9										X	X	X	X								X
WHST.9-10.10																					X
RL11.3																					X
RL11.4						X	X	X		X	X	X	X	X	X	X	X	X			X
RL11.5																					
RL11.6										X	X	X	X								
RL11.7						X	X			X	X	X	X	X	X	X	X	X			X
RL11.8																					
RL11.9																					
RL11.10										X	X	X	X								
W.11.1						X	X			X				X	X				X	X	
W.11.2						X	X							X	X						X
W.11.3						X	X	X													
W.11.4						X	X	X						X	X						X
W.11.5																					X
W.11.6										X	X	X	X	X	X	X	X	X			X
W.11.7																					X
W.11.8																					
W.11.9										X	X	X	X	X	X						X
W.11.10																					X
SL.11.1						X	X							X	X	X	X	X	X		X
SL.11.2								X		X	X	X	X	X	X	X	X	X	X		
SL.11.3																					
SL.11.4			X		X	X	X			X	X	X	X	X	X						X
SL.11.5			X		X	X	X							X	X	X	X	X	X		X
SL.11.6														X	X						X
L.11.1a																					
L.11.1b																					
L.11.2a																					
L.11.3a																					
L.11.4						X	X							X	X						X
RH.11-12.1										X	X	X	X	X	X	X	X	X	X	X	X
RH.11-12.2																					
RH.11-12.3																					
RH.11-12.4			X		X									X	X						X
RH.11-12.5																					
RH.11-12.6																					
RH.11-12.7														X	X						X
RH.11-12.8																					
RH.11-12.9										X	X	X	X	X	X	X	X	X	X	X	X
RH.11-12.10																					
RST.11-12.1										X	X	X	X	X	X	X	X	X	X	X	
RST.11-12.2										X	X	X	X	X	X	X	X	X	X	X	
RST.11-12.3										X	X	X	X								
RST.11-12.4			X			X	X	X		X	X	X	X	X	X	X	X	X	X	X	
RST.11-12.5										X	X	X	X								
RST.11-12.6																					
RST.11-12.7										X	X	X	X	X	X	X	X	X	X	X	X
RST.11-12.8										X	X	X	X	X	X	X	X	X	X	X	
RST.11-12.9										X	X	X	X	X	X	X	X	X	X	X	X
RST.11-12.10										X	X	X	X	X	X	X	X	X	X	X	X
WHST.11-12.1																					
WHST.11-12.2						X	X			X	X	X	X	X	X	X	X	X	X	X	
WHST.11-12.6			X		X					X	X	X	X	X	X	X	X	X	X	X	
WHST.11-12.8			X		X	X				X	X	X	X	X	X	X	X	X	X	X	

## College and Career Ready English I

### Reading Informational Text Key Ideas and Details

RI.9.3 Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

### Craft and Structure

RI.9.5 Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).

RI.9.6 Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.

### Integration of Knowledge and Ideas

RI.9.7 Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.

RI.9.8 Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

RI.9.9 Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.

## College and Career Ready English I

### Writing Text Types and Purposes

W.9.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

W.9.1a Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.

W.9.1b Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.

W.9.1c Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

W.9.1d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

W.9.1e Provide a concluding statement or section that follows from and supports the argument presented.

W.9.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

W.9.2a Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

W.9.2b Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

W.9.2c Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

### College and Career Ready English I

W.9.2d Use precise language and domain-specific vocabulary to manage the complexity of the topic.

W.9.2e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

W.9.2f Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

W.9.3 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

W.9.3a Engage and orient the reader by setting out a problem, situation, or observation, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.

W.9.3b Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.

W.9.3c Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.

W.9.3d Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.

W.9.3e Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

#### Production and Distribution of Writing

W.9.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

W.9.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10.)

W.9.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology’s capacity to link to other information and to display information flexibly and dynamically.

#### Research to Build and Present Knowledge

W.9.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

#### College and Career Ready English I

W.9.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

W.9.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

W.9.9a Apply grades 9–10 Reading standards to literature (e.g., “Analyze how an author draws on and transforms source material in a specific work [e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare]”).

W.9.9b Apply grades 9–10 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).

#### Range of Writing

W.9.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audience.

#### College and Career Ready English I

SL.9.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

SL.9.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

SL.9.1b Work with peers to set rules for collegial discussions and decision making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.

SL.9.1c Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.

SL.9.1d Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

SL.9.2 Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

SL.9.3 Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.

#### Presentation of Knowledge and Ideas

SL.9.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

#### College and Career Ready English I

SL.9.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

SL.9.6 Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9–10 Language standards 1 and 3 for specific expectations.)

#### Language

##### Conventions of Standard English

L.9.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.9.1a Use parallel structure.\*

L.9.1b Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

L.9.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

L.9.2a Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

L.9.2b Use a colon to introduce a list or quotation.

L.9.2c Spell correctly

##### Knowledge of Language

L.9.3 Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening

L.9.3a Write and edit work so that it conforms to the guidelines in a style manual (e.g., MLA Handbook, Turabian's Manual for Writers) appropriate for the discipline and writing type.

##### Vocabulary Acquisition and Use

L.9.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.

L.9.4a Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

L.9.4b Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., analyze, analysis, analytical; advocate, advocacy).

#### College and Career Ready English I

L.9.4c Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.

L.9.4d Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).



L.9.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

L.9.5a Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.

L.9.5b Analyze nuances in the meaning of words with similar denotations.

L.9.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

## College and Career Ready English II

### Range of Reading and Level of Text Complexity

RL.10.10 By the end of grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9-10 text complexity band independently and proficiently.

## Grades 9-10: Literacy in History/SS

### Reading in History/Social Studies Key Ideas and Details

RH.9-10.1 Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.

RH.9-10.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.

RH.9-10.3 Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

### Craft and Structure

RH.9-10.4 Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social science.

RH.9-10.5 Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

RH.9-10.6 Compare the point of view of two or more authors for how they treat the same or similar topics, including which details they include and emphasize in their respective accounts.

### Integration of Knowledge and Ideas

RH.9-10.7 Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.

RH.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claims.

RH.9-10.9 Compare and contrast treatments of the same topic in several primary and secondary sources.

### Range of Reading and Level of Text Complexity

RH.9-10.10 By the end of grade 10, read and comprehend history/social studies texts in the grades 9–10 text complexity band independently and proficiently.

## Grades 9-10: Literacy in Science and Technical Subjects

### Reading in Science and Technical Subjects Key Ideas and Details

RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

### Craft and Structure

RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).

RST.9-10.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.

#### Integration of Knowledge and Ideas

RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts

#### Range of Reading and Level of Text Complexity

RST.9-10.10 By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

### Grades 9-10: Writing in History/SS, Science, and Technical Subjects

#### Writing Text Types and Purposes

WHST.9-10.1 Write arguments focused on discipline-specific content.

WHST.9-10.1a Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.

WHST.9-10.1b Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.

WHST.9-10.1c Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

WHST.9-10.1d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

WHST.9-10.1e Provide a concluding statement or section that follows from or supports the argument presented.

WHST.9-10.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

WHST.9-10.2a Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

WHST.9-10.2b Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

### Grades 9-10

#### Writing in History/SS, Science, and Technical Subjects

WHST.9-10.2c Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.

WHST.9-10.2d Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.

WHST.9-10.2e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

WHST.9-10.2f Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

WHST.9-10.3 Not Applicable

### Production and Distribution of Writing

WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

WHST.9-10.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

WHST.9-10.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

### Research to Build and Present Knowledge

WHST.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

WHST.9-10.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

WHST.9-10.9 Draw evidence from informational texts to support analysis, reflection, and research.

Grades 9-10

Writing in History/SS, Science, and Technical Subjects

### Range of Writing

WHST.9-10.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

English III

### Reading Literature Key Ideas and Details

RL.11.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

RL.11.2 Determine two or more themes or central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text.

RL.11.3 Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).

### Craft and Structure

RL.11.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (Include Shakespeare as well as other authors.)

RL.11.5 Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning as well as its aesthetic impact.

RL.11.6 Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).

### Integration of Knowledge and Ideas

RL.11.7 Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)

RL.11.8 Not applicable to literature.

RL.11.9 Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics.

Range of Reading and Level of Text Complexity

RL.11.10 By the end of grade 11, read and comprehend literature, including stories, dramas, and poems, in the grades 11-CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

English III

Reading Informational Text Key Ideas and Details

RI.11.3 Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.

Craft and Structure

RI.11.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

RI.11.5 Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.

RI.11.6 Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.

Integration of Knowledge and Ideas

RI.11.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

RI.11.8 Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).

RI.11.9 Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including Them Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.

Range of Reading and Level of Text Complexity

RI.11.10 By the end of grade 11, read and comprehend literary nonfiction in the grades 11-CCR text complexity band proficiently, with scaffolding as needed at the high end of the range.

English III

Writing

W.11.1 Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

W.11.1a Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence.

W.11.1b Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.

W.11.1c Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

W.11.1d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

W.11.1e Provide a concluding statement or section that follows from and supports the argument presented.

W.11.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.  
W.11.2a Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

### English III

W.11.2b Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.  
W.11.2c Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.  
W.11.2d Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.  
W.11.2e Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.  
W.11.2f Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).  
W.11.3 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.  
W.11.3a Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events.  
W.11.3b Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.  
W.11.3c Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome (e.g., a sense of mystery, suspense, growth, or resolution).  
W.11.3d Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.  
W.11.3e Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

### Production and Distribution of Writing

W.11.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

### English III

W.11.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 11–12.)  
W.11.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

### Research to Build and Present Knowledge

W.11.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.  
W.11.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.  
W.11.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.

W.11.9a Apply grades 11–12 Reading standards to literature (e.g., “Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics”).

W.11.9b Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., The Federalist, presidential addresses]”).

#### Range of Writing

W.11.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

### English III

#### Speaking and Listening

##### Comprehension and Collaboration

SL.11.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

SL.11.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

SL.11.1b Work with peers to promote civil, democratic discussions and decision making, set clear goals and deadlines, and establish individual roles as needed.

SL.11.1c Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.

SL.11.1d Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.

SL.11.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

SL.11.3 Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

##### Presentation of Knowledge and Ideas

SL.11.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

### English III

SL.11.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

SL.11.6 Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 for specific expectations.)

### English III

#### Language

##### Conventions of Standard English

L.11.1a Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested.

L.11.1b Resolve issues of complex or contested usage, consulting references (e.g., Merriam-Webster’s Dictionary of English Usage, Garner’s Modern American Usage) as needed.

L.11.2a Observe hyphenation conventions.

L.11.3a Vary syntax for effect, consulting references (e.g., Tufte’s Artful Sentences) for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.

#### Vocabulary Acquisition and Use

L.11.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.

L.11.4b Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., conceive, conception, conceivable).

#### English IV

##### Range of Reading and Level of Text Complexity

RL.12.10 By the end of grade 12, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 11–CCR text complexity band independently and proficiently.

#### Grades 11-12: Literacy in History/SS

##### Reading in History/Social Studies Key Ideas and Details

RH.11-12.1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

RH.11-12.2 Determine the central ideas or information of a primary or secondary source; provide an accurate summary that makes clear the relationships among the key details and ideas.

RH.11-12.3 Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain. Craft and Structure

RH.11-12.4 Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

RH.11-12.5 Analyze in detail how a complex primary source is structured, including how key sentences, paragraphs, and larger portions of the text contribute to the whole.

RH.11-12.6 Evaluate authors’ differing points of view on the same historical event or issue by assessing the authors’ claims, reasoning, and evidence. Integration of Knowledge and Ideas

Rh.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

RH.11-12.8 Evaluate an author’s premises, claims, and evidence by corroborating or challenging them with other information.

RH.11-12.9 Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among sources. Range of Reading and Level of Text Complexity

RH.11-12.10 By the end of grade 12, read and comprehend history/social studies texts in the grades 11–CCR text complexity band independently and proficiently.

#### Grades 11-12: Literacy in Science and Technical Subjects

##### Reading in Science and Technical Subjects Key Ideas and Details

RST. 11-12.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

##### Craft and Structure

RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.

RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

RST.11-12.6 Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

#### Range of Reading and Level of Text Complexity

RST.11-12.10 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Grades 11-12: Writing I History/SS, Science and Technical Subjects

#### Writing

##### Text Types and Purposes

WHST.11-12.1a Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

WHST.11-12.1b Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.

WHST.11-12.1c Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.

WHST.11-12.2a Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

#### Grades 11-12: Writing I History/SS, Science and Technical Subjects

WHST.11-12.2d Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.

#### Production and Distribution of Writing

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

WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.