

Title 7: Education K-12

Part 137: Mississippi Secondary Curriculum Frameworks in Career and Technical Education,  
Health Science, Health Care and Clinical Services



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

## 2020 Health Care and Clinical Services

Program CIP: 51.0000 – 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 care and clinical services 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 care and clinical services curriculum:

Wendy Clemons, associate superintendent of education for the Office of Career and Technical Education (CTE) at the Mississippi Department of Education (MDE), supported the RCU and the teachers throughout the development of the health care and clinical services curriculum.

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  
Brieanna 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  
Deanna Dunaway, Lamar County Career and Technology Center, Purvis  
Judy Grice, Forrest County Agricultural High School, Brooklyn  
Sharon Murphey, Quitman County Career and Technology Center, Marks  
Mary Slaughter, Madison Career and Technical 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 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 Lockett, instructional design specialist, RCU at MSU

# Standards

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Standards and alignment crosswalks are referenced in the appendices. Mississippi’s CTE health care and clinical services curriculum 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.

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

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

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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 2015.

[p21.org/storage/documents/docs/P21\\_Framework\\_Definitions\\_New\\_Logo\\_2015.pdf](http://p21.org/storage/documents/docs/P21_Framework_Definitions_New_Logo_2015.pdf)

## 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 care and clinical services (HCCS) is one of the options for a second course for students in the health sciences career cluster. Health science core is the prerequisite for this class. The HCCS course includes classroom and hands-on experiences that will provide students with an overview of the health care field, as outlined according to the health science cluster in the National Career Clusters Framework and the National Consortium on Health Science Education. It will also begin to prepare students for careers in occupations predicted to have a high number of available jobs in the next 10 years.

The HCCS program requires 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. The remaining number of hours not obtained by the student in the Health Science Core class should be obtained by the completion of the HCCS 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 HCCS 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 post-secondary 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 students. Scheduling and/or operating more than one course in the same classroom/laboratory with the same teacher is not recommended. In order 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. Please be aware that health care facilities often require a no more than a 10-to-1 student/teacher ratio in order to participate in job shadowing. Having a class that is too large decreases the quality experience that the HCCS class is meant to provide for the student.



## **Student Prerequisites**

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

1. C or higher in Health Science Core
2. C or higher in Biology
3. C or higher in English (the previous year)
4. C or higher in high school-level math (last course taken or the instructor can specify the level of math instruction needed)
5. Instructor approval and TABE reading score (eighth grade or higher)

**or**

1. C or higher in Health Science Core
2. TABE reading and math score (eighth grade or higher)
3. Instructor approval

**or**

1. Instructor approval

## **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 Care and Clinical Services I—Course Code: 995104**
2. **Health Care and Clinical Services II—Course Code: 995105**

### **Course Description: Health Care and Clinical Services I**

The HCCS I course introduces students to many of the basic medical skills that all health care professionals must have. At the beginning of each unit, the students explore the various career options available and learn some basic information about that specific field of health care. In this course, students review necessary safety procedures and then move into emergency services; learning skills related to basic life support, first aid and how to record and interpret vital signs. After an overview of human growth and development the students then jump back into the various services/fields in health care, learning about careers and various skills in each area, with units on sports medicine and rehabilitative services.

### **Course Description: Health Care and Clinical Services II**

The HCCS II course is a continuation of the exploration of careers and skills in various health care fields. The course begins with a substantial amount of time spent on medical and nursing services, where students learn the basic skills necessary to pursue a career in nursing. After that, students learn about nutrition and dietetics, respiratory care, mental health services, pharmacology, laboratory services, and medical imaging. After a brief overview of health information management, students finish the course with a unit on employment opportunities in health care. This final unit will have them apply for jobs, participate in interviews, create resumés and cover letters, and more.

### **Health Care and Clinical Services I—Course Code: 995104**

Unit	Unit Name	Hours
1	Course Orientation and Safety Review	10.5
2	Emergency Services and Basic Life Support	18
3	First Aid	34.5
4	Vital Signs	22.5
5	Human Growth and Development	22.5
6	Sports Medicine	7.5
7	Rehabilitative Services	10.5
Total		126

**Health Care and Clinical Services II—Course Code: 995105**

Unit	Unit Name	Hours
8	Medical Services	15
9	Nursing Services	33
10	Nutrition and Dietetics	10.5
11	Respiratory Care Services	7.5
12	Mental Health	10.5
13	Pharmacology	10.5
14	Laboratory Services	7.5
15	Medical Imaging Services	6
16	Health Information Management	7.5
17	Employment Opportunities in Health Care	7.5
Total		115.5

## Option 2—One 2-Carnegie-Unit Courses

This curriculum consists of one 2-credit course:

### 1. Health Care and Clinical Services—Course Code: 995101

#### Course Description: Health Care and Clinical Services

The HCCS course introduces students to many of the basic medical skills that all health care professionals must have. At the beginning of each unit, the students explore the various career options available and learn some basic information about that specific field of health care. Students begin with a review of necessary safety procedures and then move into emergency services; learning skills related to basic life support, first aid and how to record and interpret vital signs. After an overview of human growth and development the students then jump back into the various services/fields in health care, learning about careers and various skills in each area, with units on sports medicine and rehabilitative services. After this, a substantial amount of time is spent on medical and nursing services, where students learn the basic skills necessary to pursue a career in nursing. The course continues with units on nutrition and dietetics, respiratory care, mental health services, pharmacology, laboratory services, and medical imaging. After a brief overview of health information management, students finish the course with a unit on employment opportunities in health care. This final unit will have them apply for jobs, participate in interviews, create resumés and cover letters, and more.

#### Health care and Clinical Services — Course Code: 995101

Unit	Unit Name	Hours
1	Course Orientation and Safety Review	10.5
2	Emergency Services and Basic Life Support	18
3	First Aid	34.5
4	Vital Signs	22.5
5	Human Growth and Development	22.5
6	Sports Medicine	7.5
7	Rehabilitative Services	10.5
8	Medical Services	15
9	Nursing Services	33
10	Nutrition and Dietetics	10.5
11	Respiratory Care Services	7.5
12	Mental Health	10.5
13	Pharmacology	10.5
14	Laboratory Services	7.5
15	Medical Imaging Services	6
16	Health Information Management	7.5
17	Employment Opportunities in Health Care	7.5
Total		241.5

# 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 care and nursing and residential care should increase rapidly as life expectancies rise and families need assistance caring for their elderly family members and thus rely more on long-term care facilities. New technologies will continue to enable earlier diagnoses of many diseases, which often increases the ability to treat conditions that were previously terminal. 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-college level.

## Needs of the Future Workforce

The following table contains information that is specific to the state of 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 to 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
Dietitians/Nutritionists	520	560	40	7.7	\$49,110
Diagnosing Medical Sonographers	730	830	100	13.7	\$64,770
Emergency Medical Technicians and Paramedics	2,150	2,230	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

<b>Description</b>	<b>Current Jobs (2016)</b>	<b>Projected Jobs (2026)</b>	<b>Change (#)</b>	<b>Change (%)</b>	<b>Median Annual Earnings</b>
Nurse, LPN	8,960	9,210	250	2.8	\$37,280
Nurse, RN	29,380	32,350	2,970	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**

This curriculum meets Perkins IV requirements of introducing students to and preparing them for high-skill, high-wage occupations in health care fields. It also offers students a program of study, including secondary, postsecondary, and institutions of higher learning courses, that will further prepare them for health care careers. Additionally, this curriculum is integrated with academic college and career readiness standards. Lastly, the 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 HCCS 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 and Human Anatomy and Physiology*, the Framework for 21st Century Skills, and the 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 HCCS 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, future health professionals is the main health science student organization in Mississippi, while SkillsUSA has some health science competitions as well. These organizations will foster the types of learning expected from the health care and clinical services 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 care and clinical services 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 care and clinical services 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. This 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 provide a link to all types of students in regard to knowledge, skills, and professional dispositions. Thus, supervised collaboration and immersion into the healthcare world around the students are keys to students' success, knowledge, and skills development.

### **Conclusions**

The health care and clinical services curriculum will prepare students with the necessary skills and knowledge to advance into any healthcare 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 to the workforce, post-secondary 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 Cancer Society**

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

**American Association for Respiratory Care**

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

[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**

[asahp.org](http://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**  
[nursesource.org](http://nursesource.org)

**Nurse.com**  
[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 non-tested 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.

## **References**

A list of suggested references is provided for each unit within the accompanying teacher resource document. The list includes some of the primary instructional resources that may be used to teach the competencies and suggested objectives. Again, these resources are suggested, and the list may be modified or enhanced based on needs and abilities of students and on available resources. 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: Course Orientation and Safety Review

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<b>Competencies and Suggested Objectives</b>																
<p>1. Describe the purpose of the course. <sup>DOK 1</sup></p> <p>a. Identify student and course expectations.</p> <p>b. Review the health science student organization (HOSA).</p> <ul style="list-style-type: none"><li>• Deadlines</li><li>• Nominate officers</li><li>• Fundraising</li><li>• National service project</li><li>• Competitive events</li></ul> <p>c. Discuss leadership and personal development in accordance with HOSA guidelines.</p>																
<p>2. Identify the personal traits and attitudes desirable in a member of the career ready health care team. <sup>DOK 2</sup></p> <p>a. Define and demonstrate desirable traits and attitudes of team members.</p> <table><tbody><tr><td>• Acceptance of criticism</td><td>• Honesty</td></tr><tr><td>• Accuracy/attention to detail</td><td>• Initiative</td></tr><tr><td>• Adaptability</td><td>• Patience</td></tr><tr><td>• Competence</td><td>• Responsibility</td></tr><tr><td>• Dependability</td><td>• Self-motivation</td></tr><tr><td>• Discretion</td><td>• Tact</td></tr><tr><td>• Empathy</td><td>• Team player</td></tr><tr><td>• Enthusiasm</td><td>• Willingness to learn</td></tr></tbody></table> <p>b. Summarize professional standards as they apply to hygiene, dress, language, confidentiality, and behavior.</p>	• Acceptance of criticism	• Honesty	• Accuracy/attention to detail	• Initiative	• Adaptability	• Patience	• Competence	• Responsibility	• Dependability	• Self-motivation	• Discretion	• Tact	• Empathy	• Team player	• Enthusiasm	• Willingness to learn
• Acceptance of criticism	• Honesty															
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• Discretion	• Tact															
• Empathy	• Team player															
• Enthusiasm	• Willingness to learn															
<p>3. Review and complete proper procedures for clinical site visits as needed. <sup>DOK 1</sup></p> <p>a. Research and identify local facility requirements and complete various tasks.</p> <ul style="list-style-type: none"><li>• Proper Occupational Safety and Health Administration (OSHA) and Health Insurance and Portability Act (HIPPA) training standards</li><li>• Student/volunteer health requirements (immunizations, tuberculosis (tb) test, etc.)</li><li>• Proper worksite behavior (ex., cell phone use)</li><li>• Proper identification and documentation</li><li>• Safety standards</li></ul>																
<p>4. Review and demonstrate the proper safety procedures in the health care setting. <sup>DOK 2</sup></p> <p>a. Describe personal and environmental safety practices.</p> <p>b. Identify the common safety hazards.</p> <p>c. Utilize emergency procedures and protocols.</p>																

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

## Unit 2: Emergency Services and Basic Life Support

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### Competencies and Suggested Objectives

1. Explore careers in the field of emergency services. <sup>DOK 1</sup>
  - a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information for various careers.
    - Emergency/trauma physician
    - Paramedic
    - Emergency medical technician (EMT)
    - Flight nurse
2. Perform skills obtained in training or certification for basic life support according to the latest information from the American Heart Association. <sup>DOK 2</sup>
  - a. Demonstrate the procedure for administering cardiopulmonary resuscitation (CPR) to infants, children, and adults.
  - b. Demonstrate the procedure for administering CPR using an automated external defibrillator (AED) for infants, children, and adults.
  - c. Demonstrate the procedure for removal of a foreign-body airway obstruction for infants, children, and adults.

### Enrichment

1. Contact and become involved in a local community emergency response team (CERT) by undergoing the proper training, specifically Mississippi Youth Preparedness Initiative (MyPI).
2. Differentiate between common and emergency procedures, including patient assessment, airway management, oxygen therapy, immobilization skills, patient transfers.
3. Utilize HOSA competitive events guidelines on emergency personnel.

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

## Unit 3: First Aid

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### Competencies and Suggested Objectives

1. Discuss the necessary skills to provide first aid treatment. <sup>DOK 1</sup>
  - a. Describe the basic principles of first aid.
    - Recognize emergency exists
    - Scene safety
    - Patient assessment (responsiveness, injuries present)
    - Activate EMS
    - Triage (if multiple victims are present)
2. Describe the concepts for treating bleeding and the application of dressings and bandages. <sup>DOK 2</sup>
  - a. Differentiate between arterial bleeding and venous bleeding.
  - b. Identify types of wounds.
    - Abrasions
    - Lacerations
    - Puncture
    - Amputation
  - c. Identify signs and symptoms of internal bleeding.
    - Tenderness
    - Swelling
    - Deformity
    - Cold and clammy skin
    - Rapid and weak pulse
    - Drop in blood pressure
    - Restlessness
    - Excessive thirst
    - Vomiting blood
    - Blood in urine and feces
  - d. Apply the proper procedure for treating a major and minor wound.
3. Describe the concepts for treating shock. <sup>DOK 2</sup>
  - a. Differentiate between the types of shock.
    - Anaphylactic
    - Hemorrhagic
    - Septic
  - b. Identify the general signs and symptoms of shock.
    - Cyanosis
    - Diaphoresis
    - Rapid pulse and respiration
    - Low blood pressure
  - c. Apply the proper procedure for treating shock in various situations.

<p>4. Describe the concepts for treating skeletal injuries. <sup>DOK 2</sup></p> <p>a. Identify and describe fractures and dislocations.</p> <p>b. Describe the types of immobilization devices and their proper use: stroke, seizure, diabetic reaction (hyperglycemia, hypoglycemia).</p> <p>c. Apply the proper procedure for treating a skeletal injury.</p>
<p>5. Describe the concepts for treating injuries that result from exposure to extreme heat and cold. <sup>DOK 2</sup></p> <p>a. Differentiate between the types of heat/cold related injuries/illnesses.</p> <ul style="list-style-type: none"> <li>• Heat stroke</li> <li>• Heat exhaustion</li> <li>• Heat cramps</li> <li>• Hypothermia</li> <li>• Frost bite</li> </ul> <p>b. Apply the proper procedure for treating a heat/cold related illness.</p>
<p>6. Describe the concepts for treating burns. <sup>DOK 2</sup></p> <p>a. Differentiate between the types of burns.</p> <ul style="list-style-type: none"> <li>• Superficial (1<sup>st</sup> degree)</li> <li>• Partial thickness (2<sup>nd</sup> degree)</li> <li>• Full thickness (3<sup>rd</sup> degree)</li> </ul> <p>b. Apply the proper procedure for treating a burn.</p>
<p>7. Describe the concepts for treating sudden illnesses. <sup>DOK 2</sup></p> <p>a. Differentiate between emergency conditions.</p> <ul style="list-style-type: none"> <li>• Stroke</li> <li>• Seizure</li> <li>• Diabetic reaction (hyperglycemia, hypoglycemia)</li> </ul> <p>b. Apply the proper procedure treating the above sudden illnesses.</p>
<p>8. Describe the concepts for treating specific injuries. <sup>DOK 2</sup></p> <p>a. Identify the common injuries to specific body parts.</p> <ul style="list-style-type: none"> <li>• Eyes</li> <li>• Ears</li> <li>• Nose</li> <li>• Head/skull</li> <li>• Chest</li> <li>• Abdomen</li> <li>• Genital organs</li> </ul> <p>b. Apply proper treatment for specific injuries of the above body parts.</p>

9. Describe the concepts for treating poisoning. <sup>DOK 2</sup>

a. Identify the types of poisoning and their respective treatment.

- Ingestion
- Inhalation
- Injection
- Contact

b. Apply proper treatment for one of the poisonings in Objective A.

10. In student groups, create scenarios and simulate any of the above first aid skills. <sup>DOK 3</sup>

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**Enrichment**

1. Complete certification process for Heart Saver First Aid.
2. Utilize HOSA competitive events guidelines for triage and first aid.
3. Use proper medical terminology for the above signs and symptoms.

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



# Unit 4: Vital Signs

<b>Competencies and Suggested Objectives</b>	
<p>1. Research and define key terms and concepts for recording vital signs. <sup>DOK 1</sup></p> <ul style="list-style-type: none"> <li>• Sphygmomanometer</li> <li>• Stethoscope</li> <li>• Temporal thermometer</li> <li>• Tympanic/aural thermometer</li> <li>• Electronic thermometer</li> <li>• Axillary thermometer</li> <li>• Rectal thermometer</li> <li>• Pulse sites (radial, apical, brachial)</li> <li>• Dyspnea</li> <li>• Hypertension</li> <li>• Orthostatic hypotension</li> <li>• Pyrexia</li> <li>• Afebrile</li> <li>• Tachycardia</li> <li>• Bradycardia</li> <li>• Tachypnea</li> <li>• Bradypnea</li> <li>• Apnea</li> <li>• Systolic</li> </ul>	
<p>2. Identify expected normal ranges and the implications of each. <sup>DOK 2</sup></p> <ol style="list-style-type: none"> <li>a. Research and define the current normal range for adult blood pressure according to the American Heart Association.</li> <li>b. Identify the expected normal ranges for adult pulse rate, respiration rate, and temperatures.</li> <li>c. Discuss the factors that cause variations in adult pulse rate, respiratory rate, temperatures, and blood pressure.</li> </ol>	
<p>3. Demonstrate proper procedures for measuring and recording vital signs according to HOSA standards. <sup>DOK 2</sup></p> <ol style="list-style-type: none"> <li>a. Measure and record oral, rectal, axillary, and tympanic temperatures accurately.</li> <li>b. Measure and record apical and radial pulse to an accuracy of +/- 2 beats per minute.</li> <li>c. Measure and record respirations to an accuracy of +/- 2 of instructor's count.</li> <li>d. Measure and record blood pressure to an accuracy of +/- 2 millimeters of actual reading.</li> </ol>	
<b>Enrichment</b>	
<p>1. Utilize HOSA competitive guidelines for Skill VI in the Nursing Assistant event.</p>	

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

## Unit 5: Human Growth and Development

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### Competencies and Suggested Objectives

1. Discuss the stages of growth and development across the lifespan. <sup>DOK 1</sup>
  - a. Identify Erikson's stages of psychosocial development and the basic conflict of each.
    - Infancy: trust vs. mistrust
    - Toddler: autonomy vs. shame/doubt
    - Preschool: initiative vs. guilt
    - School age: industry vs. inferiority
    - Adolescence: identity vs. role confusion
    - Young adulthood: intimacy vs. isolation
    - Middle adulthood: generativity vs. stagnation
    - Older adulthood: ego integrity vs. despair
  - b. Describe the four main types of growth and development (physical, mental, emotional, social) that occur within the stages of life.
    - Infancy (birth-1 year)
    - Early childhood (1-6 years)
    - Late childhood (6-12 years)
    - Adolescence (12-18 years)
    - Early adulthood (19-40 years)
    - Middle adulthood (40-65 years)
    - Late adulthood (65 years and older)
  - c. Identify specific major disorders that occur during adolescence.
    - Eating disorders (anorexia nervosa, bulimia)
    - Chemical abuse
    - Suicide
  - d. Identify specific disorders that occur in late adulthood.
    - Alzheimer's disease
    - Arteriosclerosis
2. Describe Maslow's Hierarchy of Human Needs. <sup>DOK 2</sup>
  - a. Identify and define the levels of need in the proper order.
    - Physiological
    - Safety and security
    - Love and affection
    - Self-esteem
    - Self-actualization
  - b. Discuss the importance of each level.

<p>3. Explain the concepts related to death and dying. <sup>DOK 1</sup></p> <p>a. Describe Dr. Kubler Ross's five stages of grief.</p> <ul style="list-style-type: none"> <li>• Denial</li> <li>• Anger</li> <li>• Bargaining</li> <li>• Depression</li> <li>• Acceptance</li> </ul> <p>b. Discuss the philosophy and mission of hospice care.</p>
<p>4. Present on a topic related to the concepts of human growth and development. <sup>DOK 2</sup></p> <p>a. Research, develop and deliver a presentation related to at least one of the topics in Competencies 1-3.</p>
<p>5. Discuss methods of satisfying human needs. <sup>DOK 1</sup></p> <p>a. Differentiate between direct and indirect needs.</p> <ul style="list-style-type: none"> <li>• Direct: hard work, realistic goals, cooperation with others, situation evaluation</li> <li>• Indirect: rationalization, projection, displacement, compensation, day dreaming, repression, suppression, regression, denial, and withdrawal</li> </ul>
<p><b>Enrichment</b></p>
<p>1. Apply proper procedure for postmortem care.</p> <p>2. Utilize guidelines for HOSA Knowledge Test on Human Growth and Development.</p>

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

## Unit 6: Sports Medicine

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### Competencies and Suggested Objectives

1. Explore the field of sports medicine. <sup>DOK 1</sup>
  - a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information for various careers.
    - Team physician
    - Exercise physiologist
    - Strength and conditioning coach
    - Athletic trainer (certified and assistant)
    - Personal trainer
2. Describe the basic concepts of assessment in sports medicine. <sup>DOK 1</sup>
  - a. Identify the components of a sports physical.
    - Height
    - Weight
    - Vital signs
    - Musculoskeletal abnormalities
    - Cardiovascular abnormalities
    - Medical history
  - b. Discuss the use of SOAP notes in injury assessment.
    - S—subjective
    - O—objective
    - A—assessment
    - P—plan
  - c. Differentiate between the following types of body fat assessment techniques.
    - DEXA scan
    - Calipers
3. Discuss basic injury treatment modalities in sports medicine. <sup>DOK 2</sup>
  - a. Identify the following components of PRICE.
    - P—Protect
    - R—Rest
    - I—Ice
    - C—Compression
    - E—Elevation
  - b. Define terms and discuss the importance of vasodilation and vasoconstriction, each in relation to cold/heat application.
  - c. Apply the proper procedure for applying heat and cold to injuries.

### Enrichment

3. Incorporating HOSA sports medicine competitive event guidelines, perform the proper procedure for taping various joints and stretching.

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

## Unit 7: Rehabilitative Services

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<b>Competencies and Suggested Objectives</b>
<p>1. Explore the field of rehabilitative services. <sup>DOK 1</sup></p> <p>a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information for various careers.</p> <ul style="list-style-type: none"><li>• Physical therapist</li><li>• Physical therapist assistant</li><li>• Occupational therapist</li><li>• Occupational therapist assistant</li><li>• Speech language pathologist</li><li>• Recreational therapist</li></ul>
<p>2. Describe the basic concepts of range of motion (ROM). <sup>DOK 2</sup></p> <p>a. Differentiate between active and passive ROM.</p> <p>b. Identify basic terminology related to ROM.</p> <ul style="list-style-type: none"><li>• Adduction</li><li>• Abduction</li><li>• Flexion</li><li>• Extension</li><li>• Rotation</li><li>• Circumduction</li></ul> <p>c. Demonstrate the proper procedure passive range of motion (PROM) for one knee, one ankle, and one shoulder.</p>
<p>3. Demonstrate the proper procedures related to ambulation and assistive devices, according to HOSA standards. <sup>DOK 2</sup></p> <p>a. Apply the proper procedure for fitting a patient with crutches and giving instruction for a three-point gait.</p> <p>b. Apply the proper procedure for ambulating a patient with a gait belt.</p> <p>c. Apply procedure for fitting and ambulating a patient with a walker and cane.</p>
<b>Enrichment</b>
<p>1. See HOSA guidelines for physical therapy events and apply the proper procedure for fitting a patient for a walker and cane.</p>

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

## Unit 8: Medical Services

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### Competencies and Suggested Objectives

1. Explore the field of medical services. <sup>DOK 1</sup>
  - a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information for various careers.
    - Physicians (MD, DO)
    - Physician assistant
    - Dentist (DDS, DMD)
    - Dental hygienist
    - Surgical technologist
    - Medical assistant
2. Describe the basic medical assistant concepts and procedures. <sup>DOK 2</sup>
  - a. Identify the concepts related to physical exams.
    - Types of physical examinations: eye, ear, nose and throat (EENT), gynecology (GYN), general
    - Techniques: observation, palpation, percussion, and auscultation
    - Equipment used: cervical spatula (Ayer blade), vaginal speculum, nasal speculum, ophthalmoscope, otoscope, percussion (reflex) hammer, tongue blade/depressor, tuning fork
  - b. Apply proper procedure.
    - Measuring height and weight for adults and infants
    - Graphing height and weight on infant growth chart
    - Snellen vision screening
    - Positioning a patient: supine, prone, sims', fowler's (all three), lithotomy, reverse Trendelenburg

### Enrichment

1. Further explore medical and nursing specialties, to include the following: anesthesiology, cardiology, dermatology, endocrinology, family practice, gastroenterology, gerontology, gynecology, internal medicine, neonatology, neurology, obstetrical practice, ophthalmology, orthopedist, otolaryngology, pathology, pediatrics, plastic surgeon, proctology, radiology, surgery, urology.
2. Obtain head and chest circumference for infants and graph measurements on a growth chart.
3. Demonstrate various skills.
  - Minor surgery and suture removal
  - Recording electrocardiogram
4. Refer to HOSA guidelines for various competitive events for skills related to medical/nursing care.

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

## Unit 9: Nursing Services

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### Competencies and Suggested Objectives

1. Explore the field of nursing services. <sup>DOK 1</sup>
  - a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information for various careers.
    - Registered nurse (RN)
    - Nurse practitioner (NP)
    - Nurse anesthetist (CRNA)
    - Licensed practical nurse (LPN)
    - Certified nursing assistant (CNA)
2. Demonstrate basic nursing skills. <sup>DOK 2</sup>
  - a. Apply the proper procedures for the following:
    - Proper communication when admitting/transferring/discharging a patient (empathy, clear instructions, patient and family engagement)
    - Measuring patient's intake and output
    - Apply one knee-high, elastic stocking
    - Assist with use of bedpan
    - Mouth care (including cleaning upper or lower denture)
    - Dress client with affected (weak) right arm
    - Feed client who cannot feed self
    - Give modified bed bath (face, one arm, hand, and underarm)
    - Bed making—unoccupied and occupied (patient/client does not need assistance to turn)
    - Positioning/turning methods
    - Provide fingernail care on one hand
    - Provide foot care on one foot
3. Acting as a CNA in a role play simulation, apply the proper procedure for morning care on a patient in an occupied bed, including recording vital signs and any two of the above skills. <sup>DOK 3</sup>

### Enrichment

1. Other careers to explore include nurse educators, midwives, Doctor of Nursing practice, clinical nurse specialist.
2. Refer to HOSA guidelines for various competitive events for skills related to medical/nursing care.
3. Review and complete skills and other requirements necessary to become a CNA.

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

## Unit 10: Nutrition and Dietetics

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<b>Competencies and Suggested Objectives</b>
1. Explore the field of nutrition and dietetic services. <sup>DOK 1</sup> a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information for a registered dietician and nutritionist.
2. Describe the basic concepts and demonstrate skills related to the field of nutrition and dietetic services. <sup>DOK 2</sup> a. Differentiate between the six essential nutrient groups: <ul style="list-style-type: none"><li>• Carbohydrates</li><li>• Lipids</li><li>• Proteins</li><li>• Vitamins</li><li>• Minerals</li><li>• Water</li></ul> b. Define the following therapeutic diets and associate medical conditions. <ul style="list-style-type: none"><li>• Low sodium diet (hypertension, CHF)</li><li>• Low cholesterol diet (atherosclerosis)</li><li>• Diabetic diet (diabetes)</li></ul> c. Properly determine body mass index (BMI) and interpret nutrition labels.
<b>Enrichment</b>
1. Utilize guidelines for HOSA Knowledge Test on Nutrition. 2. Design a personal health meal plan utilizing online resources or applications (ex., MyPlate.gov). 3. Calculate daily caloric intake.

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



# Unit 11: Respiratory Care Services

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## Competencies and Suggested Objectives

1. Explore the field of respiratory therapy. <sup>DOK 1</sup>
  - a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information for a registered respiratory therapist.
2. Describe the basic concepts related to the field of respiratory therapy. <sup>DOK 1</sup>
  - a. Identify and provide the rational for basic respiratory tests and procedures.
    - Oxygen saturation
    - Arterial blood gases
    - Oxygen therapy (nasal canula, simple mask)
    - Incentive spirometry
    - Medicated aerosol therapy
  - b. Define the medical conditions related to respiratory care.
    - Atelectasis
    - Oxygen toxicity

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

# Unit 12: Mental Health

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<b>Competencies and Suggested Objectives</b>
<p>1. Explore the field of mental health services. <sup>DOK 1</sup></p> <p>a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information of various careers.</p> <ul style="list-style-type: none"><li>• Psychiatrist</li><li>• Psychologist</li><li>• Counselor</li><li>• Social worker</li><li>• Mental health technician</li></ul>
<p>2. Describe the basic concepts related to the field of mental health. <sup>DOK 1</sup></p> <p>a. Using resources from the National Alliance of Mental Illness (NAMI), differentiate between mental disorders.</p> <ul style="list-style-type: none"><li>• Psychosis (schizophrenia)</li><li>• Psychoneurosis (anxiety, depression, panic disorder, phobias, obsessive compulsive disorder)</li><li>• Manic depressive</li><li>• Dissociative identity disorder</li></ul> <p>b. Research and identify forms of therapy:</p> <ul style="list-style-type: none"><li>• Electroconvulsive therapy</li><li>• Psycho/group therapy</li><li>• Medication</li><li>• Behavioral modification</li></ul>
<p>3. Discuss the correlation between mental health issues and negative responses to those issues. <sup>DOK 3</sup></p> <p>a. Using resources such as National Alliance on Mental Illness (NAMI) and the Mississippi Department of Mental Health, research and evaluate the current state and national data on various topics.</p> <ul style="list-style-type: none"><li>• Suicide</li><li>• Substance abuse (opioid, alcohol, other drugs)</li><li>• Violence (domestic, self-harm, gang-related)</li><li>• Criminal activity</li></ul> <p>b. In a group setting, discuss the importance of various topics.</p> <ul style="list-style-type: none"><li>• Awareness, education, recognition</li><li>• Reporting and acquiring help for self and others (ex., hotlines, authorities, hospitals, naloxone/Narcan)</li><li>• Suicide warning signs and prevention</li><li>• Drug-related issues (legal ramifications, proper disposal)</li></ul>

**Enrichment**

1. Perform training for mental health first aid.
2. Conduct an opioid abuse awareness campaign.
3. Research and discuss any emerging substance abuse problems (naloxone, vaping, etc.).
4. Undergo de-escalation training and discuss how this is used.

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

# Unit 13: Pharmacology

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<b>Competencies and Suggested Objectives</b>
1. Explore the field of pharmacological services. <sup>DOK 1</sup> a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information of a pharmacist and pharmacy technician.
2. Describe concepts and perform skills related to the field of pharmacology. <sup>DOK 2</sup> a. Identify the proper components of a prescription. <ul style="list-style-type: none"><li>• Patient identification</li><li>• Drug name</li><li>• Dosage</li><li>• Administration/route</li><li>• Frequency</li><li>• Quantity</li><li>• Physician signature</li></ul> b. Differentiate between administration methods. <ul style="list-style-type: none"><li>• Oral</li><li>• Rectal</li><li>• Inhalation</li><li>• Topical</li><li>• Sublingual</li><li>• Injections (IM, IV, subQ)</li></ul> c. Perform mathematical computations related to pharmacology. <ul style="list-style-type: none"><li>• Convert metric units to household units and vice versa utilizing the HOSA medical math formula sheet.</li><li>• Record dosage time using a 24-hour clock.</li></ul> d. Given a teacher created scenario, administer medication utilizing the six rights of medication administration. <ul style="list-style-type: none"><li>• Right medication</li><li>• Right dose</li><li>• Right patient</li><li>• Right time</li><li>• Right method</li><li>• Right documentation</li></ul>
<b>Enrichment</b>
1. Perform various oral drug dosage calculations. 2. Research any given drug using a drug reference guide to identify various topics. <ul style="list-style-type: none"><li>• Generic name</li><li>• Drug classification</li><li>• Dosage and route</li><li>• Mechanism of action</li><li>• Adverse reactions</li><li>• Patient education</li></ul>

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

# Unit 14: Laboratory Services

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## Competencies and Suggested Objectives

1. Explore the field of laboratory services. <sup>DOK 1</sup>
  - a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information of various careers.
    - Pathologist
    - Medical laboratory technician
    - Phlebotomy technician
2. Describe the basic concepts and skills of laboratory services. <sup>DOK 1</sup>
  - a. Define basic laboratory diagnostic tests.
    - HCG pregnancy test
    - Potassium
    - Hematocrit
    - Hemoglobin
    - White blood cell count
    - Sodium
    - Glucose
    - Creatinine
    - LDL
    - HDL
  - b. Describe methods of collecting the various specimens.
    - Blood (capillary and venous)
    - Sputum
    - Stool
    - Urine (clean catch midstream)

## Enrichment

1. Explore other fields in laboratory service, including cytotechnologists and histotechnologists.
2. Define normal values for the above laboratory services and discuss the importance of each.

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

# Unit 15: Medical Imaging Services

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<b>Competencies and Suggested Objectives</b>
1. Explore the field of medical imaging services. <sup>DOK 1</sup> a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information of a radiologist and radiologic technician.
2. Describe the basic concepts and perform skills related to the field of medical imaging. <sup>DOK 2</sup> a. Define specific medical imaging procedures. <ul style="list-style-type: none"><li>• Echocardiography</li><li>• Magnetic resonance imaging (MRI)</li><li>• Mammography</li><li>• Nuclear medicine</li><li>• Sonography</li><li>• Computerized tomography (CT) scan</li><li>• X-ray</li></ul> b. Demonstrate basic radiological positioning, including posterior-anterior, anterior-posterior, lateral and oblique.
<b>Enrichment</b>
1. Explore additional credentials in the field of medical imaging services, including sonographer, mammographer, computed tomography technologist, magnetic resonance technologist, and nuclear medicine technologist.

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

# Unit 16: Health Information Management

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<b>Competencies and Suggested Objectives</b>
<p>1. Explore the field of health information management. <sup>DOK 1</sup></p> <p>a. Research and describe the respective educational requirements, appropriate schools, licensure/certification/registration, work environment, job responsibilities, and salary information of various careers.</p> <ul style="list-style-type: none"><li>• Medical coder</li><li>• Medical transcriptionist</li><li>• Registered health information technician</li><li>• Registered health information administrator</li><li>• Epidemiologist</li><li>• Medical interpreter</li><li>• Medical illustrator</li></ul>
<p>2. Identify the factors that affect health care systems, the services that are performed, and the quality of care. <sup>DOK 2</sup></p> <p>a. Research and discuss the impact of emerging issues (technology, epidemiology, bioethics, and socioeconomics) on health care delivery systems.</p> <p>b. Discuss common methods of payment for health care.</p> <ul style="list-style-type: none"><li>• Medicare</li><li>• Medicaid</li><li>• Children’s Health Insurance Program</li><li>• Worker’s compensation</li><li>• Tricare</li><li>• Private insurance companies</li></ul> <p>c. Describe the responsibilities of consumers within the health care system.</p> <ul style="list-style-type: none"><li>• Self-advocacy</li><li>• Patient compliance</li><li>• Provider and consumer obligations</li><li>• Wellness and prevention</li></ul>
<b>Enrichment</b>
<p>1. Describe health information management concepts and procedures, including completing insurance forms, assembling a client record, diagnostic coding, procedural coding, proper telephone techniques, and office management.</p> <p>2. Differentiate between health informatics, health information management, coding, and other related fields.</p>

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

# Unit 17: Employment Opportunities in Health Care

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<b>Competencies and Suggested Objectives</b>
1. Research current available jobs across the health care field to develop a chart that compares specific elements. <sup>DOK 1</sup> <ul style="list-style-type: none"><li>• Minimum education</li><li>• Certifications</li><li>• Minimum experience</li><li>• Job description/responsibilities</li><li>• Salary</li></ul>
2. Through a real job search, analyze differences in online application requirements of various job postings. <sup>DOK1</sup>
3. Research and select a real job advertisement. <sup>DOK 2</sup> <ol style="list-style-type: none"><li>a. Develop a cover letter to fit the job advertisement using terminology that reflects the culture and values specific to that company or clinic.</li><li>b. Create a resumé with fabricated elements to fit the real job advertisement.</li></ol> <p><i>*Note: this resumé is not to be used for a real job application, but for learning purposes only. Delete any fabricated elements before using for a real job application.</i></p>
4. Demonstrate real world interview skills led by the instructor and/or advisory/craft committee members. <sup>DOK2</sup> <ol style="list-style-type: none"><li>a. Aligned to a specific industry/job advertisement</li><li>b. Professional attire</li><li>c. Cover letter</li><li>d. Application and/or resumé</li></ol>
5. Hand write customized thank you letters to each member of the interview committee. <sup>DOK 1</sup>
6. Complete documented project or activity artifacts in the ePortfolio according to the teacher-generated rubric. <sup>DOK1</sup>
<b>Enrichment</b>
1. Conduct virtual interviews in addition to real-world interviews (ex., via Skype, Facetime, FlipGrid, etc.).
2. Evaluate various career ladders for advancement in the health care field.

\*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: Course Orientation and Safety Review</b>		
	1.	Describe the purpose of the course.
	2.	Identify the personal traits and attitudes desirable in a member of the career ready health care team.
	3.	Review and complete proper procedures for clinical site visits as needed.
	4.	Review and demonstrate the proper safety procedures in the health care setting.
<b>Unit 2: Emergency Services and Basic Life Support</b>		
	1.	Explore careers in the field of emergency services.
	2.	Perform skills obtained in training or certification for Basic Life Support according to the latest information from the American Heart Association.
<b>Unit 3: First Aid</b>		
	1.	Discuss the necessary skills to provide first aid treatment.
	2.	Describe the concepts for treating bleeding and the application of dressings and bandages.
	3.	Describe the concepts for treating shock.
	4.	Describe the concepts for treating skeletal injuries.
	5.	Describe the concepts for treating injuries that result from exposure to extreme heat and cold.
	6.	Describe the concepts for treating burns.
	7.	Describe the concepts for treating sudden illnesses.
	8.	Describe the concepts for treating specific injuries.
	9.	Describe the concepts for treating poisoning.
	10.	In student groups, create scenarios and simulate any of the above first aid skills.
<b>Unit 4: Vital Signs</b>		
	1.	Research and define key terms and concepts for recording vital signs.
	2.	Identify expected normal ranges and the implications of each.
	3.	Demonstrate proper procedures for measuring and recording vital signs according to Health Occupations Students of America (HOSA) standards.

<b>Unit 5: Human Growth and Development</b>		
1.	Discuss the stages of growth and development across the lifespan.	
2.	Describe Maslow's Hierarchy of Human Needs.	
3.	Explain the concepts related to death and dying.	
4.	Present on a topic related to the concepts of human growth and development.	
5.	Discuss methods of satisfying human needs.	
<b>Unit 6: Sports Medicine</b>		
1.	Explore the field of sports medicine.	
2.	Describe the basic concepts of assessment in sports medicine.	
3.	Discuss basic injury treatment modalities in sports medicine.	
<b>Unit 7: Rehabilitative Services</b>		
1.	Explore the field of rehabilitative services.	
2.	Describe the basic concepts of range of motion.	
3.	Demonstrate the proper procedures related to ambulation and assistive devices, according to HOSA standards.	
<b>Unit 8: Medical Services</b>		
1.	Explore the field of medical services.	
2.	Describe the basic medical assistant concepts and procedures.	
<b>Unit 9: Nursing Services</b>		
1.	Explore the field of nursing services.	
2.	Demonstrate basic nursing skills.	
3.	Acting as a certified nursing assistant in a role play simulation, apply the proper procedure for morning care on a patient in an occupied bed, including recording vital signs and any two of the nursing skills.	
<b>Unit 10: Nutrition and Dietetics</b>		
1.	Explore the field of nutrition and dietetic services.	
2.	Describe the basic concepts and demonstrate skills related to the field of nutrition and dietetic services.	
<b>Unit 11: Respiratory Care Services</b>		
1.	Explore the field of respiratory therapy.	
2.	Describe the basic concepts related to the field of respiratory therapy.	
<b>Unit 12: Mental Health</b>		
1.	Explore the field of mental health services.	
2.	Describe the basic concepts related to the field of mental health.	
3.	Discuss the correlation between mental health issues and negative responses to those issues.	

<b>Unit 13: Pharmacology</b>		
	1.	Explore the field of pharmacological services.
	2.	Describe concepts and perform skills related to the field of pharmacology.
<b>Unit 14: Laboratory Services</b>		
	1.	Explore the field of laboratory services.
	2.	Describe the basic concepts and skills of laboratory services.
<b>Unit 15: Medical Imaging Services</b>		
	1.	Explore the field of medical imaging services.
	2.	Describe the basic concepts and perform skills related to the field of medical imaging.
<b>Unit 16: Health Information Management</b>		
	1.	Explore the field of health informatics.
	2.	Identify the factors that affect health care systems, the services that are performed, and the quality of care.
<b>Unit 17: Employment Opportunities in Health Care</b>		
	1.	Research current available jobs across the health care field to develop a chart that compares the minimum education, certifications, minimum experience, job description/responsibilities, and salary.
	2.	Through a real job search, analyze differences in online application requirements of various job postings.
	3.	Research and select a real job advertisement, then complete a cover letter and resumé with fabricated elements for that specific job.
	4.	Demonstrate real world interview skills led by the instructor and/or advisory/craft committee members to include something aligned to a specific industry or job advertisement, professional attire, cover letter, and resumé.
	5.	Hand write customized thank you letters to each member of the interview committee.
	6.	Complete documented project or activity artifacts in the ePortfolio according to the teacher-generated rubric.

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
NCHSE-1.11																		
NCHSE-1.12								X	X							X		
NCHSE-1.13				X				X	X				X	X				
NCHSE-1.21						X		X	X			X	X		X			
NCHSE-1.22															X			
NCHSE-1.23															X			
NCHSE-1.31				X				X	X	X	X			X			X	
NCHSE-1.32				X				X	X	X	X			X				
NCHSE-1.33				X		X	X	X	X	X	X			X				
NCHSE-2.11			X	X		X	X	X	X									X
NCHSE-2.12						X			X									X
NCHSE-2.13						X		X	X									X
NCHSE-2.14						X			X									X
NCHSE-2.15			X	X	X		X	X	X	X			X	X				X
NCHSE-2.16			X			X	X	X	X	X				X				
NCHSE-2.21			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		
NCHSE-2.31			X	X	X	X	X	X	X	X			X	X				X
NCHSE-2.32			X	X	X	X		X	X				X	X				X
NCHSE-3.11			X			X	X						X					X
NCHSE-3.12																		X
NCHSE-3.13															X			X
NCHSE-3.14																		X
NCHSE-4.11		X								X								X
NCHSE-4.12		X								X								X
NCHSE-4.21										X								X
NCHSE-4.31			X			X	X	X	X	X	X	X	X	X	X	X	X	X
NCHSE-4.32			X			X	X	X	X	X	X	X	X	X	X	X	X	X
NCHSE-4.41																		X
NCHSE-4.42																		X
NCHSE-5.11									X									
NCHSE-5.21								X	X	X								
NCHSE-5.22																		
NCHSE-5.23																		
NCHSE-5.24																		
NCHSE-6.11																		
NCHSE-6.12																		
NCHSE-6.13																		
NCHSE-6.21						X												
NCHSE-6.22						X		X	X	X								
NCHSE-7.11																		
NCHSE-7.12																		
NCHSE-7.21		X		X	X		X	X	X	X								
NCHSE-7.22							X	X	X	X								
NCHSE-7.31		X					X	X	X	X	X	X	X	X	X	X	X	
NCHSE-7.41		X					X			X								
NCHSE-7.42		X								X								
NCHSE-7.51		X																
NCHSE-7.52		X		X														
NCHSE-8.11			X										X	X				
NCHSE-8.12																		
NCHSE-8.21																		
NCHSE-8.22																		
NCHSE-8.23																		

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

- a. Chemical
- b. Cellular
- c. Tissue
- d. Organs
- e. Systems
- f. Organism

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

- a. Body planes (sagittal, mid-sagittal, coronal/frontal, transverse/horizontal)
- b. Directional terms (superior, inferior, anterior/ventral, posterior/dorsal, medial, lateral, proximal, distal, superficial, and deep)
- c. Cavities (dorsal, cranial, spinal, thoracic, abdominal, and pelvic)
- d. 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).

- a. Skeletal (bone anatomy, axial and appendicular skeletal bones, functions of bones, ligaments, types of joints)
- b. Muscular (microscopic anatomy of muscle tissue, types of muscle, locations of skeletal muscles, functions of muscles, tendons, directional movements)
- c. Integumentary (layers, structures and functions of skin)
- d. 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: cent, 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)

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Standard	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
CNA 1.1		X								X								
CNA 1.2		X								X								
CNA 1.3		X	X	X						X								
CNA 1.4										X								
CNA 1.5		X								X							X	
CNA 2.1					X					X								
CNA 2.2							X		X	X	X							
CNA 2.3										X								
CNA 2.4			X	X						X								
CNA 2.5						X												
CNA 3.1										X								
CNA 3.2										X								
CNA 3.3										X								
CNA 3.4										X								
CNA 3.5										X								
CNA 3.6										X								
CNA 3.7										X								
CNA 3.8									X	X								
CNA 4.1						X				X								
CNA 4.2						X												
CNA 4.3						X												
CNA 4.4										X								
CNA 4.5										X								
CNA 5.1						X							X					
CNA 5.2						X												
CNA 5.3						X							X					
CNA 5.4																		
CNA 5.5						X							X					
CNA 6.1																		
CNA 6.2									X									
CNA 6.3									X									
CNA 6.4										X								
CNA 6.5										X								
CNA 6.6									X									
CNA 7.1		X								X							X	
CNA 7.2																		
CNA 7.3																		
CNA 7.4										X								
CNA 7.5		X								X								

### 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<sup>1</sup>

	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Standard																		
CS1		X	X	X	X	X	X	X	X	X	X	X	X		X	X		X
CS2														X			X	X
CS3							X											X
CS4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CS5															X			
CS6		X		X	X	X	X	X	X						X		X	X
CS7		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
CS9		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CS10						X	X	X	X						X		X	X
CS11						X	X								X		X	X
CS12			X	X	X	X	X	X	X	X					X		X	X
CS13		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
CS15				X	X	X	X	X	X						X		X	X
CS16			X	X	X	X	X	X	X						X		X	X

## CSS1-21st Century Themes

### CS1 Global Awareness

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

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

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

### CS3 Civic Literacy

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

### CS4 Health Literacy

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

### CS5 Environmental Literacy

- 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.

<sup>1</sup> *21st century skills*. (n.d.). Washington, DC: Partnership for 21st Century Skills.

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)

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

- a. Articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
- b. Build networks and customize their learning environments in ways that support the learning process.
- c. Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
- d. 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:

- a. Cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
- b. Engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
- c. Demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
- d. 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:

- a. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.



- b. 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

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Standard	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
HAP 1.1							X	X	X							X		
HAP 1.2								X	X									
HAP 1.3																		
HAP 2.1								X	X									
HAP 2.2																		
HAP 2.3*																		
HAP 3.1																		
HAP 3.2																		
HAP 3.3				X														
HAP 3.4*																		
HAP 4.1								X										
HAP 4.2			X															
HAP 4.3							X	X										
HAP 4.4																		
HAP 4.5																		
HAP 4.6				X				X										
HAP 4.7*																		
HAP 5.1								X										
HAP 5.2																		
HAP 5.3								X										
HAP 5.4								X										
HAP 5.5																		
HAP 5.6																		
HAP 5.7																		
HAP 5.8*																		
HAP 6.1																		
HAP 6.2																		
HAP 6.3													X					
HAP 6.4																		
HAP 6.5*																		
HAP 6.6																		
HAP 6.7																		
HAP 6.8						X							X					
HAP 6.9*																		
HAP 7.1														X				
HAP 7.2														X				
HAP 7.3																		
HAP 7.4				X										X				
HAP 7.5*																		
HAP 8.1																		
HAP 8.2																		
HAP 8.3									X									
HAP 8.4																		
HAP 8.5																		
HAP 8.6																		
HAP 8.7																		
HAP 9.1																X		
HAP 9.2																X		
HAP 9.3																X		
HAP 9.4*																X		
HAP 10.1																		
HAP 10.2			X															
HAP 10.3																		
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., Ca<sup>2+</sup> 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 investigate 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 investigate 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
RI.9.3															X			
RI.9.5															X			
RI.9.6																		
RI.9.7															X			
RI.9.8																		
RI.9.9																		
W.9.1						X	X											X
W.9.2						X	X			X	X	X	X	X				X
W.9.3																		
W.9.4				X	X	X	X								X			X
W.9.5				X	X	X	X								X			X
W.9.6				X	X	X	X								X			X
W.9.7															X			
W.9.8				X	X					X	X	X			X			
W.9.9			X											X	X			
W.9.10				X	X													
SL.9.1																		
SL.9.2				X	X	X												
SL.9.3																		
SL.9.4			X	X	X	X	X			X	X	X	X	X				
SL.9.5						X	X											
SL.9.6				X	X					X	X	X						X
L.9.1		X	X	X	X					X	X	X	X	X				X
L.9.2		X	X		X					X	X	X	X	X				X
L.9.3																		
L.9.4						X	X											
L.9.5																		
L.9.6				X	X	X	X			X	X	X			X			X
RH.9-10.1																		
RH.9-10.2																		
RH.9-10.3															X			
RH.9-10.4															X			
RH.9-10.5																		
RH.9-10.6																		
RH.9-10.7						X	X											
RH.9-10.8																		
RH.9-10.9															X			
RH.9-10.10																		
RST.9-10.1																		
RST.9-10.2																		
RST.9-10.3																		
RST.9-10.4						X	X								X			
RST.9-10.5				X	X					X	X	X			X			
RST.9-10.6																		
RST.9-10.7					X													
RST.9-10.8																		
RST.9-10.9													X	X				
RST.9-10.10																		
WHST.9-10.1																		
WHST.9-10.2										X	X	X						
WHST.9-10.3						X	X											X
WHST.9-10.5																		X
WHST.9-10.6						X	X								X			X
WHST.9-10.7															X			
WHST.9-10.8															X			
WHST.9-10.9															X			
WHST.9-10.10																		
RI.11.3																		
RI.11.4						X	X	X	X						X		X	



RI.11.5								X	X										
RI.11.6																		X	
RI.11.7						X	X										X		X
RI.11.8																			
RI.11.9																			
RI.11.10								X	X								X		
W.11.1						X	X										X		X
W.11.2								X	X					X	X				
W.11.3						X	X												
W.11.4						X	X	X	X									X	X
W.11.5								X	X										X
W.11.6								X	X								X		X
W.11.7								X	X									X	
W.11.8								X	X										
W.11.9																		X	
W.11.10					X			X	X										
SL.11.1						X	X	X	X										X
SL.11.2								X	X									X	
SL.11.3								X	X										
SL.11.4						X	X	X	X	X	X	X					X		
SL.11.5						X	X	X	X										
SL.11.6								X	X	X	X	X							X
L.11.1a								X	X										
L.11.1b																			
L.11.2a																			
L.11.3a																			
L.11.4					X	X	X	X											
RH.11-12.1																		X	
RH.11-12.2																			
RH.11-12.3																			
RH.11-12.4					X	X													
RH.11-12.5																			
RH.11-12.6																			
RH.11-12.7																			
RH.11-12.8																			
RH.11-12.9																		X	
RH.11-12.10																			
RST.11-12.1						X	X											X	X
RST.11-12.2																		X	
RST.11-12.3						X												X	X
RST.11-12.4					X	X	X	X	X	X	X	X	X	X	X	X	X	X	
RST.11-12.5																		X	
RST.11-12.6																		X	
RST.11-12.7																		X	
RST.11-12.8																		X	
RST.11-12.9																		X	
RST.11-12.10																		X	
WHST.11-12.1																		X	
WHST.11-12.2						X	X											X	
WHST.11-12.6								X	X									X	X
WHST.11-12.8						X	X	X	X									X	

College and Career Ready English I  
Reading Literature Key Ideas and Details

RL.9.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

RL.9.2 Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

RL.9.3 Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.

### Craft and Structure

RL.9.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).

RL.9.5 Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.

RL.9.6 Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.

### Integration of Knowledge and Ideas

RL.9.7 Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).

RL.9.8 Not applicable to literature.

RL.9.9 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).

### Range of Reading and Level of Text Complexity

RL.9.10 By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

### 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.

### 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.

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.

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.

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.

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).
- 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.

### 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.

#### 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.

#### 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.

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.)

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.

#### 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.

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.)

#### 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).

### 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.