

# Introduction to Health Science

<b>Primary Career Cluster:</b>	Health Science
<b>Course Contact:</b>	<a href="mailto:CTE.Standards@tn.gov">CTE.Standards@tn.gov</a>
<b>Course Code(s):</b>	C14X00
<b>Prerequisite(s):</b>	None
<b>Credit:</b>	N/A
<b>Grade Level:</b>	7-8
<b>Focus Elective Graduation Requirements:</b>	N/A
<b>Programs of Study and Sequence:</b>	This course serves as a middle school primer for all programs of study in the Health Science career cluster.
<b>Aligned Student Organization(s):</b>	HOSA: <a href="http://www.tennesseehosa.org">http://www.tennesseehosa.org</a>
<b>Coordinating Work- Based Learning:</b>	Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit <a href="https://www.tn.gov/education/topic/work-based-learning">https://www.tn.gov/education/topic/work-based-learning</a> .
<b>Available Student Industry Credentials:</b>	None
<b>Teacher Endorsement(s):</b>	001,015,016,101,123,126,127,210,211,212,400,401,402,415,416,440
<b>Required Teacher Certifications/Training:</b>	Middle School teachers are encouraged to coordinate the teaching of this course with the corresponding high school Health Science program.
<b>Teacher Resources:</b>	<a href="https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-health-science.html">https://www.tn.gov/education/career-and-technical-education/career-clusters/cte-cluster-health-science.html</a> Best for All Central: <a href="https://bestforall.tnedu.gov">https://bestforall.tnedu.gov</a>

## Course-at-a-Glance

CTE courses provide students with an opportunity to develop specific academic, technical, and 21<sup>st</sup> century skills necessary to be successful in career and in life. In pursuit of ensuring every student in Tennessee achieves this level of success, we begin with rigorous course standards which feed into intentionally designed programs of study.

Students engage in industry relevant content through general education integration and experiences such as career & technical student organizations (CTSO) and work-based learning (WBL). Through these experiences, students are immersed with industry standard content and technology, solve industry-based problems, meaningfully interact with industry professionals, and use/produce industry specific, informational texts.

### **Using a Career and Technical Student Organization (CTSO) in Your Classroom**

CTSOs are a great resource to put classroom learning into real-life experiences for your students through classroom, regional, state, and national competitions, and leadership opportunities. Below are CTSO connections for this course, note this is not an exhaustive list.

- Participate in CTSO Fall Leadership Conference to engage with peers by demonstrating logical thought processes and developing industry specific skills that involve teamwork and project management
- Participate in contests that highlight job skill demonstration; interviewing skills; community service activities, extemporaneous speaking, and job interview
- Participate in leadership activities such as Organizational Leadership, Prepared Speaking, HOSA Service Project, Creative Problem Solving, and HOSA Service Project.

For more ideas and information, visit Tennessee HOSA at <http://www.tennesseehosa.org/>

### **Using Work-based Learning in Your Classroom**

Sustained and coordinated activities that relate to the course content are the key to successful work-based learning. Possible activities for this course include the following. This is not an exhaustive list.

- **Standards 1.1-1.3** | Invite a human resources specialist to discuss careers, professional traits, and the healthcare system.
- **Standards 4.1-42** | Invite a department of health educator to discuss patient health education and community outbreaks.
- **Standards 5.1-5.6** | Participate in a skills lab in a local health care facility.

For more ideas and information, visit <https://www.tn.gov/education/career-and-technical-education/work-based-learning.html>.

## **Course Description**

*Introduction to Health Science* introduces middle school students to the exciting, dynamic world of the health sciences, an industry that is rapidly changing and high in demand for workers who can think critically to solve a range of health-related problems. Students will explore healthcare systems, legal and ethical issues in healthcare and basic health care skills. Upon completion of this course, proficient students will be prepared to pursue courses in high school that lead to careers in the fields of biotechnology research, therapeutics, health informatics, diagnostics, and support services.

## **Program of Study Application**

This is an exploratory course for all health science programs of study. For more information on the benefits and requirements of implementing these programs in full, please visit the Health Science website at <https://www.tn.gov/education/article/cte-cluster-health-science>.

## Course Standards

### 1. Career Planning

- 1.1 History of healthcare: Identify **key innovators and contributions** made in the **history of health care** in the United States. Create a timeline or other graphic to illustrate **major developments** beginning with the first medical school through today.
- 1.2 Health science careers and career areas: Research at least one occupation in one of the five **health science career areas** (biotechnology research, therapeutic services, support services, health informatics, and diagnostic services), to be included as part of a health science portfolio. Document the following related to the chosen occupation:
- job description
  - career path
  - level of education required,
  - typical salaries, and
  - Additional training needed to successfully reach occupational goals.
- 1.3 Professional traits: Summarize the **professional traits** (such as leadership, ethical responsibility, and time management) required of healthcare professionals in the twenty-first century.

### 2. Healthcare Systems

- 2.1 Healthcare facilities and insurance: Identify the **types of healthcare facilities** in the United States. Compile a list of **healthcare professionals** that work in these facilities. Differentiate between the methods of payment for healthcare in the United States. Compare and contrast **private and state/federal insurance, health savings accounts, and managed care**.
- 2.2 Cultural awareness: Define the terms **culture, ethnicity, and race**. Research **customs, beliefs, and practices surrounding health care from another culture, ethnicity, or race**. Compare and contrast how aspects such as respect, informed consent and medical decision making, medical testing, and social context vary across different cultures and populations.

### 3. Body Function and Structure

- 3.1 Human anatomy and physiology: Outline the basic **normal structure and function of all body systems**. Present a visual depiction of a system within the human body, listing the basic structures and using medical terminology for each.
- 3.2 Health and wellness: Distinguish between the **medical definitions of health and wellness**, identifying preventive measures and behaviors that promote each. Discuss contemporary **controversies to wellness theories**, such as but not limited to the debates surrounding concussion evaluation of middle and high school athletes, increased use of drugs and alcohol by middle school students, and alternative diets, e.g., those geared toward dramatic weight loss.

3.3 Patient education: Develop a **patient health education** presentation about one of the following wellness issues: exercise and fitness, healthy eating and nutrition, sleep, the increase in food allergies, noise-induced hearing loss, or other topic topics approved by the instructor. Include characteristics of the behavior and/or signs and symptoms of the issue; major physical concerns associated with the issue; preventive measures; treatments; and support systems.

#### 4. Infection Control/Medical Microbiology

4.1 Chain of infection: Define **chain of infection** and provide **strategies for how to break each part of the chain** to prevent the spread of infection. Research examples of **infectious outbreaks within a community** and the implications on an individual's health. Apply the principles of the chain of infection to community outbreaks.

4.2 Infection control skills: Understand the principles of and successfully perform the following **skills to prevent or curtail the spread of pathogenic and non-pathogenic organisms**:

- a. Hand washing
- b. Sneeze and cough prevention

#### 5. Foundational Health Care Skills

5.1 Medical terminology: Identify and explain the **definitions and roles of the four types of word parts** (word roots, combining forms, combining vowels, suffixes, and prefixes) in forming medical terms. Apply knowledge of **word forms and structures** to interpret unfamiliar medical terms throughout this course.

5.2 Emergency medicine skills: Understand principles of and successfully perform **skills related to Emergency Medicine**, incorporating rubrics from American Heart Association or American Red Cross such as:

- a. Basic First Aid care of bleeding and wounds
- b. Basic First Aid care for burns
- c. Basic First aid for bone and joint injuries

5.3 Medical assisting skills: Understand principles of and successfully perform **skills related to Medical Assisting Skills**, incorporating rubrics from textbook or clinical standards of practice:

- a. Temperature, pulse and respiration assessment
- b. Screening for vision problems

5.4 Physical therapy skills: Understand principles of and successfully perform **skills related to Physical Therapy Skills**, incorporating rubrics from textbook or clinical standards of practice:

- a. Ambulation with crutches

5.5 Athletic training skills: Understand principles of and successfully perform **skills related to Athletic Training**, incorporating rubrics from textbook or clinical standards of practice:

- a. Basic stretching exercises

- 5.6 Forensic scientist skills: Understand principles of and successfully perform **skills related to Forensic Scientist**, incorporating rubrics from textbook or clinical standards of practice:
- a. Extraction of DNA

### Standards Alignment Notes

\*References to other standards include:

- P21: Partnership for 21st Century Skills [Framework for 21st Century Learning](#)
  - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.