# HEALTH SCIENCE TECHNOLOGY EDUCATION STANDARDS

- **Standard I.** Academics: The health science technology education teacher is proficient in the academic subjects needed to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) for Health Science Technology Education.
- **Standard II.** Communication: The health science technology education teacher demonstrates proficiency in verbal and nonverbal communication skills.
- **Standard III.** Health and Wellness: The health science technology education teacher applies the concept of wellness and the fundamentals of disease prevention to promote healthy behaviors.
- **Standard IV.** Health Care Systems: The health science technology education teacher understands the roles of health care workers and the function of the diagnostic, therapeutic, informational, and environmental systems of health care.
- **Standard V.** Employability: The health science technology education teacher uses his or her professional work experience in the health care delivery system to help prepare students for successful careers in the health care industry.
- **Standard VI.** Safety: The health science technology education teacher understands industry safety policies, safety procedures, and preventive measures to minimize injury and illness.
- **Standard VII.** Ethical and Legal Issues: The health science technology education teacher understands the ethical and legal responsibilities of health care workers.
- **Standard VIII.** Teaming: The health science technology education teacher understands the importance of teaming and leadership skills in providing both quality client health care and effective student instruction.
- Standard IX. Partnerships: The health science technology education teacher understands the importance of developing partnerships with parents/guardians, industry, education institutions, and the community to enhance student learning and strengthen the health science technology education program.
- **Standard X.** Professional Development: The health science technology education teacher understands the importance of lifelong learning and continuing professional development.

<b>Teacher Knowledge:</b>	<b>What Teachers Know</b>
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## Teachers of Students in Grades 8–12

#### **Academic Foundations**

The beginning teacher knows and understands:

- 1.1k how to integrate mathematics, science, English language arts, and social studies with health science;
- 1.2k major trends in the history of health care and its impact on society; and
- 1.3k the contributions and impact of technological advances on health care.

## **Application: What Teachers Can Do**

## Teachers of Students in Grades 8–12

#### **Academic Foundations**

The beginning teacher is able to:

- 1.1s relate the importance of a strong academic foundation to success as a health care worker;
- 1.2s solve mathematical problems relating to the health sciences;
- 1.3s use the process of scientific inquiry and apply critical-thinking skills to solve problems;
- 1.4s apply basic principles of physics, chemistry, and biomedical sciences to analyze situations and solve problems;
- 1.5s describe major historical events in the development of health care and communicate their impact on society;
- 1.6s describe the economic impact of the health services on society, the systems that finance health care in a free-enterprise economy, and different health care reform plans in the United States;
- 1.7s identify age and cultural influences that impact health care delivery;
- 1.8s compare and contrast strategies used by different cultures to solve health-related problems;
- 1.9s describe the role of individuals and organizations in the prevention and containment of disease in a global society; and
- 1.10s evaluate technological resources for appropriate applications in health care and analyze issues related to their use.

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 8–12

### **Scientific Research and Design**

The beginning teacher knows and understands:

- 1.4k the impact of science and scientific research on the health sciences;
- 1.5k the use of scientific methods during fieldwork and laboratory investigations;
- 1.6k the performance of laboratory and fieldwork using safe, environmentally appropriate, and ethical practices; and
- 1.7k how to synthesize and communicate valid conclusions from qualitative and quantitative experimental data.

**Application: What Teachers Can Do** 

Teachers of Students in Grades 8–12

## Scientific Research and Design

The beginning teacher is able to:

- 1.11s demonstrate safe and responsible practices in laboratory investigations and fieldwork;
- 1.12s interpret and analyze scientific and technical data related to health care;
- 1.13s plan and implement appropriate investigative procedures, including asking questions, formulating testable hypotheses, and selecting equipment and technology;
- 1.14s collect data by measurement and observation;
- 1.15s organize, analyze, evaluate, make inferences, and predict trends from data;
- 1.16s communicate valid conclusions;
- 1.17s analyze, review, and critique hypotheses and theories using scientific evidence and information;
- 1.18s make responsible choices in selecting everyday products and services using scientific information; and
- 1.19s communicate experimental results using charts, tables, and graphs.

Teach	er Knowledge: What Teachers Know	Applic	ation: What Teachers Can Do		
Teachers of Students in Grades 8–12		Teachers of Students in Grades 8–12			
Huma	n Anatomy and Physiology	Human Anatomy and Physiology			
The be	ginning teacher knows and understands:	The be	The beginning teacher is able to:		
1.8k	the anatomical structures of the human body and their relationship to their physiological function;	1.20s	relate the physiological function to the anatomical structures within the body systems;		
1.9k 1.10k 1.11k 1.12k 1.13k 1.14k	the energy needs of the human body and the processes through which these needs are fulfilled; the responses of the human body to internal and external forces; the human body's effort to maintain homeostasis; the human body's electrical conduction processes and interactions; the human body's transport systems; and the process of human growth and development.	1.21s 1.22s 1.23s 1.24s 1.25s 1.26s 1.27s 1.28s	analyze biological and chemical processes that maintain homeostasis; analyze the chemical reactions that provide energy for the body; identify the means, including the structure and function of the digestive system, by which nutrients are processed and energy is utilized or stored; analyze the effects of energy deficiencies in malabsorption disorders such as diabetes, hypothyroidism, and Crohn's disease; analyze and describe the effects of pressure, movement, torque, tension, and elasticity on the human body; explain how coordination of muscles, bones, and joints allows movement of the body; identify and relate the changes in structures and functions due to trauma, disease, and environmental conditions; describe conduction systems such as nerve transmission or muscle stimulation;		

Essential Knowledge and Skills [TEKS]) for Health Science Technology Education. **Application: What Teachers Can Do** Teachers of Students in Grades 8–12 **Human Anatomy and Physiology (continued)** 1.29s analyze the physical, chemical, and biological properties of the circulatory, respiratory, and excretory transport systems; describe the development of cells, tissues, organs, and systems; and 1.30s summarize the human development cycle. 1.31s

Standard I. Academics: The health science technology education teacher is proficient in the academic subjects needed to teach the statewide curriculum (Texas

Teacher Knowledge: What Teachers Know	Application: What Teachers Can Do
Teachers of Students in Grades 8–12	Teachers of Students in Grades 8–12
Medical Microbiology	Medical Microbiology
The beginning teacher knows and understands:	The beginning teacher is able to:
1.15k the infection control process;	1.32s describe the historical development of microbiology as it relates to health care;
<ul><li>1.16k the relationship between microorganisms and health;</li><li>1.17k the role of microorganisms in infectious diseases; and</li></ul>	1.33s identify the chemical processes, morphology, and characteristics of microorganisms;
1.18k the immune response to infection.	1.34s describe techniques used to identify microorganisms;
	1.35s determine the factors required for microbial reproduction and growth;
	1.36s classify microorganisms using dichotomous keys;
	1.37s identify normal flora of the human body;
	1.38s describe the infectious disease process;
	1.39s identify pathogens of the human body; and
	1.40s evaluate the effects of antimicrobial agents.

### Teachers of Students in Grades 8–12

## **Pathophysiology**

The beginning teacher knows and understands:

1.19k the mechanisms of pathology;

1.20k the process of pathogenesis;

1.21k a variety of human diseases; and

1.22k the effects of disease prevention and control.

### **Application: What Teachers Can Do**

#### Teachers of Students in Grades 8–12

## **Pathophysiology**

The beginning teacher is able to:

- 1.41s identify biological and chemical processes at the cellular level;
- 1.42s associate disease processes with changes in homeostasis;
- 1.43s identify factors contributing to disease including age, gender, environment, lifestyle, and heredity;
- 1.44s evaluate stages in the progression of disease;
- 1.45s identify pathogenic organisms, mutations, neoplasms, and their associated disease processes;
- 1.46s illustrate the stages of pathogenesis, including incubation and symptomatic periods, exacerbation, and remission;
- 1.47s analyze the body's natural defenses against infection, including inflammatory and immune system responses;
- 1.48s evaluate the effects of chemical agents, environmental pollution, and trauma on the disease process;
- 1.49s identify and describe congenital disorders and childhood diseases;

Standard I. Academics: The health science technology education teacher is proficient in the academic subjects needed to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) for Health Science Technology Education. **Application: What Teachers Can Do** Teachers of Students in Grades 8–12 Pathophysiology (continued) evaluate public health issues related to asepsis, isolation, immunization, and quarantine; evaluate treatment options for diseases; 1.51s 1.52s describe diseases that threaten world health; and develop a plan for personal health and wellness. 1.53s

Teacher Knowledge: What Teachers Know	Application: What Teachers Can Do
Teachers of Students in Grades 8–12	Teachers of Students in Grades 8–12
Medical Terminology	Medical Terminology
The beginning teacher knows and understands:	The beginning teacher is able to:
1.23k the terminology related to health care;	1.54s identify medical abbreviations, acronyms, and symbols;
1.24k how to use professional resources and references; and	1.55s identify the meaning of medical word prefixes, suffixes, and roots;
1.25k how to communicate using appropriate medical terminology.	1.56s use medical and dental dictionaries and multimedia resources;
	1.57s accurately interpret and transcribe medical vocabulary;
	1.58s translate medical terms to conversational language to facilitate communication; and
	1.59s report observations using medical terminology.

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 8–12

## Gerontology

The beginning teacher knows and understands:

1.26k the aging process;

1.27k the sociological implications of aging; and

1.28k the psychological effects of aging.

**Application: What Teachers Can Do** 

Teachers of Students in Grades 8–12

## Gerontology

The beginning teacher is able to:

- 1.60s identify the physiological and cognitive patterns of change in aging individuals;
- 1.61s analyze nutritional and pharmacological issues associated with aging;
- 1.62s communicate effectively with older adults and their families;
- 1.63s describe the myths regarding aging;
- 1.64s discuss cultural responses to aging;
- 1.65s describe and evaluate ethical issues regarding older adults;
- 1.66s analyze the impact of a "graying" population on twenty-first-century health care;
- 1.67s describe and evaluate social services available to older adults; and
- 1.68s identify the psychological aspects of aging, including responses to death and dying.

**Teacher Knowledge: What Teachers Know** 

Teachers of Students in Grades 8–12

#### **Clinical Nutrition**

The beginning teacher knows and understands:

1.29k foundations and therapeutic concepts of nutrition; and

1.30k social and cultural issues related to nutrition.

**Application: What Teachers Can Do** 

Teachers of Students in Grades 8–12

#### Clinical Nutrition

The beginning teacher is able to:

- 1.69s analyze nutritional information;
- 1.70s determine nutritional needs of different populations, including the effects of chemotherapy and radiation on client nutrition and nutritional needs throughout the life span;
- 1.71s describe how culture influences nutritional preferences;
- 1.72s assess clients' nutritional needs;
- 1.73s describe eating disorders and how they affect individuals;
- 1.74s identify therapeutic diets;
- 1.75s describe food additives and food allergies;
- 1.76s describe the relationship between nutrition and world health;
- 1.77s describe the impact of government services and regulatory agencies on nutrition:
- 1.78s identify alternative methods of nutrition; and
- 1.79s prepare, implement, and evaluate therapeutic care plans.

**Teacher Knowledge: What Teachers Know** 

Teachers of Students in Grades 8–12

## Pharmacology

The beginning teacher knows and understands:

- 1.31k the concepts of pharmacology; and
- 1.32k technology used in pharmacology.

**Application: What Teachers Can Do:** 

Teachers of Students in Grades 8–12

# Pharmacology

The beginning teacher is able to:

- 1.80s use drug references including the Physicians' Desk Reference (PDR);
- 1.81s identify drug names, classifications, actions, and interactions;
- 1.82s identify indications and contraindications of drugs;
- 1.83s identify side effects, toxic effects, and adverse reactions of drugs;
- 1.84s identify routes of drug administrations;
- 1.85s compare and contrast Food and Drug Administration (FDA)-approved drugs to alternative medicines; and
- 1.86s use technology to access, process, and retrieve information.

Teacher Knowledge: What Teachers Know	Applica	ation: What Teachers Can Do:
Teachers of Students in Grades 8–12	Teache	rs of Students in Grades 8–12
Mental Health	Mental	Health
The beginning teacher knows and understands:	The beg	ginning teacher is able to:
1.33k the concepts of mental health; and	1.87s	describe the anatomy, physiology, and pathophysiology of the nervous system;
1.34k social and cultural issues related to mental health.	1.88s	discuss the psychological aspects of health and wellness across the life span;
	1.89s	identify the physiological effects of stress and aging;
	1.90s	identify symptoms of maladaptive conditions such as paranoia, schizophrenia, and aggression;
	1.91s	describe treatment options for a variety of mental health needs;
	1.92s	identify societal perspectives and socioeconomic factors as they affect mental health; and
	1.93s	describe the role of social services, such as drug dependency rehabilitation centers.

# Standard II. Communication: The health science technology education teacher demonstrates proficiency in verbal and nonverbal communication skills.

Teach	er Knowledge: What Teachers Know	Applic	ation: What Teachers Can Do	
Teachers of Students in Grades 8–12		Teachers of Students in Grades 8–12		
The be	ginning teacher knows and understands:	The be	ginning teacher is able to:	
2.1k	the components of and barriers to effective communication;	2.1s	evaluate the effectiveness of verbal and nonverbal communication;	
2.2k	effective verbal and nonverbal communication;	2.2s	adapt communication to the needs of individuals in a diverse society;	
2.3k	how to communicate effectively in writing; and	2.3s	describe the importance of accurate communication with clients and members of the health care team;	
2.4k	ow to communicate appropriately in medical environments.	2.4s	organize and compile ideas to write reports and summaries;	
		2.5s	evaluate and analyze client data, records, and technical reports;	
		2.6s	communicate industry standards and high expectations for learning; and	
		2.7s	demonstrate appropriate communication skills in a variety of settings (e.g., over the phone, at reception areas, interacting with clients, working with other medical staff).	

Standard III. Health and Wellness: The health science technology education teacher applies the concept of wellness and the fundamentals of disease prevention to promote healthy behaviors.

Application: What Teachers Can Do		
Teachers of Students in Grades 8–12		
The beginning teacher is able to:		
3.1s evaluate wellness strategies for the prevention and control of disease;		
3.2s identify warning signs and explain the importance of early detection;		
3.3s relate concepts of health and wellness to each phase of the life span;		
3.4s identify human needs according to Maslow's Hierarchy of Human Needs;		
3.5s explain the relationship between nutrition, disease, and quality of life;		
3.6s evaluate health-related social issues, such as access to health care and organ donation;		
3.7s analyze risk factors and consequences of unhealthy behaviors;		
3.8s promote healthy behaviors and wellness strategies, products, information, and services; and		
3.9s evaluate information and products as related to traditional and alternative health care.		

Standard IV. Health Care Systems: The health science technology education teacher understands the roles of health care workers and the function of the diagnostic, therapeutic, informational, and environmental systems of health care.

Teach	er Knowledge: What Teachers Know	Applica	ation: What Teachers Can Do		
Teache	Teachers of Students in Grades 8–12		Teachers of Students in Grades 8–12		
The be	ginning teacher knows and understands:	The beg	inning teacher is able to:		
4.1k	the diagnostic, therapeutic, informational, and environmental systems within health care;	4.1s	describe technology and equipment used in the delivery of health care;		
4.2k 4.3k	the skills of a multicompetent health care worker; and the skills necessary to monitor client health status during diagnostic and therapeutic procedures.	4.2s 4.3s 4.4s 4.5s 4.6s 4.7s 4.8s 4.9s	select and use appropriate equipment in the delivery of health care; recognize malfunctions of health care equipment; assess and monitor client status, and accurately measure, record, and interpret vital signs; safely move, lift, and transport clients; assess client nutrition and hygiene; effectively communicate health care procedures, therapies, and information with clients; demonstrate skills associated with activities of daily living and rehabilitative care; use appropriate protocols for the collection and dissemination of client health		
		4.10s	use technology for the collection and dissemination of client health care data.		

Standard V. Employability: The health science technology education teacher uses his or her professional work experience in the health care delivery system to help prepare students for successful careers in the health care industry.

Teacher Knowledge: What Teachers Know		Application: What Teachers Can Do			
Teachers of Students in Grades 8–12		Teache	Teachers of Students in Grades 8–12		
The be	ginning teacher knows and understands:	The beg	ginning teacher is able to:		
5.1k	characteristics of health care professionals as defined by the health care industry;	5.1s	identify professional characteristics of health care providers;		
5.2k	career options and the preparation necessary for employment in the health care industry;	5.2s	locate, evaluate, and interpret career options, employment information, and career enhancement opportunities;		
5.3k	the skills necessary to gain and maintain employment in the health care industry;	5.3s	demonstrate the procedures necessary to seek, secure, and maintain employment;		
5.4k	the demands and responsibilities of health care professionals;	5.4s 5.5s	predict the impact of career choices on personal lifestyle; guide students to set realistic career and educational goals based on personal		
5.5k	multiple health care environments and their integrated relationships;		interest and aptitudes;		
5.6k	the importance of interpersonal and social skills in the workplace;	5.6s	develop strategies to anticipate and adapt to changing employment conditions;		
5.7k	how to access current information on new and emerging careers in the health care industry; and	5.7s	identify new and emerging careers in health care;		
5.8k	the benefits of work-based learning opportunities in health care.	5.8s	demonstrate and promote productive work habits such as punctuality, attendance, and time management;		
		5.9s	prepare students for entry-level employment and/or certification in appropriate allied health areas;		
		5.10s	adhere to child labor laws; and		
		5.11s	develop appropriate training plans for work-based learning experiences (paid and unpaid).		

Standard VI. Safety: The health science technology education teacher understands industry safety policies, safety procedures, and preventive measures to minimize injury and illness.

Teache	er Knowledge: What Teachers Know	Applica	ation: What Teachers Can Do	
Teache	ers of Students in Grades 8–12	Teachers of Students in Grades 8–12		
The be	ginning teacher knows and understands:	The beg	ginning teacher is able to:	
6.1k	the importance of maintaining a safe environment and eliminating hazardous situations;	6.1s	evaluate environments for personal and client safety and comply with safety policies;	
6.2k	the importance of regulatory agencies such as the Occupational Safety and Health Administration, the Food and Drug Administration, and the Centers	6.2s	identify and practice fire prevention procedures according to facility protocol;	
	for Disease Control;	6.3s	respond to emergencies appropriately;	
6.3k	standard precautions as they relate to health care workers; and	6.4s	identify, demonstrate, and apply the principles of body mechanics for minimizing personal and client injury;	
6.4k procedures for controlling the spread of infection.	procedures for controlling the spread of infection.	6.5s	comply with and enforce protocols related to chemicals and hazardous materials;	
		6.6s	describe the cycle of the infectious process;	
		6.7s	demonstrate, monitor, and evaluate the use of standard precautions to prevent nosocomial infections;	
		6.8s	compare the functions of regulatory agencies such as the Occupational Safety and Health Administration, the Food and Drug Administration, and the Centers for Disease Control; and	
		6.9s	comply with and enforce school, lab, and workplace safety policies and procedures.	

# Standard VII. Ethical and Legal Issues: The health science technology education teacher understands the ethical and legal responsibilities of health care workers.

Teach	er Knowledge: What Teachers Know	Application: \	What Teachers Can Do	
Teachers of Students in Grades 8–12		Teachers of Students in Grades 8–12		
The be	eginning teacher knows and understands:	Γhe beginning	g teacher is able to:	
7.1k 7.2k 7.3k	ethical behavior standards and legal responsibilities of health care professionals; malpractice, negligence, and liability issues related to health care; the importance of leadership and civic responsibilities;	7.2s comp	el ethical behavior; municate the necessity of client confidentiality; oly with and enforce the protocols and legal requirements of the health industry within a designated scope of practice;	
7.4k 7.5k 7.6k	the impact that age, culture, and religion may have on clients' views on health care; the importance of confidentiality as it relates to health care; and the legal requirements and scope of practice of health care workers.	7.4s identi 7.5s identi 7.6s descr 7.7s analy 7.8s identi	ify clients' rights and health care options; ify and discuss issues related to professional liability; ribe the effects of unethical practices on consumers; vze issues related to malpractice, negligence, and liability; ify circumstances that affect clients' rights; and vze issues related to death and dying.	

Standard VIII. Teaming: The health science technology education teacher understands the importance of teaming and leadership skills in providing both quality client health care and effective student instruction.

Teacher Knowledge: What Teachers Know	Application: What Teachers Can Do	
Teachers of Students in Grades 8–12	Teachers of Students in Grades 8–12	
The beginning teacher knows and understands:	The beginning teacher is able to:	
<ul> <li>8.1k the benefits of teaming to provide quality health care;</li> <li>8.2k the leadership skills necessary to function in a democratic society; and</li> <li>8.3k the opportunities available to students through Health Occupations Students of America (HOSA), such as leadership training, scholarships, and knowledge and skill development.</li> </ul>	<ul> <li>8.1s explain the concept of teaming and describe how the health care team functions to provide quality health care;</li> <li>8.2s demonstrate skills, characteristics, and responsibilities of leaders and group members;</li> <li>8.3s use teaming skills to accomplish goals;</li> <li>8.4s conduct effective meetings according to established parliamentary procedures (e.g., Robert's Rules of Order);</li> <li>8.5s use problem-solving skills to negotiate and resolve conflicts; and</li> <li>8.6s provide opportunities for students to participate in leadership and community service activities through Health Occupations Students of America (HOSA).</li> </ul>	

Standard IX. Partnerships: The health science technology education teacher understands the importance of developing partnerships with parents/guardians, industry, education institutions, and the community to enhance student learning and strengthen the health science technology education program.

Teacher Knowledge: What Teachers Know		Application: What Teachers Can Do	
Teachers of Students in Grades 8–12		Teachers of Students in Grades 8–12	
The be	ginning teacher knows and understands:	The beg	ginning teacher is able to:
9.1k	the importance of establishing partnerships with parents/guardians, industry, education institutions, and the community;	9.1s	establish partnerships with parents/guardians, industry, education, and the community to enhance teaching and learning;
<ul> <li>9.3k the availability of health care-related community resources; and</li> <li>9.4k the existence of external and internal funding sources for the health science technology education program.</li> </ul>	9.2s 9.3s 9.4s 9.5s 9.6s	use partnerships to prepare students for the transition from secondary to postsecondary education;  develop and maintain partnerships to provide quality work-based learning opportunities;  use community resources for student benefit;  develop and implement processes to involve parents/guardians in student learning and career development; and  use community health care professionals in the formal instruction of students.	

Standard X. Professional Development: The health science technology education teacher understands the importance of lifelong learning and continuing professional development.

Teacher Knowledge: What Teachers Know	Ap	Application: What Teachers Can Do	
Teachers of Students in Grades 8–12	Te	Teachers of Students in Grades 8–12	
The beginning teacher knows and understands:	Th	The beginning teacher is able to:	
10.1k the importance of professional standards and	d organizations;	10.1s model professional standards as a health care provider by maintaining a current license, certification, or registration;	
10.2k the necessity of maintaining professional kn in health care;	-	10.2s integrate new and emerging technologies into the curriculum to enhance teaching and learning;	
10.3k the importance and advantages of attending opportunities that address topics related to h		10.3s use and integrate a variety of appropriate resources when selecting and preparing lessons;	
10.4k the benefits of using the statewide curriculum and Skills [TEKS]) for Health Science Tech resources for providing instruction; and		10.4s actively participate in professional development opportunities;	
10.5k the value of joining and actively participating		10.5s incorporate publications and professional journals into lesson plans and activities; and	
	10.	10.6s use professional organizations as networks for exchanging, discussing, and evaluating resources.	1