TECHNOLOGY EDUCATION STANDARDS

Standard I. The technology education teacher understands the philosophy of technology education.

Standard II. The technology education teacher understands the nature of technology.

Standard III. The technology education teacher understands the interactions between technology and society.

Standard IV. The technology education teacher understands technology and design processes.

Standard V. The technology education teacher understands the use, maintenance, and impact of technology.

Standard VI. The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.

Standard VII. The technology education teacher understands instructional development and facilities management.

Standard I. **The technology education teacher understands the philosophy of technology education.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
1.1k the goals of technological literacy and the importance of having a society of technologically literate individuals;	1.1s describe the major components of the technology education curriculum (e.g., systems, controls, design processes) and how they contribute to developing technological literacy;
1.2k how technology education helps all students learn how to manage, use, and understand technology;	1.2s describe the structure of the study of technology in terms of core concepts that remain constant as technological progress accelerates;
1.3k that technology education is a dynamic problem-solving based program that teaches all students to safely and effectively use technological systems;	1.3s explain the impact of technology on the individual and on society as a whole, as well as the way in which both individual and social goals influence the development of technology;
1.4k how the structure of technology education allows individuals to learn how to use new technological systems in an era of accelerated technological change;	1.4s describe how technological literacy can assist individuals in participating in society's decisions regarding the use of technology;
1.5k that technology education is a discipline enabling all students to gain hands-on experiences with technologies; and	1.5s consider technological problems from different points of view and explain how to use various approaches to problem solving, such as troubleshooting, research and development, invention, innovation, and experimentation;
1.6k the similarities and differences between technology education and career and workforce development education.	1.6s demonstrate the importance of making informed decisions about existing and emerging technologies; and
	1.7s integrate knowledge from other subject areas, including mathematics, science, and the liberal and fine arts, into the technology education curriculum.

Standard II. **The technology education teacher understands the nature of technology.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
Characteristics and Scope of Technology	**Characteristics and Scope of Technology**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
2.1k that technology involves innovation and creativity;	2.1s describe how products and systems are developed to meet individual, societal, cultural, and political needs;
2.2k that technological products and systems alter the natural world and are designed to solve problems; and	2.2s explain how creativity and innovation influence technology;
2.3k the capabilities and limitations of technology's ability to solve problems.	2.3s describe how technology makes it possible for scientists to extend research and explore new phenomena;
	2.4s use mathematics and natural and social science to analyze technology;
	2.5s analyze factors (e.g., scientific advances, access to capital, market demand) that affect the rate of technological development; and
	2.6s explain how new technologies are built on previous technologies.
Core Concepts of Technology	**Core Concepts of Technology**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
2.4k how to use a systems model to describe technological activities;	2.7s use the universal systems model (i.e., input, process, output, feedback) to analyze communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems;
2.5k technological resources, their properties, and how they are used in technological systems;	2.8s analyze how technological systems and subsystems interact to achieve common goals;
2.6k technological requirements and how they affect the final design and development of a product or process;	2.9s identify resources (e.g., energy, capital, time, people, information) needed to develop and support a technological system;
2.7k optimization and design characteristics for solving a technological problem;	

Standard II. **The technology education teacher understands the nature of technology.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
Core Concepts of Technology (continued)	**Core Concepts of Technology (continued)**
2.8k the trade-offs associated with technology and the need for compromises among competing factors in the design process;	2.10s examine resources from a global perspective and discuss issues related to renewable and nonrenewable resources;
2.9k the technological processes involved in communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems;	2.11s identify the requirements of a solution to a given technological problem, and identify and analyze how various criteria and constraints (e.g., safety needs, physical laws, federal laws, cultural norms) may affect the solution;
2.10k control mechanisms and the role and characteristics of control mechanisms in technological systems; and	2.12s use communication skills and mathematical and scientific principles in solving problems in technology;
2.11k factors (e.g., efficiency, reliability) that influence the quality of a product.	2.13s identify and evaluate the trade-offs involved in developing or using a given technology;
	2.14s apply a variety of technological processes (e.g., designing, modeling, maintaining, managing);
	2.15s use the concept of redundancy in the design process to increase the reliability of a technological system;
	2.16s design a variety of mechanisms and systems (e.g., open and closed feedback loops) to control a technological process; and
	2.17s explain factors (e.g., aesthetic, functional) that affect product quality.

Standard III. **The technology education teacher understands the interactions between technology and society.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 6–12

Cultural, Social, and Economic Environment

The beginning technology education teacher knows and understands:

3.1k how economic factors (e.g., supply and demand of resources, access to capital) and marketing strategies shape the design and demand of various technologies;

3.2k the importance of teamwork, leadership, integrity, honesty, work habits, and organizational skills;

3.3k career opportunities, requirements, and expectations in communication; manufacturing; construction; energy, power, and transportation technologies; bio-related technology; and computer applications systems;

3.4k the relationships and interactions between technology and society;

3.5k that the use of technology can have unintended consequences;

3.6k how the use of technology affects humans in various ways, including their safety, comfort, choices, and attitudes;

3.7k economic, political, environmental, and cultural issues associated with the development and use of technology; and

3.8k ethical considerations associated with the development, selection, and use of technologies.

Application: What Teachers Can Do

Teachers of Students in Grades 6–12

Cultural, Social, and Economic Environment

The beginning technology education teacher is able to:

3.1s explain how individual values, beliefs, and attitudes influence decisions about whether to use a technological product;

3.2s analyze how public opinions and demands shape the direction of technological development;

3.3s explain how economic demand and market forces influence the development and use of technological products;

3.4s apply marketing processes and techniques to prepare a marketing plan for an idea, product, or service;

3.5s describe interconnections between technology and various societal institutions (e.g., financial, educational, governmental);

3.6s explain how competition, economic investment and risks, and the potential for economic reward influence the process of technological innovation and production;

3.7s describe how workforce organization and management structure can influence factors associated with technological development (e.g., innovation, productivity);

3.8s demonstrate leadership and teamwork skills;

3.9s describe careers in technology, identify employability skills, and apply principles of career planning and skills for seeking jobs;

Standard III. **The technology education teacher understands the interactions between technology and society.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
	Cultural, Social, and Economic Environment (continued)
	3.10s describe positive and negative aspects associated with the use of technology in a given situation;
	3.11s identify and examine ethical issues associated with technologies, including emerging and innovative technologies (e.g., genetic engineering, information privacy); and
	3.12s describe how the introduction of new technologies can influence cultural, social, economic, and political developments.
Influence of Technology on History	**Influence of Technology on History**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
3.9k the history and evolution of communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems; and	3.13s describe the unique technologies associated with major historical periods (e.g., the Stone Age, the Iron Age, the Middle Ages, the Renaissance, the Industrial Revolution, the Space Age, the Information Age);
3.10k how technology has influenced the social, cultural, political, and economic landscape throughout history.	3.14s analyze how technological innovations (e.g., agriculture, transportation) have influenced human settlement patterns and population growth; and
	3.15s explain how technologies have influenced social interactions, social organization, and cultural developments.

***Standard IV*. The technology education teacher understands technology and design processes.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
4.1k engineering design and design processes as a systematic, iterative method of solving problems;	4.1s describe the steps and procedures in design processes;
4.2k criteria for evaluating a design;	4.2s develop technological products and systems using appropriate design processes and techniques;
4.3k methods for communicating a design; and	4.3s identify areas where quality, reliability, and safety can be designed into a product, service, or system;
4.4k how human and personal characteristics can influence a design.	4.4s design and improve technological products and services that meet a specified need (e.g., people with special needs);
	4.5s evaluate a design in terms of a given criteria (e.g., functionality, aesthetics, marketability);
	4.6s compare and contrast problem solving methods in engineering, science, and technology;
	4.7s apply processes (e.g., using communication, mathematics, and science knowledge and skills) to solve technological problems;
	4.8s investigate and describe the chemical, mechanical, and physical properties of materials; and
	4.9s use a variety of models (e.g., physical, mathematical, computer) and other methods to develop optimal designs for technological products given variable criteria and constraints.

Standard V. **The technology education teacher understands the use, maintenance, and impact of technology.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 6–12

Use and Maintenance of Technological Systems

The beginning technology education teacher knows and understands:

5.1k how communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems may be used to meet specific goals;

5.2k how information provided in manuals, protocols, and other resources may be used to learn and understand how technologies function;

5.3k the strategies for diagnosing and repairing systems that are malfunctioning;

5.4k the strategies for maintaining systems to ensure their safe and proper function; and

5.5k the importance of operating technological systems so that they function in the way they were designed.

Application: What Teachers Can Do

Teachers of Students in Grades 6–12

Use and Maintenance of Technological Systems

The beginning technology education teacher is able to:

5.1s safely use a variety of tools, materials, equipment, and machines associated with communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems;

5.2s handle and store tools and materials correctly;

5.3s use critical-thinking skills to solve problems and troubleshoot technological systems;

5.4s determine causes of failure in materials, tools, equipment, and machines and identify procedures used to prevent such failures;

5.5s describe the results of negligent or improper maintenance of a technological system; and

5.6s create maintenance plans and programs.

Standard V. **The technology education teacher understands the use, maintenance, and impact of technology.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
Assessing the Impact of Technology	**Assessing the Impact of Technology**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
5.6k how to collect and evaluate information about a given technology and its application;	5.7s use assessment strategies to determine the risks and benefits of technological solutions (e.g., solutions to environmental problems, sustainable development);
5.7k how to synthesize data, analyze trends, and draw conclusions regarding the effects of technology on the individual, society, and the environment;	5.8s assess how changes in technology affect economic and organizational aspects of business and industry;
5.8k how technologies should be used to conserve natural resources and promote sustainable development through techniques such as reusing, reducing, and recycling; and	5.9s assess how technology influences the environment and society (e.g., home, school, work); and
5.9k appropriate codes, laws, standards, or regulations related to technology (e.g., Occupational Safety and Health Administration [OSHA], the American Society for Testing Materials [ASTM], the Environmental Protection Agency [EPA]; and the National Electrical Code [NEC]).	5.10s identify and comply with applicable codes, laws, standards, and regulations.

Standard VI. **The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 6–12

Communication Systems

The beginning technology education teacher knows and understands:

6.1k how to plan, produce, and manage a communication systems project;

6.2k principles (e.g., perspective, shading) and applications (e.g., architectural, engineering) of graphic design;

6.3k standard conventions of drafting;

6.4k principles of photographic composition (e.g., lighting, perspective, focus), and equipment (e.g., cameras, lights) and techniques (e.g., computer manipulation of images) used in photography;

6.5k techniques used in image transfer and reproduction;

6.6k skills (e.g., word processing, illustrating, layout), equipment (e.g., input devices, output devices), and software used in desktop publishing; and

6.7k video and audio systems (e.g., radio, television), production techniques (e.g., recording, editing), and equipment (e.g., amplifiers, video cameras).

Application: What Teachers Can Do

Teachers of Students in Grades 6–12

Communication Systems

The beginning technology education teacher is able to:

6.1s produce a communication systems project using appropriate resources and technical processes and the basic communication model;

6.2s apply the elements (e.g., line, form, color) and principles (e.g., balance, proportion, harmony) of graphic design to create products;

6.3s apply knowledge of dimensioning, geometry, multiview drawings, sectional views, pictorial representations, and detail and assembly drawings to produce engineering graphics;

6.4s apply knowledge of design and architectural styles to create working drawings, presentation drawings, and models for residential, community, and business needs;

6.5s describe the characteristics of photographic equipment and apply the basic principles of photography to take and process photographs;

6.6s use image carrier preparation, transfer, and product finishing processes;

6.7s use desktop publishing hardware and software to produce products;

6.8s use audio and video communication systems to produce communication products; and

6.9s describe how electromagnetic, satellite, and laser communication technologies send, transmit, and receive messages.

Standard VI. **The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 6–12

Manufacturing Systems

The beginning technology education teacher knows and understands:

6.8k how to plan, produce, and manage a manufacturing systems project;

6.9k types of manufacturing systems (e.g., custom, repetitive);

6.10k organization, structure, and management of manufacturing enterprises;

6.11k application of economic and marketing principles to manufacturing (e.g., cost-price relationships, supply and demand);

6.12k principles of product development (e.g., design, prototype construction, testing);

6.13k manufacturing processes (e.g., forming, conditioning, assembly, finishing) and quality control procedures;

6.14k tools and equipment (e.g., micrometers, milling machines, lathes, jigs and fixtures) used in manufacturing;

6.15k materials used in manufacturing (e.g., metals, woods, polymers, ceramics, composites) and their properties (e.g., elasticity, ductility, corrosion resistance); and

6.16k application and use of automated systems (e.g., robotics, artificial intelligence, computer integrated manufacturing).

Application: What Teachers Can Do

Teachers of Students in Grades 6–12

Manufacturing Systems

The beginning technology education teacher is able to:

6.10s produce a manufacturing systems project using appropriate resources and technical processes;

6.11s identify and analyze financial factors associated with starting and operating manufacturing enterprises;

6.12s compare and contrast the structure and properties of natural, synthetic, and composite materials and select a material for a given manufacturing purpose;

6.13s use a variety of tools and machines (e.g., saws, drills, lathes, welding machines, milling machines, computer numerical control [CNC] machines) to manufacture a product;

6.14s describe, analyze, and use processes for casting, molding, forming, separating, conditioning, assembling, and finishing products; and

6.15s use quality control procedures for a given manufacturing process.

Standard VI. **The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 6–12

Construction Systems

The beginning technology education teacher knows and understands:

6.17k how to plan, produce, and manage a construction systems project;

6.18k planning, surveying, and site preparation for construction activities;

6.19k types and characteristics of construction projects (e.g., residential, civil, commercial);

6.20k application of engineering principles (e.g., tension, shear) to construction activities;

6.21k construction materials (e.g., wood, steel, concrete, masonry, glass) and their properties (e.g., moisture content, strength, hardness, oxidation);

6.22k skills and techniques used for building, maintaining, and repairing structures (e.g., plumbing, wiring, welding, framing);

6.23k various roof designs and assembly processes;

6.24k subsystems (e.g., HVAC, plumbing, electrical) for a given structure;

6.25k alternative construction techniques and materials (e.g., dome, straw bale, underground);

6.26k the use of hand and power tools (e.g., saws, drills, levels) and equipment (e.g., cranes, backhoes) in construction; and

6.27k postconstruction activities (e.g., site cleanup, waste disposal, landscaping).

Application: What Teachers Can Do

Teachers of Students in Grades 6–12

Construction Systems

The beginning technology education teacher is able to:

6.16s produce a construction systems project using appropriate resources and technical processes;

6.17s interpret survey information with regard to site characteristics (e.g., grade, elevation, drainage) and preparation activities;

6.18s read and interpret construction plans and related documents (e.g., zoning restrictions, building codes, environmental regulations);

6.19s use a variety of tools to plan construction projects, estimate project costs, and schedule project components (e.g., installation of electrical systems, inspection of plumbing system);

6.20s select construction materials (e.g., wood, masonry, concrete, steel) for a given project;

6.21s analyze the structural properties of a variety of construction designs (e.g., truss, cantilever, arch, suspension);

6.22s use appropriate measuring devices, hand tools, or power tools for a given construction task (e.g., cutting, shaping, fastening); and

6.23s describe and use a variety of framing methods (e.g., platform frame, post and beam).

Standard VI. **The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 6–12

Energy, Power, and Transportation Systems

The beginning technology education teacher knows and understands:

6.28k how to plan, produce, and manage an energy, power, and transportation systems project;

6.29k scientific concepts of energy and power;

6.30k types of energy (e.g., chemical, electrical) and methods of converting one form of energy to another (e.g., gas turbines, internal combustion engine, photovoltaic cells);

6.31k sources, availability, and uses of renewable (e.g., solar, wind) and nonrenewable (e.g., coal, oil) energy;

6.32k consumer choices related to energy consumption and conservation;

6.33k methods of control, transmission, and storage of energy and power;

6.34k characteristics of thermal, electrical, fluid, and mechanical power systems;

6.35k principles and applications of electronics;

6.36k design and use of vehicles (e.g., airplanes, trains, automobiles) and vehicular subsystems (e.g., powertrains, suspensions);

6.37k characteristics of land, air, water, and space transportation systems and their economic, safety, and environmental impacts; and

6.38k aerodynamic principles related to the design of transportation vehicles.

Application: What Teachers Can Do

Teachers of Students in Grades 6–12

Energy, Power, and Transportation Systems

The beginning technology education teacher is able to:

6.24s produce an energy, power, and transportation systems project using appropriate resources and technical processes;

6.25s apply concepts and units of force, work, energy, and power in various situations;

6.26s apply a variety of scientific principles (e.g., conservation of energy, mechanical advantage, Pascal's principle, Bernoulli's principle, Ohm's law) to energy, power, and transportation systems;

6.27s describe processes used in the extraction, production, transportation, and storage of energy resources;

6.28s analyze processes for the production, storage, and transmission of electrical power;

6.29s analyze and design mechanical systems using parts such as levers, cams, gear trains, belts, and pulleys to control and transmit power for a given purpose;

6.30s analyze and design hydraulic and pneumatic systems to perform a given task (e.g., provide a given mechanical advantage);

6.31s describe the operating principles of energy storage devices (e.g., dams, flywheels, batteries);

6.32s interpret schematic diagrams and describe the function of basic electronic components (e.g., resistors, inductors, transistors);

6.33s analyze voltage, resistance, current, and power in series and parallel circuits;

Standard VI. **The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
	Energy, Power, and Transportation Systems (continued)
	6.34s design, build, and test DC and AC circuits to meet a particular need; 6.35s apply the principles of electricity and magnetism to describe how motors, meters, transformers, and generators work; and 6.36s compare and contrast the function and applications of digital and analog circuits.
Bio-Related Technology Systems The beginning technology education teacher knows and understands: 6.39k how to plan, produce, and manage a bio-related technology project; 6.40k principles of ergonomics and their application to the design of a product; 6.41k the ethical considerations associated with the selection, development, and use of bio-related technologies; 6.42k the role of bio-related technology in business and industry; 6.43k tools, materials, and equipment used in bio-related technology; 6.44k effects of hazardous wastes and pollution on the environment; and 6.45k principles and methods of environmental engineering.	**Bio-Related Technology Systems** The beginning technology education teacher is able to: 6.37s assess the intended and unintended effects (e.g., societal, economic, environmental) of a selected bio-related technology; 6.38s use assessment strategies to determine the risks and benefits of bio-related technologies; 6.39s identify and examine ethical issues associated with bio-related technologies, including emerging and innovative technologies; 6.40s apply communication, mathematics, and science to bio-related technology projects; 6.41s solve problems, think critically, and make decisions related to bio-related technology projects; 6.42s describe and identify laws, rules, and regulations related to bio-related technology;

Standard VI. **The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.**

Teacher Knowledge: What Teachers Know

Teachers of Students in Grades 6–12

Computer Applications

The beginning technology education teacher knows and understands:

6.46k how to plan, produce, and manage a computer applications project;

6.47k the characteristics and functions of computer hardware components and operating systems;

6.48k basic concepts of computer network architecture and principles of data transfer within and between computer networks;

6.49k fundamental principles of computer programming (e.g., problem formulation, coding, documentation, testing, and debugging);

6.50k characteristics and uses of programming or scripting languages, data structures (e.g., arrays, stacks), and algorithms;

6.51k characteristics and uses of a variety of computer software applications; and

6.52k appropriate and effective uses of computer technology.

Application: What Teachers Can Do

Teachers of Students in Grades 6–12

Bio-Related Technology Systems (continued)

6.43s use a variety of tools, equipment, and materials to develop a bio-related technology project; and

6.44s develop systems to conserve natural resources through techniques such as reusing, reducing, and recycling.

Computer Applications

The beginning technology education teacher is able to:

6.45s produce a computer application project using appropriate resources and technical processes;

6.46s describe the characteristics and functions of computer hardware components;

6.47s perform basic computer operations (e.g., data management, adding and removing hardware);

6.48s identify and perform routine maintenance and troubleshooting procedures for stand-alone computers and computer networks;

6.49s describe the structure and characteristics of local area networks (LAN), wide area networks (WAN), and the Internet;

6.50s describe the characteristics and functions of hardware and software network components (e.g., server, router, operating system, firewall);

6.51s describe how data is transferred on a network and the role of network protocols (e.g., TCP/IP);

Standard VI. **The technology education teacher understands communication; manufacturing; construction; energy, power, and transportation; bio-related technology; and computer applications systems.**

	Application: What Teachers Can Do ***Teachers of Students in Grades 6–12*** **Computer Applications (continued)** 6.52s demonstrate an understanding of network security (e.g., protecting hardware and data from unauthorized access); 6.53s read, interpret, modify, and develop a computer program for a given task; 6.54s use a variety of software applications (e.g., productivity tools, graphic design, solid modeling, multimedia, authoring tools); 6.55s determine the most appropriate type of computer hardware to achieve a specific goal; and 6.56s identify issues (e.g., ethical, legal, privacy, commercial) related to the use of computer technology to transfer and access information.

Standard VII. **The technology education teacher understands instructional development and facilities management.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
Facility Planning, Maintenance, and Management	**Facility Planning, Maintenance, and Management**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
7.1k regulations and guidelines (e.g., space requirements, environmental control, safety equipment) for technology education facilities;	7.1s identify sources of information about regulations and guidelines for the construction and use of instructional facilities in technology education;
7.2k characteristics and layouts of effective instructional facilities used for technology education programs;	7.2s identify the advantages and disadvantages of a variety of layouts for instructional facilities;
7.3k strategies for assessing the facility's needs of the technology education program;	7.3s solicit and evaluate input from stakeholders when assessing a facility's needs for the technology education program;
7.4k how to maintain instructional facilities for the technology education program;	7.4s ensure that the space and physical arrangement of instructional facilities are conducive to effective instruction;
7.5k how to identify, select, and acquire tools, equipment, and materials (e.g., computer hardware and software, multimedia equipment, power tools) used in the technology education program; and	7.5s ensure that instructional facilities are accessible to individuals with special needs;
7.6k how to access information pertaining to the installation, maintenance, and repair of equipment used in technology education facilities.	7.6s identify equipment, materials, and supplies (e.g., multimedia equipment, computer hardware and software, power tools) needed to successfully implement the technology education curriculum; and
	7.7s develop schedules for inspecting tools and equipment and for performing routine maintenance.

Standard VII. **The technology education teacher understands instructional development and facilities management.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
Financial Management	**Financial Management**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
7.7k strategies for prioritizing needs for tools, equipment, and materials;	7.8s balance program needs and financial costs when establishing priorities for the purchase of tools, equipment, materials, and supplies for the technology education program;
7.8k methods of effective budget planning and management;	7.9s identify sources of funding (e.g., local, state, and federal funds/grants) for the technology education program;
7.9k sources of funding (e.g., federal, state, local) for purchase of equipment and materials;	7.10s implement proper methods and procedures for financial record keeping and reporting; and
7.10k methods for purchasing and ordering equipment and materials;	7.11s develop methods for conducting an inventory of all tools, equipment, materials, and supplies on a regular basis.
7.11k methods of accounting, auditing, and fiscal reporting; and	
7.12k methods for taking and recording inventory of equipment and materials.	

Standard VII. **The technology education teacher understands instructional development and facilities management.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
Safety	**Safety**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
7.13k safety regulations and guidelines for instructional facilities in technology education;	7.12s obtain information about local, state, and federal regulations and guidelines regarding safety in technology education facilities;
7.14k sources of information about safe use of tools and equipment and of the proper storage and disposal of materials and supplies in technology education;	7.13s comply with legal requirements related to safety in the technology education program;
7.15k how to evaluate equipment, materials, procedures, and settings for potential safety hazards;	7.14s read, interpret, and apply safety information (e.g., materials safety data sheets [MSDSs], manufacturer's warnings) about equipment, tools, chemicals, and hazardous materials (e.g., oil, solvents, toner cartridges);
7.16k procedures for maintaining a clean, safe, learning environment and for the proper use of tools, equipment, and materials;	7.15s establish procedures (e.g., inspecting equipment prior to use, developing a safety checklist) to identify and eliminate potential safety hazards in the technology education facility;
7.17k procedures for responding to an emergency or accident; and	7.16s develop and implement procedures for the safe use, storage, and disposal of all materials used in the technology education program;
7.18k the importance of providing students with continuous instruction and training in safe techniques and procedures.	7.17s ensure that appropriate safety apparel is worn by all students and that students are instructed in the proper use of safety apparel;
	7.18s ensure that all safety equipment (e.g., eyewash station, fire blanket, extinguishers) is regularly inspected and maintained and is easily accessible to all teachers and students;
	7.19s assess injuries and apply appropriate first aid procedures when necessary; and
	7.20s model and exhibit safe practices and procedures when using facilities, tools, equipment, and materials.

Standard VII. **The technology education teacher understands instructional development and facilities management.**

Teacher Knowledge: What Teachers Know	**Application: What Teachers Can Do**
Teachers of Students in Grades 6–12	***Teachers of Students in Grades 6–12***
Instructional Strategies	**Instructional Strategies**
The beginning technology education teacher knows and understands:	The beginning technology education teacher is able to:
7.19k how to develop and implement an effective curriculum for the technology education program;	7.21s align the curriculum in the technology education program with the Texas Essential Knowledge and Skills (TEKS);
7.20k different types of instructional strategies, teaching methods, and skills and their applications in technology education;	7.22s develop instructional goals and objectives for the technology education curriculum that are clear, relevant, and meaningful and that can be assessed;
7.21k characteristics, uses, advantages, and limitations of various assessment methods and strategies in technology education; and	7.23s implement a variety of teaching methods to enhance student learning in technology education;
7.22k the role of the teacher in enhancing student opportunities for careers in technology education.	7.24s select and develop a variety of hands-on lessons that allow students to manage, use, and understand technology;
	7.25s provide students with opportunities to design, produce, and evaluate technology products;
	7.26s select and use appropriate materials and resources for effectively teaching subject material in technology education;
	7.27s use standard and authentic assessment tools and strategies to monitor individual and group progress in achieving learning goals;
	7.28s evaluate the quality of data obtained from assessments and determine what decisions about instruction can appropriately be made based on the data;
	7.29s provide information and advise students about sources of information regarding current and emerging careers in technology-related fields; and
	7.30s provide students with leadership opportunities and practical experience in technology-related fields through student organizations.