

Chapter 2

THE TECHNOLOGY APPLICATIONS AWARENESS PROGRAM

INTRODUCTION

In determining a vision of educational technology goals within their areas of jurisdiction, administrators, teachers, architects, and other planners must be aware of the newly established Technology Applications Texas Essential Knowledge and Skills (TEKS) to be implemented throughout Texas in September, 1998. This vision will be necessary in helping shape the goals and planning of the technology infrastructure in physical school buildings. As an aid to planners and architects (and to all readers), a brief summary of the Technology Applications TEKS is presented in this chapter. A more complete presentation may be found in the document titled *Technology Applications TEKS Companion (K-12)* which explains the TEKS and gives numerous examples and helps for embarking on the program.

The Technology Applications Texas Essential Knowledge and Skills (TEKS) are guidelines for the teaching and learning of technology skills and the use of computers and other related electronic tools. They were adopted by the State Board of Education in April 1997 and are found in 19 TAC Chapter 126. These guidelines provide direction for schools as they prepare students to be lifelong learners and citizens in a technological age. The knowledge and skills gained through this curriculum may be transferred to foundation and other enrichment curriculum areas for Grades K- 12. The development of these Technology Applications TEKS addresses the recommendation in the *Long-Range Plan for Technology, 1996-2010* that follows:

Establish expectations for technology proficiencies by students in kindergarten through grade 12, including computer-related skills that meet standards for each high school graduate by the year 2000 (Texas Education Code 32.001).

OVERVIEW OF TEKS

The following excerpt came from *The 1996 Comprehensive Biennial Report on Texas Public Schools: A Report to the 75th Texas Legislature from the Texas Education Agency*.

The 70th Texas Legislature passed Senate Bill 1, establishing a new Texas Education Code. The new law directed the State Board of Education with the direct participation of educators, parents, business and industry representatives, and employers to identify the essential knowledge and skills of each subject of the foundation curriculum

that all students should be able to demonstrate. Assessment instruments and textbooks will be required to be aligned with the essential knowledge and skills.

The board was also directed to identify, using the same process, essential knowledge and skills of each subject of the enrichment curriculum that all students should be able to demonstrate. School districts will be required to use the essential knowledge and skills in the foundation curriculum in their instructional programs, but will be able to use the essential knowledge and skills in the enrichment curriculum as guidelines, rather than requirements.

1995-1997: Development of Texas Essential Knowledge and Skills

In order to develop the knowledge and skills called for in law, the commissioner initially appointed 13 writing teams composed of teachers, administrators, business and industry representatives, scientists and educators from colleges and universities, and parents. Two additional teams later began work in health/physical education and technology applications, due to changes in law.

The teams were charged to:

- review the essential elements;
- ensure relevance and rigor in the curriculum;
- articulate what all students should know and be able to do;
- specify the levels of performance expected of students at particular grade levels;
- ensure that the knowledge and skills meet the learning needs of all students; and
- link interdisciplinary concepts, content, and skills across the curriculum.

The commissioner also appointed two other groups to help carry out the statute. A Connections Team, composed of the chairs and contractors for the writing teams as well as Texas Education Agency staff, developed a common format for the revised state curriculum and reviewed drafts for the commissioner's charge relating to interdisciplinary connections, rigor, multicultural strategies, real-world connections, technology connections, and others that affect all content areas. In addition, State Board of Education Review Committees, composed of content experts, educators, and citizens, represented board members in reviewing drafts of the Texas Essential Knowledge and Skills (TEKS).

The focus of the TEKS is to articulate what students should know and be able to do rather than emphasize how teachers should teach. They draw connections to real-world situations and bring relevance to the lives of students.

Technology Applications TEKS

The Technology Applications writing team was given the opportunity to write the Technology Applications TEKS for grades K-12. The team members represented district technology coordinators, classroom teachers including computer literacy teachers, district administrators, higher education representatives, business representatives, independent consultants, and parents. A list of the members

may be found in the front of the *TEKS Companion*. The members took their technology experiences and listened to experts in the field and public about what proficiencies were needed K-8 and what courses were needed at grades 9-12. They wanted the TEKS to be rigorous for students as well as flexible taking under consideration local options and rapidly changing technology. With the feedback the team received, thorough research, and considerations of local options and emerging technologies, the Technology Applications TEKS were developed.

FREQUENTLY ASKED QUESTIONS

The following have been the most frequently asked questions regarding the Technology Applications Texas Essential Knowledge and Skills for Grades K-12. These questions and their responses should help to give a good understanding of these TEKS.

1. What are the Technology Applications TEKS?

Technology Applications TEKS are guidelines for the teaching and learning of technology skills and the use of computers and other related electronic tools. These TEKS focus on creating, accessing, manipulating, utilizing, communicating, and publishing information during the learning process.

2. How do these TEKS differ from the Essential Elements in Chapter 75?

The Technology Applications TEKS are found in 19 TAC Chapter 126. These TEKS are the outgrowth of the computer literacy and computer science courses that were included in 19 TAC Chapter 75, Curriculum, Subchapter C and D, Essential Elements. There were no essential elements for technology applications at the elementary level in Chapter 75. At the middle school in the essential elements there was one required course in seventh or eighth grade. In the TEKS, districts have the flexibility of offering technology applications (computer literacy) in a variety of settings, including a specific class or integrated into other subject areas. A prerequisite for the high school technology applications courses is the Technology Applications TEKS at grades 6-8. At the high school level there are six new courses in addition to the Computer Science I and II courses that have had essential elements. The new courses include: Desktop Publishing, Digital Graphics and Animation, Multimedia, Video Technology, Web Mastering, and Technology Applications Independent Study.

3. Are schools required to use the Technology Applications Texas Essential Knowledge and Skills for the 1997-1998 school year?

No, the Technology Applications Texas Essential Knowledge and Skills (TEKS) were adopted by the State Board of Education in April, 1997 and are effective September 1, 1998. School districts may choose to implement these K-12 guidelines as early as the 1997-1998 school year, if that best meets their readiness and accessibility to technology. Using these technology applications guidelines will provide

direction for schools as they prepare students to be lifelong learners and citizens in a technological age. The knowledge and skills gained through this curriculum may be transferred to foundation and other enrichment curriculum areas for grades K-12.

4. Why are the TEKS organized by grade clusters rather than by grade level?

Below the high school level, the Technology Applications TEKS are divided into grade clusters of K-2, 3-5, and 6-8 with benchmark years at grades 2, 5, and 8. The specific time or grade level at which each student develops understanding, knowledge, and skill in using technology applications is dependent on many factors that are determined by conditions of learning readiness, staff readiness, and local accessibility to technology. School districts across the state are at varying stages of technology implementation. Considering these factors, the Technology Applications curriculum is organized by grade levels. This gives districts flexibility in using these guidelines. Students should demonstrate technology proficiencies before they exit the target grades 2, 5, and 8. Although these grades are identified as benchmark points for student achievement, all grade levels are involved in work toward the benchmark year. Interim grade-level expectations will be local definitions of strategies that build toward student success.

The following four grade clusters have been defined for the Technology Applications TEKS, Chapter 126:

Subchapter A:	Elementary Grades K-2 Grades 3-5
Subchapter B:	Middle School Grades 6-8
Subchapter C:	High School Grades 9-12

By the end of the eighth grade a benchmark year, students should know and be able to demonstrate the knowledge and skills listed for the middle school level. Students should be computer literate before entering high school and should apply the technology applications knowledge and skills in the foundation curriculum as well as in enrichment areas throughout the high school years. In addition, there are eight high school courses in technology applications that allow for growth, specialization, integration into other curriculum areas, and preparation for the technological world. The technology applications courses include: Computer Science I and II, Desktop Publishing, Digital Graphics and Animation, Multimedia, Video Technology, Web Mastering, and the Technology Applications Independent Study. A prerequisite for the high school technology applications courses is the Technology Applications TEKS at grades 6-8.

5. What are the four strands that are consistent throughout the TEKS?

Within each grade cluster, there are four strands with knowledge and skills and student expectations for each strand. The four strands are as follows:

<u>Foundations</u>	Through the study of technology applications foundations, including technology-related terms, concepts, and data input strategies, students learn to make informed decisions about technologies and their applications.
<u>Information Acquisition</u>	The efficient acquisition of information includes the identification of task requirements; the plan for using search strategies; and the use of technology to access, analyze, and evaluate the acquired information.
<u>Solving Problems</u>	By using technology as a tool that supports the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create a solution, and evaluate the results.
<u>Communications</u>	Students communicate information in different formats and to diverse audiences. A variety of technologies will be used. Students will analyze and evaluate the results.

EXAMPLES OF EXPECTED TEKS SKILLS

For each strand, the TEKS suggests skills to be acquired and used by students in each grade cluster. The TEKS should be applied in all curriculum areas and especially in the foundation areas. Although it is outside the scope of this document to present a full description of the various TEKS skills, two examples should serve to enlighten the reader regarding their nature and level of detail.

Example 1

Grade Cluster: Grades K-2
Strand: Foundations
Skills:

Foundations. The student demonstrates knowledge and appropriate use of hardware components, and their connections. The student is expected to:

- A. Use technology appropriate to the task.
- B. Start and exit programs as well as create, name, and save files.

- C. Use networking terminology such as on-line, network, or password and access remote equipment on a network, such as a printer.

Foundations. The student uses data input skills appropriate to the task. The student is expected to:

- A. Use a variety of input devices such as mouse, keyboard, disk drive, modem, voice/sound recorder, scanner, digital video, CD-ROM, or touch screen.
- B. Use proper keyboarding techniques such as correct hand and body positions and smooth and rhythmic keystroke patterns as grade-level appropriate.
- C. Demonstrate touch keyboarding techniques for operating the alphabetic, numeric, punctuation, and symbol keys as grade-level appropriate.
- D. Produce documents at the keyboard, proofread, and correct errors.
- E. Use language skills including capitalization, punctuation, spelling, word division, and use of numbers and symbols as grade-level appropriate.

Foundations. The student complies with the laws and examines the issues regarding the use of technology in society. The student is expected to:

- A. Follow acceptable use policies when using computers.
- B. Model respect of intellectual property by not illegally copying software or another individual's electronic work.

Example 2

Grade Group: High School
Course: Digital Graphics/Animation
Strand: Communication
Skills:

Communication. The student formats digital information for appropriate and effective communication. The student is expected to:

- A. Identify pictorial qualities in a design such as shape and form, space and depth, or pattern and texture to create visual unity and desired effects in designs.
- B. Use a variety of lighting techniques including shadows and shading to create an effect.

- C. Define the design attributes and requirements of products created for a variety of purposes including posters, billboards, business cards, stationery, book jackets, folders, booklets, pamphlets, brochures, and magazines.
- D. Use proximity and alignment to create a visual connection with other elements.

Communication. The student delivers the product electronically in a variety of media, with appropriate supervision. The student is expected to:

- A. Publish information in a variety of ways including, but not limited to, printed copy or monitor display.
- B. Publish information in saved files, Internet documents, CD-ROM discs, or video.

Communication. The student uses technology applications to facilitate evaluation of communication, both process and product. The student is expected to:

- A. Determine and employ technology specifications to evaluate projects for design, content delivery, purpose, and audience.
- B. Seek and respond to advice from peers in evaluating the product.

By infusing the full range of TEKS skills into the curriculum, students will not only become fully computer literate, they will be equipped to use those skills in all walks of life. Physical facilities must be planned accordingly.

SHARING TECHNOLOGY APPLICATIONS RESOURCES WITH TEACHERS

The professional development year for TEKS is the 1997-1998 school year. A number of helps and resources have been provided under the name, Sharing Technology Applications Resources with Teachers (START). START is designed to assist during the professional development year. In addition to the *Technology Applications Companion (K-12)*, there is a START CD-ROM as well as a START Web Site created specifically to enable Texas educators to obtain timely information about the Technology Applications TEKS and resources for teaching and learning these TEKS. The START Web Site will contain resources, as the CD-ROM does. However, it will have the capability of continuing to grow over time. A benefit of having a web site is that additional resources will be placed on the web site as they are made available. Specifically, schools implementing the Technology Applications TEKS at the various grade clusters are requested to share resources such as scope and sequences, semester plans, instructional materials, and teaching strategies. This information will be extremely valuable as schools prepare for using the TEKS during the 1998-1999 school year.

SUMMARY: A START WITH THE TEKS

The development of the Technology Applications TEKS addresses the recommendation in the *Long-Range Plan for Technology, 1996-2010*.

These TEKS provide direction for schools as they prepare students to be lifelong learners and citizens in a technological age. They were developed by a writing team, representing teachers, administrators, parents, and businesses. These TEKS were adopted by the State Board of Education in April 1997.

The TEKS become effective September 1, 1998.