

Technology: Knowledge



Technology Applications Standards for All Beginning Teachers*

Standard I. All teachers use technology-related terms, concepts, data input strategies, and ethical practices to make informed decisions about current technologies and their applications.

Standard II. All teachers identify task requirements, apply search strategies, and use current technology to efficiently acquire, analyze, and evaluate a variety of electronic information.

Standard III. All teachers use task-appropriate tools to synthesize knowledge, create and modify solutions, and evaluate results in a way that supports the work of individuals and groups in problem-solving situations.

Standard IV. All teachers communicate information in different formats and for diverse audiences.

Standard V. All teachers know how to plan, organize, deliver, and evaluate instruction for all students that incorporates the effective use of current technology for teaching and integrating the Technology Applications Texas Essential Knowledge and Skills (TEKS) into the curriculum.

Standard VI-Standard XI. *Beginning teachers who are not technology application specialists are not responsible for this standard.*

* Even though the standards are for *beginning* teachers, the standards are appropriate for *all* teachers.

Standard I. All teachers use technology-related terms, concepts, data input strategies, and ethical practices to make informed decisions about current technologies and their applications.

1 Teacher Knowledge: What All Teachers Know

Teachers of Students in Grades EC–12

The beginning teacher knows and understands:

- 1.1k the appropriate use of hardware components, software programs, and their connections;
- 1.2k data input skills appropriate to the task; and
- 1.3k laws and issues regarding the use of technology in society.

Application: What All Teachers Can Do *Teachers of Students in Grades EC–12*

The beginning teacher is able to:

- 1.1s demonstrate knowledge and appropriate use of operating systems, software applications, and communication and networking components;
- 1.2s compare, contrast, and appropriately use various input, processing, output, and primary/secondary storage devices;
- 1.3s select and use software for a defined task according to quality, appropriateness, effectiveness, and efficiency;
- 1.4s delineate and make necessary adjustments regarding compatibility issues, including, but not limited to, digital file formats and cross-platform connectivity;
- 1.5s use technology terminology appropriate to the task;
- 1.6s perform basic software application functions, including, but not limited to, opening an application program and creating, modifying, printing, and saving documents;
- 1.7s explain the differences between analog and digital technology systems and give examples of each;
- 1.8s use appropriate terminology related to the Internet, including, but not limited to, electronic mail (e-mail), uniform resource locators (URLs), electronic bookmarks, local area networks (LANs), wide area networks (WANs), World Wide Web (WWW) pages, and Hypertext Markup Language (HTML);
- 1.9s compare and contrast LANs, WANs, the Internet, and intranets;
- 1.10s use a variety of input devices such as mouse/track pad, keyboard, microphone, digital camera, printer, scanner, disk/disc, modem, CD-ROM, and joystick;
- 1.11s demonstrate keyboarding proficiency in technique and posture while building speed;
- 1.12s use digital keyboarding standards for data input such as one space after punctuation, the use of em/en dashes, and smart quotation marks;
- 1.13s develop strategies for capturing digital files while conserving memory and retaining image quality;
- 1.14s discuss copyright laws, violations, and issues including, but not limited to, computer hacking, computer piracy, intentional virus setting, and invasion of privacy;
- 1.15s model ethical acquisition and use of digital information including citing sources using established methods;
- 1.16s demonstrate proper etiquette and knowledge of acceptable use of electronic information and products while in an individual classroom, lab, or on the Internet or an intranet;
- 1.17s identify the impact of technology applications on society through research, interviews, and personal observation; and
- 1.18s demonstrate knowledge of the importance of technology to future careers, lifelong learning, and daily living for individuals of all ages.

Standard II. All teachers identify task requirements, apply search strategies, and use current technology to efficiently acquire, analyze, and evaluate a variety of electronic information.

Teacher Knowledge: What All Teachers Know***Teachers of Students in Grades EC–12***

The beginning teacher knows and understands:

- 2.1k a variety of strategies for acquiring information from electronic resources;
- 2.2k how to acquire electronic information in a variety of formats; and
- 2.3k how to evaluate acquired electronic information.

Application: What All Teachers Can Do***Teachers of Students in Grades EC–12***

The beginning teacher is able to:

- 2.1s use strategies to locate and acquire desired information from collaborative software and on networks, including the Internet and intranets;
- 2.2s apply appropriate electronic search strategies in the acquisition of information, including keyword and Boolean search strategies;
- 2.3s identify, create, and use files in various appropriate formats such as text, bitmapped/vector graphics, image, video, and audio files;
- 2.4s access, manage, and manipulate information from secondary storage and remote devices;
- 2.5s use on-line help and other documentation;
- 2.6s determine and employ methods to evaluate electronic information for accuracy and validity;
- 2.7s resolve information conflicts and validate information by accessing, researching, and comparing data from multiple sources; and
- 2.8s identify the source, location, media type, relevancy, and content validity of available information.

Standard III. All teachers use task-appropriate tools to synthesize knowledge, create and modify solutions, and evaluate results in a way that supports the work of individuals and groups in problem-solving situations.

Teacher Knowledge: What All Teachers Know***Teachers of Students in Grades EC–12***

The beginning teacher knows and understands:

- 3.1k how to use appropriate computer-based productivity tools to create and modify solutions to problems;
- 3.2k how to use research skills and electronic communication to create new knowledge; and
- 3.3k how to use technology applications to facilitate evaluation of work, including both process and product.

Application: What All Teachers Can Do

Teachers of Students in Grades EC–12

The beginning teacher is able to:

- 3.1s plan, create, and edit word processing documents using readable fonts, alignment, page setup, tabs, and ruler settings;
- 3.2s plan, create, and edit spreadsheet documents using all data types, formulas and functions, and chart information;
- 3.3s plan, create, and edit databases by defining fields, entering data, and designing layouts appropriate for reporting;
- 3.4s demonstrate proficiency in the use of multimedia authoring programs by creating linear or nonlinear projects incorporating text, audio, video, and graphics;
- 3.5s plan, create, and edit a document using desktop publishing techniques including, but not limited to, the creation of multicolumn or multisection documents with a variety of text-wrapped frame formats;
- 3.6s differentiate between and demonstrate the appropriate use of a variety of graphic tools found in draw and paint applications;
- 3.7s integrate two or more productivity tools, including, but not limited to, tables, charts and graphs, graphics from paint or draw programs, and mail merge, into a document;
- 3.8s use interactive virtual environments, appropriate to grade level, such as virtual reality or simulations;
- 3.9s use technical writing strategies to create products such as a technical instruction guide;
- 3.10s use subject matter foundation and enrichment curricula in the creation of products;
- 3.11s participate in electronic communities as a learner, initiator, and contributor;
- 3.12s complete tasks using technological collaboration such as sharing information through on-line communications;
- 3.13s use groupware, collaborative software, and productivity tools to create products;
- 3.14s use technology in self-directed activities to create products for and share products with defined audiences;
- 3.15s integrate acquired technology applications, skills, and strategies and use of the word processor, database, spreadsheet, telecommunications, draw, paint, and utility programs into the foundation and enrichment curricula;
- 3.16s design and implement procedures to track trends, set time lines, and review/ evaluate progress for continual improvement in process and product; and
- 3.17s resolve information conflicts and validate information through research and comparison of data from multiple sources.

Standard IV. All teachers communicate information in different formats and for diverse audiences.

Teacher Knowledge: What All Teachers Know

Teachers of Students in Grades EC–12

The beginning teacher knows and understands:

- 4.1k how to format digital information for appropriate and effective communication;
- 4.2k how to deliver a product electronically in a variety of media; and
- 4.3k how to evaluate communication in terms of both process and product.

Application: What All Teachers Can Do***Teachers of Students in Grades EC–12***

The beginning teacher is able to:

- 4.1s use productivity tools, such as slide shows, posters, multimedia presentations, newsletters, brochures, or reports, to create effective document files for defined audiences;
- 4.2s demonstrate the use of a variety of layouts in a database, including horizontal and vertical layouts, to communicate information appropriately;
- 4.3s create a variety of spreadsheet layouts containing descriptive labels and page settings;
- 4.4s demonstrate appropriate use of fonts, styles, and sizes, as well as effective use of graphics and page design to communicate effectively;
- 4.5s match the chart style to the data when creating and labeling charts;
- 4.6s publish information in a variety of ways, including, but not limited to, printed copy, monitor displays, Internet documents, and video;
- 4.7s design and create interdisciplinary multimedia presentations that include audio, video, text, and graphics for defined audiences;
- 4.8s use telecommunication tools, such as Internet browsers, video conferencing, and distance learning, for publishing information;
- 4.9s design and implement procedures to track trends, set time lines, and review and evaluate products using technology tools such as database managers, daily/monthly planners, and project management tools;
- 4.10s determine and employ technology specifications to evaluate projects for design, content delivery, purpose, and audience and demonstrate that process and
- 4.11s select representative products to be collected and stored in an electronic evaluation tool; and
- 4.12s evaluate products for relevance to the assignment or task.

Standard V. All teachers know how to plan, organize, deliver, and evaluate instruction for all students that incorporates the effective use of current technology for teaching and integrating the Technology Applications Texas Essential Knowledge and Skills (TEKS) into the curriculum.

Teacher Knowledge: What All Teachers Know***Teachers of Students in Grades EC–12***

The beginning teacher knows and understands:

- 5.1k planning techniques to ensure that students have time to learn the Technology Applications TEKS in order to meet grade-level benchmark expectations;
- 5.2k where to find and how to utilize technological resources to implement the TEKS, to support instruction, to extend communication, to enhance classroom management, and to become more productive in daily tasks;
- 5.3k instructional strategies for teaching the Technology Applications TEKS and integrating them into the curriculum;
- 5.4k strategies that students with diverse strengths and needs can use to determine word meaning in content-related texts;
- 5.5k strategies that students with diverse strengths and needs can use to develop content-area vocabulary;
- 5.6k strategies that students with diverse strengths and needs can use to facilitate comprehension before, during, and after reading content-related texts;
- 5.7k how to evaluate the effectiveness of technology-based instruction; and
- 5.8k how to set goals for ongoing professional development in teaching the Technology Applications TEKS and integrating them into the curriculum.

Application: What All Teachers Can Do***Teachers of Students in Grades EC–12***

The beginning teacher is able to:

- 5.1s plan applications-based technology lessons using a range of instructional strategies for

- individuals and small/whole groups;
- 5.2s identify and address equity issues related to the use of technology, including, but not limited to, gender, ethnicity, language, disabilities, and student access to technology;
 - 5.3s plan, select, and implement instruction that allows students to use technology applications in problem-solving and decision-making situations;
 - 5.4s develop and implement, using technology applications, tasks that emphasize collaboration and teamwork among members of a structured group or project team;
 - 5.5s provide adequate time for teaching the Technology Applications TEKS;
 - 5.6s identify and use resources to keep current with technology education;
 - 5.7s create project-based learning activities that integrate the Technology Applications TEKS into the curriculum and meet the Technology Applications TEKS benchmarks;
 - 5.8s follow guidelines for the legal and ethical use of technology resources;
 - 5.9s select and use developmentally appropriate instructional practices, activities, and materials to improve student learning of the Technology Applications TEKS;
 - 5.10s use a variety of instructional strategies to ensure all students' reading comprehension of content-related texts, including helping students link the content of texts to their lives and connect related ideas across different texts;
 - 5.11s teach students how to locate, retrieve, and retain content-related information from a range of texts and technologies;
 - 5.12s teach students how to locate the meanings and pronunciations of unfamiliar content-related words using appropriate sources, such as dictionaries, thesauruses, and glossaries;
 - 5.13s use technology tools to perform administrative tasks such as taking attendance, maintaining grade books, and facilitating communication;
 - 5.14s evaluate appropriately students' projects and portfolios using formal and informal assessment methods;
 - 5.15s collect observable and measurable data to gauge student progress and adjust instruction in Technology Applications;
 - 5.16s conduct an ongoing self-assessment of strengths and weaknesses in the knowledge and skills of Technology Applications;
 - 5.17s develop and implement an individual plan for professional growth in the knowledge and skills of Technology Applications; and
 - 5.18s incorporate new strategies to improve classroom instruction in Technology Applications.

Standard VI-Standard XI. *Beginning teachers who are not technology application specialists are not responsible for this standard.*