Texas Technology Applications

Grade 8

Implementation. The provisions of this section shall be implemented by school districts beginning with the 2024-2025 school year. 8.A

1 **No later than August 1, 2024, the commissioner of education shall determine whether instructional materials funding has been made available to Texas public schools for materials that cover the essential knowledge and skills identified in this section.** 8.A.1

2 **If the commissioner makes the determination that instructional materials funding has been made available this section shall be implemented beginning with the 2024-2025 school year and apply to the 2024-2025 and subsequent school years.** 8.A.2

3 **If the commissioner does not make the determination that instructional materials funding has been made available under this subsection, the commissioner shall determine no later than August 1 of each subsequent school year whether instructional materials funding has been made available. If the commissioner determines that instructional materials funding has been made available, the commissioner shall notify the State Board of Education and school districts that this section shall be implemented for the following school year.** 8.A.3

Introduction. 8.B

1 **Technology includes data communication, data processing, and the devices used for these tasks locally and across networks. Learning to apply these technologies motivates students to develop critical-thinking skills, higher-order thinking, and innovative problem solving. Technology applications incorporates the study of digital tools, devices, communication, and programming to empower students to apply current and emerging technologies in their careers, their education, and beyond.** 8.B.1

2 **The technology applications Texas Essential Knowledge and Skills (TEKS) consist of five strands that prepare students to be literate in technology applications by Grade 8: computational thinking; creativity and innovation; data literacy, management, and representation; digital citizenship; and practical technology concepts. Communication and collaboration skills are embedded across the strands.** 8.B.2

A Computational thinking. Students break down the problem-solving process into four steps: decomposition, pattern recognition, abstraction, and algorithms. 8.B.2.A

B Creativity and innovation. Students use innovative design processes to develop solutions to problems. Students plan a solution, create the solution, test the solution, iterate, and debug the solution as needed, and implement a completely new and innovative product. 8.B.2.B

C Data literacy, management, and representation. Students collect, organize, manage, analyze, and publish various types of data for an audience. 8.B.2.C

D Digital citizenship. Students practice the ethical and effective application of technology and develop an understanding of cybersecurity and the impact of a digital footprint to become safe, productive, and respectful digital citizens. 8.B.2.D

E Practical technology concepts. Students build their knowledge of software applications and hardware focusing on keyboarding and use of applications and tools. Students also build their knowledge and use of technology systems, including integrating the use of multiple applications. 8.B.2.E

3 **The technology applications TEKS can be integrated into all content areas and can support stand-alone courses. Districts have the flexibility of offering technology applications in a variety of settings, including through a stand-alone course or by integrating the technology applications standards in the essential knowledge and skills for one or more courses or subject areas.** 8.B.3

4 **Statements containing the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.** 8.B.4

Knowledge and skills. 8.C

1 **Computational thinking--foundations. The student explores the core concepts of computational thinking, a set of problem-solving processes that involve decomposition, pattern recognition, abstraction, and algorithms. The student is expected to:** 8.C.1

- A decompose real-world problems into structured parts using pseudocode; 8.C.1.A
- B analyze the patterns and sequences found in pseudocode and identify its variables; 8.C.1.B
- C practice abstraction by developing a generalized algorithm that can solve different types of problems; 8.C.1.C
- D design a plan collaboratively using pseudocode to document a problem, possible solutions, and an expected timeline for the development of a coded solution; 8.C.1.D
- E develop, compare, and improve algorithms for a specific task to solve a problem; and 8.C.1.E
- F analyze the benefits of using iteration (code and sequence repetition) in algorithms. 8.C.1.F

2 **Computational thinking--applications. The student applies the fundamentals of computer science. The student is expected to:** 8.C.2

- A construct named variables with multiple data types and perform operations on their values; 8.C.2.A
- B use a software design process to create text-based programs with nested loops that address different subproblems within a real-world context; and 8.C.2.B
- C modify and implement previously written code to develop improved programs. 8.C.2.C

3 **Creativity and innovation--innovative design process. The student takes an active role in learning by using a design process and creative thinking to develop and evaluate solutions, considering a variety of local and global perspectives. The student is expected to:** 8.C.3

- A demonstrate innovation in a design process using goal setting and personal character traits, including demonstrating calculated risk-taking and tolerance; 8.C.3.A
- B discuss and implement a design process that includes planning, selecting digital tools to develop, test, and evaluate design limitations, and refining a prototype or model; and 8.C.3.B
- C identify how the design process is used in various industries. 8.C.3.C

4 **Creativity and innovation--emerging technologies. The student demonstrates a thorough understanding of the role of technology throughout history and its impact on societies. The student is expected to:** 8.C.4

- A evaluate how changes in technology throughout history have impacted various areas of study; 8.C.4.A
- B evaluate and predict how global trends impact the development of technology; and 8.C.4.B
- C transfer current knowledge to the learning of newly encountered technologies. 8.C.4.C

5 **Data literacy, management, and representation--collect data. The student uses advanced digital strategies to collect and represent data. The student is expected to:** 8.C.5

- A compare and contrast data types, including binary, integers, real numbers, Boolean data, and text-based representations; and 8.C.5.A
- B apply appropriate search strategies, including keywords, Boolean operators, and limiters, to achieve a specified outcome that includes a variety of file formats. 8.C.5.B

6 **Data literacy, management, and representation--organize, manage, and analyze data. The student uses digital tools to transform data, make inferences, and predictions. The student is expected to use digital tools in order to transform data, analyze trends, and predict possibilities and develop steps for the creation of an innovative process or product.** 8.C.6

7 **Data literacy, management, and representation--communicate and publish results. The student creates digital products to communicate data to an audience for an intended purpose. The student is expected to use digital tools to communicate and publish data from a product or process to persuade an intended audience.** 8.C.7

8 **Digital citizenship--social interactions. The student understands different styles of digital communication and that a student's actions online can have a long-term impact. The student is expected to:** 8.C.8

- A analyze the importance of managing a digital footprint and how a digital footprint can affect the future; 8.C.8.A
- B create and publish a formal digital communication for a global audience using appropriate digital etiquette; and 8.C.8.B
- C collaborate and publish for a global audience on digital platforms such as recording and editing videos using appropriate formal and informal digital etiquette. 8.C.8.C

9 **Digital citizenship--ethics and laws. The student recognizes and practices responsible, legal, and ethical behavior while using digital tools and resources. The student is expected to:** 8.C.9

- A adhere to local acceptable use policy (AUP) and practice and advocate for safe, ethical, and positive online behaviors; 8.C.9.A
- B adhere to appropriate intellectual property law when creating digital products; 8.C.9.B
- C create citations and cite sources for a variety of digital forms of intellectual property; and 8.C.9.C
- D evaluate the bias of digital information sources, including websites. 8.C.9.D

10 **Digital citizenship--privacy, safety, and security. The student practices safe, legal, and ethical digital behaviors to become a socially responsible digital citizen. The student is expected to:** 8.C.10

- A analyze real-world scenarios to identify cybersecurity threats and propose ways to prevent harm; and 8.C.10.A
- B evaluate scenarios or case studies to identify warning signs of a cyberbullying victim such as withdrawal or lack of sleep and predict the outcomes for both the victim and the bully. 8.C.10.B

11 **Practical technology concepts--processes. The student evaluates and selects appropriate methods or techniques for an independent project and identifies and solves common hardware and software problems using troubleshooting strategies. The student is expected to:** 8.C.11

- A combine various file formats for a specific project or audience; and 8.C.11.A
- B share and seek feedback on files in various formats, including text, raster and vector graphics, video, and audio files. 8.C.11.B

12 **Practical technology concepts--skills and tools. The student leverages technology systems, concepts, and operations to produce digital artifacts. The student is expected to:** 8.C.12

A integrate use of appropriate technology terminology in scholarly inquiry and dialogue such as classroom discussion and written samples; 8.C.12.A

B implement effective file management strategies independently, including file naming conventions, local and remote locations, backup, hierarchy, folder structure, file conversion, tags, and emerging digital organizational strategies; 8.C.12.B

C select and use appropriate platform and tools, including selecting and using software or hardware to transfer data; 8.C.12.C

D demonstrate improvement in speed and accuracy as measured by words per minute when applying correct keyboarding techniques; 8.C.12.D

E select and use appropriate shortcuts within applications; 8.C.12.E

F apply appropriate troubleshooting techniques and seek technical assistance as needed; 8.C.12.F

G compare types of local and remote data storage such as cloud architecture or local server and select the appropriate type of storage to store and share data; and 8.C.12.G

H select and use productivity tools found in spread sheet, word processing, and publication applications to create digital artifacts, including reports, graphs, and charts, with increasing complexity. 8.C.12.H