

Technology Applications TEKS Review Work Group B Recommendations

Work Group B was tasked with developing recommendations for new strands for the revised technology applications Texas Essential Knowledge and Skills (TEKS). The work group considered recommendations from technology applications content advisors and Work Group A. Members from the career and technical education (CTE) Programming and Software Development TEKS review work group that developed recommendations for revisions to high school computer science courses also participated in the Work Group B meeting to identify opportunities for vertical alignment.

Work Group B recommends organizing the K–8 technology applications TEKS into the following six strands. Additionally, the work group identified concepts that should be addressed in each strand and provided a rationale for the recommendations. Work Group B did not include critical thinking, problem solving, and decision making or creation as individual strands because these skills should be incorporated across the standards. Finally, the work group discussed the use of substrands and ultimately decided that those substrands should be decided at a later time by a future work group.

The goal of the technology applications TEKS is to ensure that students become problem solvers and critical thinkers. The standards should prepare students to be college and career ready, independent and collaborative learners, and able to adapt and transfer knowledge to evolving and future technologies.

Strand	Concepts	Rationale
Digital Citizenship	<ul style="list-style-type: none"> • Application of ethical behavior and communication online • Privacy and security (cybersecurity) • Media balance • Digital footprint and identity • Intellectual property, copyright, and fair use • Acceptable use • Cyberbullying • News and media literacy • Culture and social interactions • Safety, law, and ethics • Digital etiquette 	In accordance with Texas Education Code (TEC) §28.002(z) requirements, Work Group A recommendations, proposed strands from the CTE Programming and Software Development TEKS review work group, and the International Society for Technology in Education (ISTE) Standards for Students, Work Group B recommends maintaining a digital citizenship strand.

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<p>Data Literacy, Management, and Representation</p>	<ul style="list-style-type: none"> • Collecting data • Types of data • Evaluating quality of data • Inferencing • Modeling • Transforming • Configuring and setting up • Analysis • Storage • Research • Data visualization 	<p>The power of this strand is that it encourages students to use critical thinking skills and digital tools to create visual representations of gathered data or knowledge to display, analyze, and evaluate results. This strand vertically aligns with the CTE Programming and Software Development TEKS Work Group recommendations.</p>
<p>Practical Technology Concepts</p>	<ul style="list-style-type: none"> • Operations and applications • Keyboarding (words per minute [WPM]) • Use of software • Use of hardware • Computer terminology • Troubleshooting • Computer systems • Learning tool/process 	<p>This strand will address the fundamental skills that students will need to use or create with technology across the curriculum and future courses. These are transferrable skills in school and life. Addressing computer systems and operating systems aligns with the Computer Science Teachers Association (CSTA) standards.</p>
<p>Computational Thinking</p>	<ul style="list-style-type: none"> • Coding • Decomposition • Pattern recognition • Algorithms and programming • Data • Flowcharting • Modeling • Abstraction • Machine learning • Simulation 	<p>This strand aligns with the Computational Thinker strand in the ISTE Standards for Students and CSTA concepts for Algorithms and Programming in accordance with recommendations from the content advisors and Work Group A. Programming, coding, and computational thinking are also required to be included in the K–8 technology applications TEKS by TEC §28.002(c-3).</p>

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<p>Creativity and Innovation</p>	<ul style="list-style-type: none"> • Innovative process and iterative design process to create new items • Experience or work with new technologies • Emerging technologies • Inventions and modeling—hands-on design • ISTE ideas (resilience, open-ended problems) • Investigation 	<p>This strand promotes creating original works that showcase the knowledge students have acquired (assessment). This strand aligns with the Creative Communicator strand in the ISTE Standards for Students, CTE Programming and Software Development TEKS Work Group recommendations, and Work Group A recommendations. Creativity is the process and creation is the product.</p>
<p>Communication and Collaboration</p>	<ul style="list-style-type: none"> • Human or computer partnership • Digital applications for collaboration • Presentation • Determining appropriate tools for different types of communication for targeted audiences • Teamwork both digitally and in person • Communicating to or with different audiences • Norms for digital communication 	<p>Concepts in this strand address the necessary skills needed for human and/or computer interactions in today’s evolving technologies in education and society. This strand aligns with the ISTE’s student standards in the Creative Communicator and Global Collaborator strands, CTE Programming and Software Development TEKS Work Group recommendations, and Work Group A recommendations. The CSTA standards include social interactions as a subtopic.</p>