Guidelines for Content Advisor Feedback on the K-8 Technology Applications Texas Essential Knowledge and Skills

Please review the current Texas Essential Knowledge and Skills (TEKS) for kindergarten–grade 8 technology applications and results from the K-8 technology applications TEKS survey. Use the following questions to develop feedback for the State Board of Education regarding revisions to the TEKS.

There is no specific format required for your feedback. When referencing specific portions of the TEKS, please indicate the grade level and the specific letter/number of the standard to which you are referring, as appropriate, e.g., 2.4.A (Grade 2, knowledge and skills statement (2), student expectation (A)).

GUIDING QUESTIONS

1. Is the current structure or framework of the kindergarten–grade 8 technology applications TEKS appropriate? If not, what recommendations do you have for organizing or structuring the revised TEKS?

   No, according to the current TEKS, the introduction states they are based on the six strands of the National Educational Technology Standards for Students as well as performance indicators developed by the International Society for Technology in Education (ISTE). However, the NETS standards were developed and written in 1998, whereas, the current ISTE standards have continually been updated. The current 7 standards include: Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational Thinker, Creative Communicator, and Global Collaborator. According to iste.org, the standards have evolved from "Learning to use technology" in 1998 to "Using technology to learn" in 2007 to "Transformative learning with technology" in 2016. However, our TEKS have not been updated to keep current with the ever-changing technology demands for students.

   The current pandemic exposed the lack of implemented technology skills state- wide despite the fact there was a list of relevant TEKS. Therefore, Tech Apps can't continue to be taught as a stand-alone class, relatively, it became very apparent that every core course teacher in the state quickly became tech savvy overnight. If we are to stay competitive on a global scale, then we need to ensure that our students are prepared to apply, adapt, and innovate to the new technology needs in society. We can't expect them to accomplish this using a set of technology TEKS from last decade. Unlike other content, technology is changing at a rapid pace. Moore's Law is a principle that states, "the speed and capability of computers can be expected to double every two years", therefore, new technology is being developed around the world on a daily basis while we are still teaching to yesterday's expectations. If we, as Texans, are to remain at the forefront on the cutting edge of technology then we need to update the technology TEKS at least every 2 years. This can easily be implemented since the ISTE updates performance indicators often enough to collaboratively update our TEKS.

   Current Math TEKS have Process Standards that are imbedded and applied at every grade level and they require students to both AQUIRE and DEMONSTRATE understanding by applying, selecting, creating, using, analyzing, communicating, displaying, explaining, and justifying relative concepts. The same should be true of tech apps TEKS. The pandemic exposed the need in every class across the state. No longer are the days of hard cover textbooks, paper, pencils, etc. This is even demonstrated in the recent change to how STAAR testing is implemented, however, we aren't ensuring

students can properly utilize technology in each grade level. Students with disabilities have benefited by the implementation of adaptive and assistive technology on the STAAR test, but is it being implemented in the classroom. If so, how often and how is this accountability implemented state-wide? If the Tech Apps TEKS are moved into each core subject, then the accountability will exist state-wide. The role of the Tech Apps teachers shouldn't be to teach these TEKS independently but instead they should be planning with all core teachers and providing relevant resources for each subject. School districts across Texas must provide equal technology for every student as well as equitable professional development and resources for every teacher. Otherwise, it doesn't matter if or how often we update our TEKS if students and teachers don't have proper access and resources to implement them.

2. Does each grade band and/or grade level follow a complete and logical development of technology application concepts presented within the grade band/level? If not, what improvements are needed?

   Kindergarten-Grade 2 should be classified per grade level instead of clustered together. For example, (b) Knowledge and Skills (1) Creativity and Innovation (A) (B) (D) and € are all describing the Engineering Design Process, however (C) should be a Kindergarten expectation where students "Explore" before they can be expected to apply, create, or evaluate.

3. Are there specific topics that are missing from the current TEKS? If so, please explain.

   Digital Literacy to navigate through today's socially engineered world. Cybersecurity basics in middle school.

4. Are there topics that should be eliminated or revised because they are not essential or no longer reflect current research or practices within the field? If so, please identify by grade level and student expectation number.

   Communication and collaboration should be revised to include current safe platforms Digital Citizenship is included, however, current cybersecurity includes basic safety concepts that each student at every grade level should learn before utilizing the internet. Expand digital citizenship to include cyber citizenship based on current CompTIA standards.

5. Are the TEKS vertically aligned so that concepts are introduced, elaborated on, and refined across grade bands/grade levels and students will possess the necessary knowledge and skills to be successful in later grades?

   The strands can be updated to reflect current ISTE performance indicators. TEKS are not rigorous enough in middle school. The expectations are nearly the same as elementary school. Students shouldn't still be creating and editing word processing documents at this level. This is a very basic technology expectation for middle school. The utilization of remote input sources should be introduced in elementary school and built upon through middle school.

6. Are the student expectations clear and specific? If not, please give examples of how the language might be improved.

No, specific examples need to be included with the words "such as" throughout the entire document. This is rarely provided. Expectations are too vague throughout the grade levels. Include 3-D modeling and simulation of printing in middle school.

7. Do you have any additional direction based on the survey results? If so, please explain.

   I completely agree with the idea that there should be a focus on computer science, coding, computational thinking and cybersecurity. Since technology is imbedded into every subject, these TEKS should also be imbedded into the individual subjects. A great deal of these current TEKS don't belong here as stand alone TEKS. Perhaps if they were imbedded (like the Math Process Standards) then there would be room for relevant STEM topics such as Coding, Robotics, and basic Cybersecurity. Additionally, someone suggested a resource library of examples for non-technology educators and this is a great idea. It would also help first year teachers as well. A request was made to provide the curriculum instead of depending on each teacher to produce their own. Perhaps TEA can task each Region with providing one person to collaborate to write curriculum for K-8?

8. What other suggestions do you have for ways in which the technology applications TEKS can be improved?

   Provide a basic timeline in which these expectations should be met. Teachers need a road map, otherwise, they might spend too much time on one TEK and then not be able to cover the rest. Teachers need a basic road map with how many days should be spent on the TEKS to properly ensure they cover them all. Also, in addition to increasing the level of rigor in middle school, there needs to be an accountability system in place to ensure these TEKS are being taught. Now that the gaps in teaching these tech apps TEKS have been exposed through the pandemic, we need to ensure this doesn't happen again.