

Senato's Feedback- August 19, 2020

Guidelines for Content Advisor Feedback

Please review the proposed revisions to the Texas Essential Knowledge and Skills (TEKS) for

- the four high school courses: Biology, Chemistry, Integrated Physics and Chemistry (IPC), and Physics, and
- scientific process for kindergarten–grade 12 (scientific and engineering practices).

Use the following questions to develop feedback for the State Board of Education regarding revisions to the standards.

There is no specific format required for your feedback. When referencing specific portions of the TEKS, please indicate the course and specific letter/number of the standard and course to which you are referring, as appropriate. Feedback may be limited to specific courses; however, please specify in comments which course(s) is addressed.

GUIDING QUESTIONS- HIGH SCHOOL COURSES

1. Does each course follow a complete and logical development of science concepts presented? If not, what suggestions do you have for improvement? **Yes there seems to be a logical development of the science concepts but question about the changes to the introduction to the HS science courses:**

Intro for all HS Science course- states that the language is the same across courses and based on K-12 Framework

- a. Does this mean the language was kept the same across all HS science courses or all intros in K-12 Science? **The intro from Group A was not provided in the same manner as Group B.**
 - b. Are the HS intros based on the K-12 Framework or directly taken from the K-12 Framework? **The language at the beginning of each intro seems to be taken directly from the K-12 Framework, Page 9.**
 - c. After the first long sentence for each HS science course, IPC, Chemistry and Physics do not appear to have been changed to the magnitude that Bio was...so how is the "language the same across course all course?" **Since we revisions for K-2, 3-5 or 6-8 haven't taken place yet, we do not have know if this is true or if it will added.**
2. Do the standards for the course(s) adequately address scientific concepts? If not, please give examples of how the standards might be improved. **Yes, but there is some confusion as to why some SEs had verb changes to increase rigor even though they are essentially first teachers but on others the work group moved rigor for the same reason.**

SEs in Biology where the verb is changed to increase rigor but on these SEs this is the first time that students have exposure that content. (Bio 6A; Bio 6B; Bio 8A).

In Bio 10B, the work group decided to remove evaluate from the verbs since it was a first teach for student.

In Bio 6C the work group stated the emphasis on cause and effect but cause and effect are not explicitly listed in the SE. The Work groups stated that rationale was to increase rigor by changing verb from low-level "recognize to emphasize on the idea of cause and effect. However, in reading standard Bio 6C, I am not seeing where cause and effect are explicitly written in the SE.

4. Are there any gaps or concepts missing that should be addressed? Are there specific areas that need to be updated to reflect current research? No, the work group did a great job with noting gaps and finding when SEs would have already been addressed in Grades 6-8.
5. Do the high school courses course(s) sufficiently prepare students for postsecondary success? If not, please provide suggestions for improving the standards. Yes.
6. Does each course include sufficient standards focused on laboratory and field investigation? Yes
7. Are the student expectations clear and specific? If not, please give examples of how the language might be improved. Yes but a question about Bio 6, Chem, IPC and Physics all list cross cutting concepts. This would need to be explained in more detail as to what they mean or expect by cross cutting concepts. Our 1st year teachers are not going to be familiar with this term as it a mainstay of K-12 Framework. Possible concern- make sure that using this term is not a copyright infringement for the K-12 Framework. A more common wording such as "making connections between concepts" would be easier for teachers to use in their planning and teaching.

I did have a concern with referencing NSTA in the TEKS. This is a national science organization. We have never referenced science organizations in the TEKS before and I think this creates a slippery slope doing it now. NSTA has its own philosophy and political beliefs. By referencing them in the TEKS we are in essence saying that Texas shares the same?

8. Are there student expectations that are not essential or unnecessarily duplicative and can be eliminated? If so, please identify by course and student expectation number, e.g., Physics 4.B. No

GUIDING QUESTIONS- SCIENTIFIC AND ENGINEERING PRACTICES

1. Are the student expectations in the science and engineering practices clear and specific? If not, please give examples of how the language might be improved. Yes, but I would recommend that the term phenomena is removed for K-2 or explained with examples in the TEKS guide. Even though it is a term used in the scientific community, it is not necessarily a term that is used or taught elementary education science methods courses.
2. Do the science and engineering practices sufficiently prepare students to engage in investigative and engineering design processes? If not, please provide suggestions for improving the standards. Yes but some clarifications may need to be made to wording (See comments in #1 and #3.
3. Are there any gaps or practices missing that should be addressed?

- a. K-2- 1G- Developing models to represent phenomena, objects, and processes or design a prototype for a solution to a problem. Models are not currently in the TEKS for K-2. It may not be developmentally appropriate for Kinder/1st graders. If it is kept in then the TEKS guides may need lists specific examples. This would allow teachers to know what this might look like.

Also, phenomena and prototypes are not developmentally appropriate for K-2. If the standard read:

Develop and use models to represent objects and processes or design a solution for a problem. This is more developmentally appropriate for K-2 students.

- b. K-2- 2A What is the rationale for adding identifying limitations of models in K-2? It was not added in the last revision or changed in the streamline because it was not a developmentally appropriate concept for Kinder/1st grade. Again the K-2 brain is still developing and identifying limitations is something that would be better suited for older elementary.
- c. K-2, 2B- Can the examples listed in the comments by the work group be added in the TEKS guide?
- d. K-2, 3-5- 3A- This SE is the same for all grade level strands but in the Comments it stated that the complexity of explanations increase across the grade levels and courses and are dependent on the content....where exactly is this stated?
- e. 3-5- 3C- STEM careers are listed but no other science careers. Can the wording be changed to “research and explore connections (connect) between grade-level appropriate **science concepts that lead to Science and STEM careers**”