Guidelines for Content Advisor Feedback

Science Texas Essential Knowledge and Skills

Submitted by Gloria Chatelain

Please review the proposed revisions to the Texas Essential Knowledge and Skills (TEKS) for the four existing high school courses (Aquatic Science, Astronomy, Earth and Space Science, and Environmental Systems) and the proposed new high school science independent study course, Specialized Topics in Science. Use the following questions to develop feedback for the State Board of Education regarding revisions to the standards.

GUIDING QUESTIONS

1. Does each course follow a complete and logical development of science concepts presented? If not, what suggestions do you have for improvement?
   Yes, each draft seems to follow a logical sequence of concept development.

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, for the 4 electives: Aquatic Science, Astronomy, Environmental Science and Specialized Topics in Science; however, it might be beneficial to add to **Earth Systems Science** a little more emphasis on our **TX resources** (example in #4 below). Many high school students are lacking in this area.

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?
   Earth Systems Science – Please see 13 D & E. Can we incorporate some specificity regarding our natural resources?
   Do most students know we are a major energy producer and the value of our mineral deposits?

5. Do these high school course(s) sufficiently prepare students for postsecondary success? If not, please provide suggestions for improving the standards.
   Yes, they prepare for postsecondary success. Regarding **Earth Systems Science,** might be helpful to address a few of the positive attributes that Mother Earth provides.

6. Does each course include sufficient standards focused on laboratory and field investigation?
   Yes, there are sufficient standards on lab and field investigations.

7. Are the student expectations clear and specific? If not, please give examples of how the language might be improved. After #9, Earth Systems Science Recommendations

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. Aquatic Science 5.B.
   No, did not find duplicity or non-essential standards.

9. Do you have any other suggestions for ways in which the four high school courses can be improved? Just verify that all TEKS courses include some "positive ways" that man is addressing environmental concerns, for the benefit of our teachers and students. Congratulations to all draft writers, our TEKS were updated and modernized. I appreciate all you have done! Thank you for your service, during this difficult time.

Earth Systems Science Recommendations

Note: In making these connections between the atmosphere, hydrosphere, lithosphere, etc., it seems some specificity of the content was lost. Some of these TEKS are exceptionally large bites of content. It would be helpful for districts to provide PD training to be sure teachers are prepared for covering these TEKS, a win-win for all.

7(D) evaluate scientific hypotheses for the origin of life through abiotic ~~chemical~~ **geochemical** processes; and

12(B) model how the atmosphere is heated from Earth's surface due to absorption of solar energy, which is re-radiated as thermal energy and trapped by greenhouse gases selective absorbers; and **Reword to include the word "radiation," and not just "re-radiated" ….conduction & convection were stated in TEKS 9A.**
Thermal energy transfer: conduction, convection & radiation.

12(E) evaluate how the combination of ~~multiple~~ **positive and negative** feedback loops cause global climate;

13(B) analyze the natural and anthropogenic contributions to extreme weather events and the hazards associated with these events**; Please reword this statement, it seems to "imply a lot," perhaps add more specificity and please use caution (we must stick to the science).**

13(D) predict how human use of naturally occurring resources directly and indirectly changes the cycling of matter and energy through Earth's systems; and
13(E) analyze the economics and policies related to of resources from discovery to disposal, including technological advances, resource type, concentration and location, waste disposal and recycling, and environmental impacts costs; and
Please alter language in the above 2 TEKS, maybe something to the effect of "positive and negative" or add "mitigation efforts…it is important to teach that man does an exceptional amount of mitigation extracting Earth's resources.
We want our students to know that our oil reserves are 1/3 of the country's total supply, as well as the mining of our amazing resources such as coal/lignite, natural gas, stone, sand, sulfur, salt and limestone. Our agricultural resources (climate, soil, water) are significant. It is also helpful for students to spend more time on extraction and mitigation efforts, as many careers and jobs are available in these sectors.
"We want to drive home the value of our Texas resources."