

Guidelines for Content Advisor Feedback

Submitted by Gloria Chatelain

Please review the draft recommendations for the science Texas Essential Knowledge and Skills (TEKS) for kindergarten–grade 8.

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.

GUIDING QUESTIONS

1. Does each grade level follow a complete and logical development of science concepts presented? If not, what suggestions do you have for improvement?
Yes; each grade level draft seems to follow a logical sequence of concept development; however, **please see the attachment for recommendations.**
2. Do the standards for the grade(s) adequately address scientific concepts? If not, please give examples of how the standards might be improved.
Grade 6 (6.7B) could enhance the energy concepts (ex. energy transformations). There is little content on fossil fuels and the alternative energies, such as wind, solar, hydropower, biomass, and geothermal are not mentioned or discussed. This is unacceptable, since TX is a big energy producer for the country, and in addition performs a lot of environmental mitigation. **Please see attachment for helpful recommendations.**
3. Is the level of rigor appropriate for each grade level? If not, please provide suggestions for areas where improvements are needed.
Rigor could be improved at 2nd grade, recommending adding a “gas” to the states of matter, instead of just solid and liquid. In studying properties of the Sun, they need to have this background.
4. Are the TEKS aligned horizontally and vertically? If not, what gaps or concepts are missing that should be addressed?
Try to bridge the gap regarding energy concepts, expand Knowledge and Skills 6.7. Science is the study of “matter and energy,” and the connections between them. **Please see attachment for recommendations.**
5. Does each grade level include sufficient standards focused on classroom and outdoor investigations?
By removing magnets from Kindergarten, students lost a good opportunity for exploration. Magnets greatly help with learning about motion and direction. **Please see attachment for recommendations.**
6. Are the student expectations clear and specific? If not, please give examples of how the language might be improved.
Please see attachment for helpful recommendations.

7. Are there student expectations that are not essential or unnecessarily duplicative and can be eliminated? If so, please identify by grade level and student expectation number, e.g., 1.7.B (Grade 1, student expectation (7)(B)).
 Remove SE 8.10B: regarding climate change. Why? Students have not accumulated enough content knowledge about this concept to decipher the available research, ex. students have not yet covered the carbon cycle. And, greenhouse gases are discussed in SE 10.A. That should be sufficient.
8. Do you have any other suggestions for ways in which the elementary and middle school TEKS can be improved?
Please accept the recommendations below.

Note: A special thank you to the K-8 Draft Writers for their commitment to improve our TX science standards, during a most trying time. Your valiant efforts are helping all involved with science education, please know that you are appreciated for your contribution.

Draft Language	Recommendation	Justification
Knowledge & Skills, SE K.6 A-B, pg. 3-4	Force and motion. The student knows that force, motion, and position are a part of everyday life. The student is expected to: (A) describe the location of an object in relation to another ...etc. (B) and demonstrate the ways that objects can move, ...etc.	Add a new SE ... K.6 (C) explore interactions between the force of magnets and various materials.
		K.6A and K.6B both include motion of an object, but no examples of a force are noted, yet the KS title is “Force & Motion.” Restoring magnets back to Kindergarten, can provide ways to teach motion and direction. <i>Kinder teachers use magnets as an important hands-on exploration lab.</i>

Draft Language	Recommendation	Justification
SE 2.5 A, pg. 15	Classify matter by observable properties, including texture, flexibility, and relative temperature and identify whether a material is a solid or liquid;	Add “ gases ” to the states of matter. 2 nd graders can recognize this state of matter.
		2.8A uses language with the word “ gases ” ... “Illustrate and describe the Sun as a star composed of gases that provides light and thermal energy.” 2.12B discusses how organisms need air.

	Draft Language	Recommendation	Justification
SE 3.5 C pg. 22	predict, observe, and record changes in the state of matter caused by heating and cooling in a variety of substances such as ice becoming liquid water, condensation forming on the outside of a glass, or liquid water being heated to the point of becoming water vapor (gas); and	This is a great TEKS, extremely important. Glad the term “ state of matter, ” is used (it is not mentioned in Grades 1 & 2). Consider using terms in the SE like “ melting, freezing, and evaporation ” which is also not mentioned.	Changes in states of matter is a mega-important concept. Kids need to know how adding or removing heat affects water, etc., even a teensy bit of heat, like in the air. <i>Ex. Why does water seem to disappear from a glass of water (over time)?</i> Or perhaps insert in the TEKS Guide.

	Draft Language	Recommendation	Justification
SE 4.6 A pg. 28	investigate and record observations of the forces of static electricity and friction; and	Remove the term “ static electricity. ” 4.6A Reword investigate and record observations of the force of friction; and	Static electricity is caused by friction. There are 3 basic forces: magnetism, gravity, and friction.

	Draft Language	Recommendation	Justification
SE 5.7A pg. 36	Investigate and identify the uses of mechanical, light, thermal, electrical, and sound energy;	Great TEKS here. Please add some content to the TEKS Guide...regarding “sources” of these energy types, just some general content.	Ex. Where does electricity come from? Students will point to and say, “the wall.”

	Draft Language	Recommendation	Justification
SE 6.5 E pg. 5	identify the formation of a new substance by using the evidence of a possible chemical change including production of a gas, change in thermal energy, production of a precipitate, and color change.	Can we insert “ pH ” at the end of 6.5E? <i>..... production of a precipitate, and a pH or color change.</i>	pH indicators are listed in the tools section of 6.1D, so it could be inserted in 6.5E. A pH change is a BIG indicator of a chemical change. If it is not listed in the SE, teachers may not cover it. 7 th grade covers the human body, it is also a cherished concept in Biology, so inserting pH would contribute to good alignment.

Draft Language	Recommendation	Justification
<p>Knowledge and Skills 6.7 pg. 5-6</p>	<p>Force, motion, and energy. The student knows that energy is conserved when transformed from one type to another. The student is expected to:</p>	<p>Change wording and add the “Law of Conservation of Energy.” Reword this 6.7 Knowledge & Skills: The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form. The student is expected to:</p>

Justification
<p>TEKS need specificity and scaffolding of content, it is helpful for teachers if we state the Law of Conservation of Energy, then move to energy transformations.</p>

Draft Language	Recommendation	Justification
<p>SE 6.7B pg. 6</p>	<p>describe how energy is conserved through transformations in systems such as electrical circuits, food webs, amusement park rides, and photosynthesis.</p>	<p>Reword SE 6.7B: demonstrate how energy is conserved through transformations such as how chemical energy in a battery is converted to light energy</p>

Justification
<p>This TEKS is expansive and lacking critical specificity. We are glossing over energy transformations and jumping ahead for students to identify transformations in “systems,” without content practice.</p>

Draft Language	Recommendation	Justification
<p>SE 6.10 A pg. 7</p>	<p>research and describe how conservation, increased efficiency, and technology can help manage air, water, soil, and energy resources</p>	<p>Change this SE from 6.10 A to 6.10 B. Then insert a new 6.10A, which is listed below (next page).</p>

Justification
<p>This SE is about conservation and management of energy resources. But first, students must understand how energy resources work, before they can be managed.</p>

	Draft Language	Recommendation	Justification
INSERT A NEW SE 6.10 A		New 6.10A: research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar energy resources	These energy resources are not mentioned or discussed in the 6 th grade TEKS draft, but need to be addressed. TX is a big energy producer for our country, we need to emphasize the value of our energy resources.

	Draft Language	Recommendation	Justification
SE 6.13 B pg. 8	investigate how organisms and populations in an ecosystem depend on and may compete for biotic factors such as food and abiotic factors such as quantity of light, water, range of temperatures, or soil composition; and	Insert a word substitution: “investigate how organisms and populations in an ecosystem depend on and may compete for biotic factors such as food and abiotic factors such as quantity availability of light, water, range of temperatures, or soil composition; and”	“Availability” is more commonly used.

	Draft Language	Recommendation	Justification
SE 7.14B pg. 22	describe the characteristics of the recognized kingdoms in ecosystems and their functions such as bacteria aiding digestion or fungi decomposing organic matter.	Reword SE 7.14B and identify the 6 recognized kingdoms: New 7.14B: describe the characteristics of the six recognized kingdoms, Archaea, Bacteria, Protista, Fungi, Plantae, Animalia in ecosystems, and some of their functions such as bacteria aiding digestion or fungi decomposing organic matter.	Clarity is needed for TX teachers to use the same recognized 6 Kingdom System.

Draft Language	Recommendation	Justification
SE 8.10. B pg. 35	research and describe how human actions can affect climate change.	Delete SE 8.10B
		Students have insufficient content background to decipher through the research. If we want our students to love and embrace the Earth, they need to understand how the Earth works, its cycles, and its amazing characteristics. A lot of this is already covered in 8.13B – how ecosystems are disrupted by natural events or human activity.

THE END