

Joint Statement
from the National Academy of Sciences and the
National Science Teachers Association
Regarding the *Kansas Science Education Standards (KSES)*

October 27, 2005

After carefully reviewing Revision 2-d of the draft KSES, the leadership of the National Academy of Sciences and the National Science Teachers Association (NSTA) regret that, as scientists and teachers, we cannot grant the Kansas State Board of Education copyright permission to use the *National Science Education Standards*, published by the National Academies' National Research Council, or *Pathways to Science Standards*, published by NSTA, in the Kansas Science Education Standards (KSES) as they are currently written.

While there is much in the Kansas Science Education Standards that is outstanding and could serve as a model for other states, our primary concern is that the draft KSES inappropriately singles out evolution as a controversial theory despite the strength of the scientific evidence supporting evolution as an explanation for the diversity of life on Earth and its acceptance by an overwhelming majority of scientists. The use of the word *controversial* to suggest that there are flaws in evolution is confusing to students and the public and is entirely misleading. While there may be disagreements among scientists about the exact processes, the theory of evolution has withstood the test of time and new evidence from many scientific disciplines only further support this robust scientific theory.

In addition, the members of the Kansas State Board of Education who produced Draft 2-d of the KSES have deleted text defining science as a search for natural explanations of observable phenomena, blurring the line between scientific and other ways of understanding. Emphasizing controversy in the theory of evolution -- when in fact all modern theories of science are continually tested and verified -- and distorting the definition of science are inconsistent with our Standards and a disservice to the students of Kansas. Regretfully, many of the statements made in the KSES related to the nature of science and evolution also violate the document's mission and vision. Kansas students will not be well-prepared for the rigors of higher education or the demands of an increasingly complex and technologically-driven world if their science education is based on these standards. Instead, they will put the students of Kansas at a competitive disadvantage as they take their place in the world.

We have notified officials at the State Board and the drafting committee of our decision to withhold copyright permission in separate letters. Copies of those letters, along with analyses of our findings, are posted on our individual websites.¹ We have also offered

¹ For the NAS's response, see www.national-academies.org
For the NSTA's response, see www.nsta.org/kansasletter

our assistance to the Board to help resolve these issues and we hope they accept our offer for the benefit of the students and people of Kansas.

Background and Justification:

On August 22, 2005, our organizations received a letter from Carol Williamson, co-Chair of the Kansas Science Education Standards (KSES) Revision Committee, requesting our review of Revision 2-d of the new Standards. These reviews were solicited to enable us to decide whether to grant copyright permission for the Kansas State Board of Education to use substantial sections of text from the *National Science Education Standards* and *Pathways to Science Standards* in the KSES. Similar to the individual decisions that we made in 1999 when we had been asked to grant copyright authorization to a revised version for the KSES, our decisions to again disassociate our publications and our organizations from the KSES were made with much careful thought. Many parts of Draft 2-d of the KSES continue to be consistent with the goals and visions set forth in our documents. For many areas of science education, this draft of the KSES provides a model for other states to emulate. For example, the standards that stress the teaching of science through inquiry-based and interdisciplinary approaches will provide an excellent foundation for students as they pursue their studies.

We also note that many of the problems that we found had fatally compromised the 1999 KSES have been resolved in Draft 2-d. For example, six years ago we noted that while the KSES indicated that students should understand evolutionary processes that lead to changes *within* species (referred to as "microevolution" in the Kansas document) that version of the KSES effectively eliminated consideration of any aspects of evolution that ask students to examine scientific explanations for origins of the Earth, life on Earth, and the processes that may give rise to the formation of new species (also known as "macroevolution"). Those deleted standards appear to have been reinstated in Draft 2-d.

However, our independent reviews of version 2-d of the KSES find that scientific ideas about evolution and origins are singled out as the only areas of science where there is major scientific controversy because of alleged weaknesses in the theory of evolution. The robustness of any scientific theory rests on the accumulation of supporting evidence and the ability of the theory to predict as yet unobserved phenomena. In this regard, evolutionary theory has stood the test of time in serving as the most comprehensive scientific explanation for the diversity of life on Earth and it is accepted by the overwhelming majority of scientists. Data collected from scientists in many disciplines and published in tens of thousands of peer-reviewed papers both support and continue to strengthen evolution as the underlying basis for understanding how life diversified on this planet. The only controversies discussed by most scientists lie in understanding the possible mechanisms by which evolution operates, not in its ability to explain the diversity and relatedness of life forms.

The reviewers from each of our organizations also were extremely concerned with and dismayed by attempts in this version of the KSES to redefine what constitutes science. The draft that was prepared by the full writing committee and that preceded Draft 2-d

states that science is a search for natural explanations of observable phenomena but the revised definition would delete this critically important criterion from the definition of science (page xi). The power of science results from a strict adherence to seeking natural mechanisms and explanations for natural phenomena. The revised version of the KSES blurs and distorts the line between science and other ways of knowing. Kansas students will be both confused and ill-served by an explanation of science that allows for other, explanations, including supernatural ones, of the natural world.

For these reasons and others that we detail in our individual responses, we must again dissociate our organizations and our publications from version 2-d of the KSES by denying copyright permission to the Kansas State Board of Education.

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