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Kansas State Board of Education
120 SE 10th Ave
Topeka, KS 66612-1182

Ladies and Gentlemen,

I understand you will be considering a proposal by some members of the former writing committee. I was a member of that committee. The proposal on the table seeks to delete many of the changes which I and other members of the Committee developed over an extended period of time and that were subjected to extensive public scrutiny and hearings.

I would like the opportunity to speak to you at some appropriate time about the proposals. I would like to be at your meetings on Tuesday and Wednesday, but my present schedule does not permit that. I have moved from Kansas and am now the Director of the Nutrition and Metabolic Disease Research Institute at the University of South Dakota School of Medicine. Although I cannot be in Kansas for this January meeting, I could make myself available later in the month or in February.

I am concerned with the proposed changes. In my opinion they send a message to the public that does not fit with good science or the need for the state to be neutral as to religion. The message is that *evolutionary theory can not be openly criticized or challenged*. What caused life? Only one answer is allowed – a natural or material process. This troubles me. Materialism is an idea, a philosophy, not a scientific conclusion. In many respects, it does not square with the data. By tacitly or directly mandating this perspective in the standards, I believe you will be effectively converting that philosophy into a state sponsored doctrine, and that, of course, has a major impact on religious views.

I have reviewed the proposed changes. A copy is attached. What they do is take information off the table that is very important to any understanding of evolutionary theory. They don't add information, they remove it.

The goal that guided our work was to encourage the development of adequately informed graduates of our public schools. That standard can not be achieved if information key to making informed decisions is systematically excluded from the curricula. That is exactly what these proposals seek to do – take away information so that students will be presented with only an unchallenged materialistic perspective of origins. I do not believe that represents good science or good science education.

One of the changes to be eliminated deals with genuine scientific controversies over Darwin's "tree of life." If the changes are adopted, students will not be exposed to significant, new scientific knowledge which is highly relevant to evolutionary theory. For example, just last month a peer reviewed scientific paper was published by Rokas and Carroll which reported that the tree of life is turning out to be more like a bush than a tree (see <http://biology.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pbio.0040352>, a copy of the paper is also being delivered with this letter). They note specifically that we may never be able to untangle what's related to what using molecular similarities, partly because different molecules tell different stories, and there's no way to know which molecule is telling the 'right' story. This is precisely what the current standards indicate in Life Science, Standard 3, Benchmark 3 under section 1f:

f. The view that living things in all the major kingdoms are modified descendants of a common ancestor (described in the pattern of a branching tree) has been challenged in recent years by:

i. Discrepancies in the molecular evidence (e.g., differences in relatedness inferred from sequence studies of different proteins) previously thought to support that view.

Why should this standard be removed when it reflects the current state of the scientific evidence? This is the type of evidence that was reviewed at hearings in Topeka in 2005, and it is evidence that continues to be confirmed by new research.

The proposals seek to remove the idea that evolutionary theory is driven by random mutation, when that is the core of its claim. The proposed changes would delete the word *random* from the standards. It is a critical issue, because the postulate is being questioned by a growing number of highly regarded scientists. The removal of any reference to random mutation actually suggests a lack of scientific confidence in the efficacy and predictive power of evolutionary theory.

A corollary to the removal references to random mutations is the removal of another indicator that would accurately inform students that gene sequences are not dictated by any known physical or chemical law or attribute of the bases that comprise the sequences. This is a completely uncontroversial fact, and it has serious implications for how life began and diversified. If random mutations and physics and chemistry can't explain the sequences, then what does? What are we to tell the student of evolutionary theory? What are its postulates?

Why remove from the standards guidelines for an objective discussion of chemical evolution - the origin of life. This is the beginning of biology. An understanding of this issue is fundamental to any comprehensive understanding of biological evolution since biological evolution assumes the truth of chemical evolution. The subject is now covered in all high school biology texts and is therefore one certainly appropriate for the State to address.

Any student of origins needs to know the definitions of key concepts, most notably, that of evolution. Yet, the proposals would remove this definition from the standards. Without a clear understanding of the meaning of the word “evolution,” students will not have the knowledge necessary to determine whether the data supports the theory or not.

The problem with limiting the information relevant to origins is not insignificant. What we believe about where we come from is important to our views about religion, ethics, morals, and government. It is also important to science. To understand the genome and how life works, we need scientists who are not afraid to think out of dogmatic constraints. We also need to put our resources into avenues of research that will yield the most reliable and more adequate explanations of the natural world. We should not limit that investigation by a dogma that may be wrong.

We invited 23 expert witnesses to examine in detail the scientific and educational propriety of the information in the current standards that the new proposals would remove. These experts all endorsed the changes with articulate and well reasoned testimony that was not challenged on cross examination. No opposition witnesses showed up at the hearings to dispute them. Written criticisms have also been adequately refuted. The refutations are posted on our web site at www.KansasScience2005.com.

The science standards are designed to cause students to “understand” the scientific concepts presented. The word “understand” means “to be thoroughly familiar with; apprehend clearly the character, nature, or subtleties of” the subject of study. How can students ever “understand” evolution if the information necessary to that understanding is withheld?

I am no longer a Kansas resident, but I am a citizen of the US and a scientist. The issue you are dealing with is important to all citizens. I urge you to reject the proposals and to retain the current science standards so that students will be properly informed about an issue important to all Americans.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'William S. Harris', with a long, sweeping underline.

William S. Harris, PhD