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From the suggested standards, "Whether microevolution can be extrapolated to explain macroevolutionary changes (such as new complex organs or body plans and new biochemical systems which appear irreducibly complex) is not clear. These kinds of macroevolutionary explanations generally are not based on direct observations and are historical narratives based on inferences from indirect or circumstantial evidence. [Ernst Mayr, "Darwin's Influence on Modern Thought," p. 80, (July 2000, Scientific American)]"

More than the usual quote-mining, I suspect the "irreducibly complex" part might not have been in Mayr's original. The words micro, macro, circumstantial, etc do not appear in the document, let alone irreducible complexity. I haven't read the article straight through but it looks like that quote, above, ain't a quote.

\* Page 2, "Opponents seek to significantly limit the amount of scientific information provided to students about the most fundamental question humanity may address – What is the origin of life and its diversity? Where do we come from? They would narrow the scope of information to that which will not contradict the naturalistic claim that life is adequately explained by chance interactions of matter according to the laws of physics and chemistry."

This is severely misleading. Scientists and science educators are committed to presenting the best that today's science has to offer concerning questions such as the above. Today, where the history of life on Earth is concerned, evolutionary biology has no scientific rivals to speak of. Not addressing so-called "alternatives" is not a limitation \*of\* scientific information; it's merely limiting science courses \*to\* scientific views that command a consensus within the scientific community.

\* Page 3, "According to the National Science Standards we are to become a scientifically literate society where "scientific information and scientific ways of thinking" will influence "informed decision making" in practically all areas of one's life."

Science literacy, at the high school level, must start with a firm knowledge of those important and well-confirmed ideas central to today's science. Presenting an artificial "controversy" over evolution when no significant controversy exists within the scientific community

will undermine the efforts of educators to impart basic, accurate information to their students.

\* Page 4, "According to many scientists a core claim of evolutionary theory is that the apparent design of living systems is an illusion. 5 Other scientists disagree. These standards neither mandate nor prohibit teaching about this scientific disagreement."

This is not correct. A handful of people who hold scientific credentials disagreeing with evolution is not the same as a scientific disagreement. The "other scientists" in question have not even begun to produce the peer-reviewed research which could eventually lead to a genuine scientific disagreement about evolution.

\* Page 6, "Although science proposes theories to explain changes, the actual causes of many changes are currently unknown (e.g. the origin of the universe, the origin of fundamental laws, the origin of life and the genetic code, the origin of major body plans during the Cambrian explosion, etc.)"

Again, misleading. First, though there is no settled answer to these questions, it will not do suggest scientists have no clue, or that scientists do not know what are the most promising research directions regarding such questions. Secondly, why single these out? Cutting-edge research is full of unanswered questions -- why not put, say, the mechanism for high-temperature superconductivity in the list? The selection of questions to emphasize suggests an agenda which goes beyond science education alone.

\* Page 7, "It is important to distinguish between theory and fact. The statement that evolution has accomplished a variety of things in many cases does not represent a statement of fact, but rather represents a theoretical explanation in part supported by philosophical assumptions that may or may not be true. The insertion of "theorizes that" is intended to reflect this important distinction."

An important thing a high school science student should learn is that "theory" in science is a technical term with a very different meaning than the naive, everyday concept. Here, the proposal moves in exactly the wrong direction.

\* Page 9, "Although historical sciences remain in the realm of science, they differ from sciences like physics and chemistry that seek to understand what things are composed of and how they work in the present."

This is mistaken. No sharp separation exists between "historical" and "natural" sciences. The practice of modern physics is completely integrated with investigations of physical cosmology and the history of the universe. Separating out "historical sciences" as distinct is arbitrary, and results in an incorrect view of today's science.

\* Page 19, "Some critical features of biological systems such as the semantic (meaningful) character of biological information (e.g., DNA) and some other aspects of nature are not currently measurable or observable (e.g. consciousness and the location of an electron)."

Such a statement shows no awareness of information theory or cognitive science and makes a thoroughly misleading reference to quantum mechanics. I could have highlighted many examples from previous pages as well. For a document that purports to advance the cause of scientific literacy, it is a very poor example of what it's supposed to promote.