



New science standards have America's educational publishers turning the page

By: Joshua Rhett Miller – April 12, 2013

The release of proposed new national science standards, including the emphasis of manmade climate change, will alter the classroom landscape for millions of students in the United States, as well as for at least one education publisher readying for the “major” undertaking.

The Next Generation Science Standards, which were released Tuesday after development by 26 states and several national scientific organizations, recommend that educators for the first time identify climate change as a core concept and stress the relationship between that change and human activity.

“Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth’s mean surface temperature (global warming),” according to the elementary school standards, which are not federally mandated and will be adopted on a state-by-state basis.

The process to implement the new guidelines — the first time in nearly 15 years to change the science K-12 education nationwide — could take years in some cases, but some of the nation’s major education publishers have already taken notice.

Kelly McGrath, a science editor at Pearson, one of the so-called “big three” education publishers alongside McGraw-Hill Education and Houghton Mifflin Harcourt, said its materials will need revision to “reflect the depth of coverage” in the new guidelines.

“With the implementation of the Next Generation Science Standards, we will need to revise our coverage of climate change and many other science core ideas, to reflect the depth of coverage in the new standards and the shift to focus on scientific practices,” McGrath wrote in an email to FoxNews.com. “In a digital learning environment, we’ll have greater capacity to deliver materials that meet the news standards, and teachers and students will benefit from the personalization capabilities that digital provides.”

For example, one of the new middle school science standards recommends that teacher ask questions to “clarify evidence” of the factors that have caused the rise in global temperatures throughout the past century.

“In order for students to demonstrate their understanding of this performance expectation, we will need to incorporate new experiences into our curriculum materials,”

McGrath's email continued. "Our materials will need to provide access to multiple examples of the evidence, as well as give students and teacher the support to know how to ask clarifying questions about this topic."

Teachers will also need support to determine what successful demonstration of that expectation might look like, McGrath said.

"This is a major undertaking, but one that should result in students with greater ability to reason critically in an increasingly complex world," McGrath's email concluded.

Officials at McGraw-Hill Education, meanwhile, told FoxNews.com the company will wait to see which states adopt the guidelines before revising their materials.

"At McGraw-Hill Education, we work closely with educators to develop products that meet the needs of our customers," vice president of product marketing Lisa O'Masta wrote in an email.

"One common need of our customers is for materials that align to state or national education standards. Our current science offerings for the K-12 market are tightly aligned to address the existing National Science Education Standards and individual state standards. In the weeks and months ahead, we will be paying close attention to the adoption of the Next Generation Science Standards by states across the country. Our development of new products will focus on a deep alignment to the standards that states choose to adopt."

At Houghton Mifflin Harcourt, materials are currently being reviewed for "alignment" with the new standards, according to Leigh Ann Garcia, HMH's director of product management and strategy for grades 6-12 in math and K-12 in science.

"We are currently reviewing HMH programs for their alignment with NGSS and will make the necessary revisions to support NGSS implementation," Garcia wrote FoxNews.com.

The new guidelines, which are based on a framework by the National Research Council, were released at a critical juncture, as jobs in science, technology, engineering and mathematics (STEM) are expected to grow by 17 percent from 2008 to 2018, compared to just 9.8 percent for non-STEM jobs. Despite those figures, only 8 percent of college graduates enter the workforce with a STEM degree, according to the Information Technology and Innovation Foundation.

Frank Niepold, climate education coordinator for the National Oceanic and Atmospheric Administration's Climate Program Office, said the key underlying effort behind the new guidelines is to make students "really deeply understand" key topics like climate change, physical science and biological evolution rather than mere memorization.

"We're really not getting mastery, that's the fundamental drive here," Niepold told FoxNews.com.

"And the reality is that this a very positive improvement to the standards, there's no way around that It's a very sizeable improvement."

Asked about potential blowback to standards regarding climate change, Niepold said there was nothing in the 93-page document that wasn't "well-established" by science. Others, however, said the very presence of climate change instruction in classrooms will create controversy.

Neal McCluskey, associate director of the Center for Educational Freedom at the Cato Institute, said climate change is undeniably a "very hard" topic to handle delicately.

"It's something that's very hard to strike a balance on," McCluskey told FoxNews.com. "There's nothing wrong with talking about climate change in science classrooms, but this opens up the huge possibility that interpretations of climate change or analysis that a lot of people disagree with will still be taught. The degree to which human beings are impacting the climate and how bad that impact may be is controversial."

Some state Department of Education offices, including those in Pennsylvania and Florida, told FoxNews.com that no meetings have been scheduled in connection to the new standards. In California, the state Board of Education is expected to vote on them in December. In Kansas, it's believed they'll be voted upon as early as this summer and educators in Colorado will conduct a "thoughtful and sequenced" review of them following the adoption of new science standards there in 2009. Texas, meanwhile, has indicated they will not adopt the guidelines.

Regardless of if and when they're adopted, Richard Hull, executive director of the Text and Academic Authors Association, said he welcomed the new guidelines and downplayed the potential impact of politically-divisive topics like climate change and evolution.

"The influence of political and religious views on evaluators and adopters in state education departments should be minimized by these new standards," Hull wrote FoxNews.com. "Students who are educated in accordance with them will have a far better chance for success in college courses and in competition on the employment market than those steeped in creationism design, new earth theory, and other alternative accounts."