

# State educators push ahead with preparations for new science standards

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Kentucky educators are pushing ahead with preparations to implement new Next Generation Science Standards in Kentucky classrooms by next fall, although the standards' ultimate fate could be up to the General Assembly.

Gov. Steve Beshear decided last month to implement the new science requirements even though a legislative review subcommittee rejected them as "deficient." While Beshear's move allows preparations to go forward, legislators could override the governor and kill the standards when the General Assembly meets in January.

During the coming months, the Kentucky Department of Education plans meetings across the state with science educators from every school district to go over the standards and start planning how to put them to use by fall 2014. Officials at Fayette County Public Schools have selected 14 science teachers and administrators to get started on the Lexington rollout, said Lu Young, the district's chief academic officer.

Educators also will be busy "helping to clarify a lot of the misconceptions about the standards," said Karen Kidwell, director of program standards for the state education department. "We're going forward because we believe, based on feedback from teachers and the science-education community, that these are the right standards for Kentucky students," Kidwell said.

The standards establish the science concepts and skills Kentucky students would be expected to master in grades K-12. They were drafted cooperatively by Kentucky and 25 other states. The Kentucky Board of Education has approved the standards twice, and they've been endorsed by numerous science groups. Education officials say that most of the approximately 4,000 public comments they've received about the regulations have been positive.

Opponents, including some members of the public and such organizations as the Family Foundation of Kentucky, have attacked the standards on various grounds. Some argue that the standards treat evolution as fact rather than theory. Others claim the guidelines overemphasize global climate issues while ignoring other areas of science.

Last month, two conservative groups — Take Back Kentucky and Kentuckians Against Common Core Standards — circulated online alerts urging Kentuckians to contact state legislators in opposition to the standards. Among other points, the alerts argued that the new standards would provide for the "elimination of chemistry and most of physics" in Kentucky schools.

But the standards provide for no such thing, according to various Kentucky educators who helped prepare the new requirements during the past three years. "As far as eliminating chemistry and physics ... that couldn't be further from the truth," said David Helm, middle and high school science specialist for Fayette County Public Schools. Martin Brock, an associate professor of chemistry at Eastern Kentucky University who worked on the standards, said there was no reason to fear that chemistry or physics would be weakened. "Topics in the standards having to do with chemistry and physics — such as heat, energy, motion and gravitation — are abundant, certainly more abundant than any climate-related topics," Brock said. "I can show you places in the new standards where they significantly raise the bar in chemistry, physics and others areas. They haven't taken chemistry out; they've made it better."

It's unclear how much response the conservative group's email alerts generated. But members of the legislature's Administrative Regulation Review Subcommittee said they were bombarded with calls and emails from people opposed to the science regulations. On Sept. 10, subcommittee members voted 5-1 during a meeting in Frankfort to find the standards deficient.

Sen. Ernie Harris, R-Prospect, the subcommittee's co-chair, estimated he received 100 messages opposing the standards and very few supporting them. "It was probably 100 to two," he said. "I'm exaggerating, but it was overwhelmingly against the standards."

Sen. Joe Bowen R-Owensboro, a subcommittee member who voted against the standards, said he started getting calls and messages blasting the regulations about two weeks before the subcommittee met. "A lot of people may assume this was all about evolution and climate change, and those issues were brought up by some people," Bowen said. "But the primary concern was individuals' perception that the standards did not promote chemistry, and to some extent physics, at the level they thought should be emphasized. That was a big concern."

Bowen said he and other subcommittee members suggested deferring action on the standards, but Kentucky Department of Education representatives declined. Afterward, subcommittee members thought it "was incumbent upon us" to find the standards deficient, he said. "The department passed on the opportunity to defer action, and I think that was unfortunate," Bowen said. "It would have allowed them time to ... put the standards on display and let the public be exposed to them. Let them try to win over the public and make the argument that these standards really are what we need."

Harris said he wasn't convinced by claims that the standards might eliminate chemistry or physics. He reviewed the standards and found them lacking, Harris said. "They appear to be less rigorous than the standards we have now," he said. "They are written almost as if they want students to understand the process of science without understanding the basics of science."

But Brock, the ECU chemistry professor, said he thought many critics misunderstand the proposed standards. He also said he thought some critics might be following "a political agenda." "In the science standards we have now, students are expected to know and be able to enumerate Isaac Newton's three laws of motion," Brock said. "But the new standards say that students will be able to generate data to show that those laws are correct."

"That's pushing the capability of students way beyond simply enumerating a set of laws, to seeing the background by which those laws are actually true. In any imaginable sense of rigor, that's a higher standard."

Thomas Tretter, an associate professor of science education at the University of Louisville, also insisted the new standards go well beyond what students are expected to learn now. "I would claim the new standards are more rigorous because they require students to not only know words and definitions, but how they all work together," Tretter said.

Convincing members of the legislature might take a more concerted effort. Bowen didn't rule out the possibility of a move to overturn the standards when the legislature meets next year.

"I would say that there are those in the General Assembly that are perhaps even more motivated than those of us on the subcommittee to push back on these standards," he said.