

## Want to sustain ag and engineering? Promote real science education

By Midge Yergen Yakima     Aug 21, 2015

Agriculture is an important, visible and thriving part of our community and it is heavily connected to many engineering careers. Each is equally important to the strength of our community and its economy.

Farmers must be resourceful and innovative in order to care for water, the land and their harvests. Farmers play many roles. My husband is a farmer, yet uses his engineering degree daily. Farmers apply science to increase production and engineer new tools to become more efficient in tending their lands.

As a 38-year veteran science educator, I appreciate the importance of both agriculture and engineering and the real-life connections between what students are learning in the classroom and what is happening in the world around them. The state's new science education standards promote the learning of both.

I began utilizing the Next Generation Science Standards in my classroom more than two years ago. Washington, which helped write the standards, officially adopted them in 2013 as the Washington State K-12 Science Learning Standards. These standards require hands-on, real world learning, and emphasize the understanding and application of scientific principles and engineering practices, while connecting them to math and literacy. These standards expand opportunities for all students to learn science and engineering concepts and practices.

This is the type of learning that all students need to receive to succeed in the careers of today and those of tomorrow, whether they pursue higher education, a certification program, or are career-ready as they leave high school. Standards-based learning reflects the thoughtful progression of science education from kindergarten through high school. With the Washington State K-12 Science Learning Standards, our students will have the opportunity to graduate equipped with deeper knowledge and real skills they can use throughout life.

So how do these improvements in science learning promote innovative farming and engineering solutions? One example used in my seventh-grade classes revolves around salmon. Students learn about life cycles, anatomy and needs of the salmon. They learn about the cultural impact salmon have on members of our community. While studying the salmon needs, we learn how water is delicately balanced for fish, agriculture and community use, and that there are economic impacts for

our choices. We investigate local dams and how they are engineered to provide safe passage for salmon. Because not all dams have adequate fish passage, students apply engineering principles and creative thinking to re-engineer model dams to increase fish passage, even during low water flow years, conserving water and saving fish. I'm inspired by the changes we're making in science education. Science is engaging, fun and relevant to my students' lives in ways it never was before.

We are nurturing the next generation of scientists and engineers by having our students think and work like them. Investing in science education isn't just good for our students and our teachers; by stimulating creativity and problem-solving as laid out in the Washington State K-12 Science Learning Standards; strong science education secures a better future for all!

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The original article is available at [http://www.yakimaherald.com/opinion/saturday\\_soapbox/want-to-sustain-ag-and-engineering-promote-real-science-education/article\\_1c0a4f94-4768-11e5-b279-33393eb329f8.html#.VdpZ2kFbYKc.email](http://www.yakimaherald.com/opinion/saturday_soapbox/want-to-sustain-ag-and-engineering-promote-real-science-education/article_1c0a4f94-4768-11e5-b279-33393eb329f8.html#.VdpZ2kFbYKc.email)