

Shell Partners with Alaska Nonprofit to Improve Science Education

Science – it’s a subject taught in school, but it has implications far beyond just a grade on a student’s report card. Science education is also a proven way to develop students’ logical thinking, problem-solving skills and academic achievement, which in turn helps meet workforce demands, enhances job performance, and develops responsible and informed citizens.

Helping Alaska schools improve science education – and, in turn, helping students succeed – is the goal of a new initiative being led by Avant-Garde Learning Foundation, an Alaska nonprofit focused on transforming education in Alaska. The initiative is generously funded by Shell Oil and includes partnerships with the National Science Resource Center and other Alaska-based science organizations.

The Need for Science

Unfortunately, science education is lacking in the United States. For example, only 5 percent of Hispanic students and 2 percent of African-American students scored at the “proficient” level in science, according to the 2005 National Assessment of Educational Progress. And the U.S. ranked 16th in an international science test given to students in 21 countries in 1998.

“Because of the requirements set by No Child Left Behind, schools have an increased focus on reading, writing and math. Science has been put on the back burner or completely eliminated from the schools. That’s scary because science isn’t just about dissecting frogs. It’s about reasoning, theory, a complete way of functioning. Students aren’t getting the key components of human development,” said Kameron Holloway Perez-Verdia, CEO of Avant-Garde.

“To me, we’ve gone through a period when science education nationwide has not been attended to. It’s taken a back seat,” added Emma Lu Walton, a retired science teacher and past president of the National Science Teacher Association, who now works as a consultant for Avant-Garde.

This move away from science education has serious implications not only on student educational performance, but also on workforce needs and the national economy. In 2005, for the first time, the U.S. lost its lead in world economic competitiveness and dropped to sixth place. Currently, almost half of employers report having trouble finding qualified U.S. workers in occupations ranging from entry-level employees to engineers. And an estimated 14 million U.S. jobs are now at risk of being sent offshore.

“The U.S. is significantly behind in producing a workforce that is proficient in science and math. We used to lead other countries, but we are now far behind and it is projected we will fall even further behind. So from a workforce perspective, the need is significant,” Perez-Verdia said.

In addition to education, workforce and the economy, students also need to study science because good citizenship requires at least a basic understanding of how the world works. For example, basic science literacy is needed to make intelligent, well-reasoned decisions on issues such as the environment, biomedicine and technology.

“Everything we do day in and day out is based in science,” Walton said. “If we don’t have people going into science fields, that void will be filled by people from other countries. If our politicians don’t understand scientific principles, they will be making decisions that may or may not be in our best interest. The bottom line is we need to provide the best education we can for our students or we will

not be a productive society. If we work together, we can have enough influence to help our students and communities understand the necessity for science.”

Working Together to Improve Science Education

In an effort to improve science, technology, engineering and math (STEM) education in Alaska, Avant-Garde partnered with Shell Oil and the National Science Resource Center to launch a science initiative.

“Science and technology are at the heart of what differentiates Shell as a company. To be part of a program that not only identifies a critical need in Alaska but also encourages young students to challenge themselves in new and exciting ways is very gratifying. It’s also a bit self-serving. If we are as successful in Alaska as we plan to be, the grade school students who are benefiting from additional exposure to the sciences will consider a career along those lines – possibly as an engineer, geologist or well manager for Shell,” said Pete Slaiby, Shell Alaska vice president.

The initiative is focused on the concept of hands-on, inquiry-based learning. It has been found that students who experience this type of learning score much higher on assessments than do their peers who are taught using traditional textbook methods. It has also been shown to help students excel in areas other than science, such as reading, writing and math.

“Science is a hands-on, exciting, fun way to inspire students. Through improved science education, kids have something to read, write and do math about,” Perez-Verdia said. “Education isn’t done in silos. Science is used as a medium to improve education as a whole and engage students in learning.”

Avant-Garde’s science initiative kicked off in 2007, when four high-need rural Alaska school districts – North Slope, Northwest Arctic, Bristol Bay and Aleutians East – were identified and selected to participate. Teams from each of the districts were flown to Washington, D.C. for a week of intensive training at the National Science Resource Center, where they explored inquiry-based learning and developed strategic plans for improving science education in their districts. Avant-Garde later facilitated a meeting where participants discussed their plan implementation progress, and district representatives attended a second training in Washington, D.C.

In an effort to demonstrate the opportunities and challenges of education in Alaska, Avant-Garde also arranged a tour this summer for several members of the National Science Resource Center and executives of Shell Oil. The group traveled to Barrow, Kotzebue, Selawek, Anchorage, Sand Point and Naknek, where they met with superintendents, principals, teachers and community members.

“We talked about what opportunities and challenges exist in delivering quality education, and engaging community and businesses in science and in the schools. We also discussed the importance of science education,” Perez-Verdia said.

During those visits, a common theme emerged about the need for professional development. Shortly after the visits, Avant-Garde, with the support of Shell Oil, provided scholarships for two teachers from each participating district to attend a math and science conference in Juneau.

The Future of the Science Initiative

Looking to the future, Avant-Garde plans to continue working with the four participating school districts to review and implement their strategic plans for improving science education. In the long-term, Avant-Garde expects to develop a strategic plan for improving STEM education across Alaska.

“Millions of dollars are being spent and thousands of people are working on improving STEM education in Alaska. There’s a lot going on, but we’re not working together. We want to develop a better plan for STEM education in Alaska. We want to combine the efforts of other groups and agencies, and bring our energy and resources together so we can have a more focused and effective effort,” Perez-Verdia said.

“There are many different entities across the state that are all involved in science education. There are a lot of good things going on, but they don’t know what each other is doing. We need to make sure we’re all moving in the same direction – the right direction – and providing good programs for our students,” Walton added.

Beyond creating a plan for improving science education in Alaska, Perez-Verdia said Avant-Garde’s ultimate goal for the initiative is to “improve student achievement in the classroom – and student achievement in life.”

“It’s our responsibility to provide programs that help students reach their potential,” Walton said. “We need to continue to develop STEM programs and help kids understand education is important and that they can achieve.”

For more information, visit www.avantgardealaska.org or contact Avant-Garde at (907) 279-0356 or kameron@avantgardealaska.org.

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