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i-STEM team heads north to Alaska, shares teacher professional development program

NENANA, AK – Word of the award-winning Idaho STEM (science, technology, engineering, and mathematics) initiative, or i-STEM, has spread to Alaska. Although many students are just heading back to school this month, this summer leaders of the i-STEM program were working with colleagues in Nenana, Alaska, approximately 55 miles southwest of Fairbanks, to share techniques they developed to teach STEM subjects in innovative, exciting ways.

The Idaho National Laboratory K-12 i-STEM team partnered with the Nenana City Public School to provide the integrated, place-based STEM Teacher Professional Development Institute in August. Educators learned about STEM-based topics, how to use the information in their classrooms, and how to help grow tomorrow's high-tech STEM workforce.

The Alaska STEM Institute was similar to the i-STEM institutes held throughout the state of Idaho in June, but had modified topical sessions tailored to local Alaska industry needs and skills. Sessions focused on the themes of aviation or energy and environment. They were designed to expand educators' STEM teaching confidence and effectiveness, develop place-based STEM models to increase student engagement in learning, integrate STEM concepts across the curriculum, and develop culturally competent instructional approaches and strategies applicable to rural education in Alaska and throughout the nation.

Why Alaska? "The Nenana City Public School invited the INL-led i-STEM team to help it demonstrate STEM teacher professional development for its teachers to become more confident in teaching STEM subjects, raise awareness of the needs for future STEM workforces and expand teachers' STEM teaching effectiveness," said Anne Seifert, executive director of i-STEM and INL's K-12 education manager.

"In addition, we implemented elements of the i-STEM model that included input from the Shoshone-Bannock Tribes in Fort Hall, Idaho, to ensure STEM education is culturally complementary. This model has many parallels to Alaska's Standards for Culturally Responsive Schools, which is an educational requirement of the Nenana School District, and where the Tanana Chiefs Conference, the traditional tribal consortium of 42 villages within interior Alaska, has a strong presence. Their students have similar needs and desires as the Shoshone-Bannock youth."

The training institute included representatives from the Alaska Center for Energy and Power, Alaskaland Pioneer Air Museum, and the Alaska Wing Civil Air Patrol. All met the Nenana teachers out in the field to learn STEM concepts. In addition to members from the INL K-12 team and Larry Murillo from the Shoshone-Bannock Tribes in Fort Hall, the entire Nenana School District education staff, a representative from the Alaska State Department of Education, Ava Vent (education director of the Tanana Chiefs Conference), Alaska State Senator Click Bishop, and other local industry representatives were also involved.

Connecting with other areas in the region is important to leverage the national laboratory system and help develop a skilled STEM workforce for the region. "If the United States is to hold a competitive edge in a rapidly changing global workforce, bolstering the nation's STEM workforce is essential," said Seifert. "Education is a focal point in every community in all regions. By working together regionally, we can connect students to jobs of the future by engaging them in these important fields, but we must have the skilled and knowledgeable teachers to help get them there."

The i-STEM program is a nationally recognized placed-based, integrated STEM professional development model that helps educators further develop their STEM content knowledge through context. i-STEM increases teacher confidence in teaching STEM subjects and develops STEM-literate students to enter STEM higher education and workforce pipelines.

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