



Quillayute Valley School District Finds Success Through PEI's Innovative FieldSTEM Model

In July 2019 a group of 5th-grade girls from the town of Forks made the news when they competed in a NASA-funded robotics challenge at the University of Washington. The group was newsworthy not only because they were the youngest students in the Apollo 50 Next Giant Leap Student Challenge, but because they were the first from the remote, rural town to compete.

“Our students did really well,” says Quillayute Valley School District Superintendent Diana Reaume. “It was great to see how excited a team of 5th-grade girls was to go to that competition. I believe that’s a byproduct of the work we do with PEI.”

PEI stands for the Pacific Education Institute, an Olympia-based nonprofit that provides statewide professional development for teachers in outdoor-based, locally relevant STEM education. FieldSTEM®, their signature program, includes an emphasis on community partners and a strong focus on getting kids outdoors. The framework is aligned with Next Generation Science Standards (NGSS) and flexible enough to be adapted at any grade level and integrated with other subjects.



PEI has been working with Quillayute Valley School District teachers and administrators over multiple years.

In Forks, PEI’s Coastal Regional Coordinator Julie Tennis has been working with the school district over a period of years, starting with teachers from grades 5-12 and expanding to include

those from elementary grades. In the beginning she helped teachers understand how to align their lessons with NGSS. Later, she worked with Forks Middle School and Forks High School teachers to develop plans for implementing FieldSTEM. More recently, she's been focused on grades 4-6.

“The most exciting thing was that we were able to identify, why aren't we teaching science as a content area in the lower grades?” says Elena Velasquez, Principal of Forks Middle School and former Instructional Coach and Program Mentor at Forks Elementary School. “We have since added a science core class at every grade level.”



PEI's Coastal Regional Coordinator Julie Tennis supports teachers in implementing the FieldSTEM model across grade levels and subject areas.

A key to FieldSTEM's success in the district is that teachers don't feel pressured to implement every aspect of the model in every lesson. “The FieldSTEM model is really flexible,” says Jody Cook, 8th grade science teacher. “It really meets you where you are and gives you extra ideas for getting kids outside in a way that doesn't sound scary.”

In Cook's class, students grew Wisconsin fast plants, which go through their seed to seed life cycle within a span of six weeks. Students harvested their seeds last year and have replanted them as 8th graders, using them as a basis for studying genetics. “It really created a lot of meaning for the kids as 8th graders,” says Cook. “Some of them wish they'd done a better job of collecting their data last year.”

In John Hunter's high school biology classes, students monitor plankton and collaborate with chemistry students who are exploring ocean acidification. Last year they cleaned and scanned seagrass leaves, submitting the results to a graduate student at Cornell University to assist her

research on a seagrass wasting disease. “We got the students engaged in collecting some real data,” says Hunter.

Experts on orca research and water quality have also shared their knowledge with Hunter’s students. Sometimes, however, the students become the teachers. Recently his marine science class completed models they’d designed of vertical evacuation structures as means of escaping tsunamis, a relevant topic on the Olympic Peninsula. A community panel exploring the same issue in La Push has asked the students to present their models.

While PEI works with many school districts around the state, what’s happening in Forks is exceptional. High levels of student engagement, improved test scores and heightened teacher confidence are just some of the results of the district’s wholehearted adoption of FieldSTEM. “The teachers who participate in PEI training are so excited,” says Velasquez. “They have noticed that kids are way more engaged and curious about learning in general. I’m seeing a lot more inquiry-based learning and teaching going on, and kids are really excited about trying to figure out why something is the way it is.”

Reaume has observed changes in other metrics. “Our 8th-grade scores are higher than the state level,” she says. “If we look at our junior high math, those students have had the support of PEI for the last seven or eight years. We saw the highest gain in those scores. In fact, OSPI [Office of the Superintendent of Public Instruction] contacted us to find out what we’re doing.”

Another indicator of success: until now, Forks High School has never been able to field enough students to offer an Advanced Placement chemistry course. “We’re so small that we want to make sure we have at least ten or twelve kids to do advanced courses,” says Reaume. “We’re offering AP chemistry this year.”

Tennis credits Reaume and her leadership team for making FieldSTEM so effective. “She’s been incredibly supportive of the work we do,” she says. “Diana puts her money where her mouth is. She’s been bringing PEI back every year. When I was working with the intermediate school, she actually showed up to most of the sessions so that she could see firsthand what was going on and

support the teachers.” In 2019, PEI recognized Reaume’s leadership by awarding Quillayute Valley as School District of the Year.

From the district’s perspective, the fact that PEI staff comes to them rather than the other way around is critical. Being based in Forks means that sending any staff members to a training - usually in Seattle - will cost at least \$500 per person because of the need to pay for accommodations. “It makes a world of difference that PEI comes here,” says Velasquez. “It opens the training up to more participants. We have a number of general education teachers, not just science teachers, attending these sessions.”

Moving forward, the district plans to continue working with PEI, focusing for now on the Kindergarten through third-grade staff. Teachers will document aspects of FieldSTEM that they’re implementing at each grade level, creating what Reaume calls a ‘road map.’ “That way, if a new teacher comes in or we lose a teacher at a certain grade level, we’ve got all of the documents to support the new staff,” she explains.

In the meantime, students throughout the district are benefiting from a revitalized approach to STEM education. “Being able to create relevant examples and let them explore in a place that they know within their schoolyard has been really meaningful,” says Cook. “It’s amazing for me, and anything that’s more interesting for the teacher makes it more interesting for the students.”