

# Rural Community Finds Way to Boost High School Graduation and College Enrollment Rates



## AT A GLANCE

### Background

Umatilla is a small, rural town located in the northeast corner of Oregon. Introducing students to the importance, and fun, of a STEM career, and providing opportunities to develop their skills, breaks down barriers to further education and helps them achieve success in careers they didn't know were available to them.

### Bringing STEM to Umatilla

Seeing STEM participation among students as a means to boost post-high school success, Schools Superintendent Heidi Sipe implemented an after-school robotics program. With virtually no business support or school district funding available, Heidi turned to grants and the community to help start a nine-member *FIRST*® Robotics Competition team. Family members were drawn in as Mentors. The team's success led to the creation of the STEM Academy of Umatilla, a free K-12 after-school program, where students participate 12 hours each week, in classes focused on developing interest in STEM and providing a hands-on opportunity to develop a variety of skills.

### Impact in the District

The initial *FIRST*® team now numbers 51 students and boasts a 100 percent high school graduation rate. Earned college credits and college enrollment rates are up, and students are building skills and confidence, while contributing to the proud community that has helped to field their team.

## Robotics Transforms Rural Community

Located about three hours from Portland, Oregon, rural Umatilla used to be known for four things: its high school teams, the Vikings; the Two Rivers Correctional Institution; for being moved to higher ground in 1968 due to the construction of a dam on the Columbia River; and for being home to one of the poorest student populations in the state.

With nearly 90 percent of students qualifying for free or reduced meals, Umatilla High School had a graduation rate of only 68 percent. One-third of students were active English language learners. The goal for many students was to play sports, enjoy their high school experience, and go to work. After high school, a number of students worked for local agricultural companies or supporting services.

"Helping students understand that their future does not have to look like their present is extremely important to me as an educator," said Schools Superintendent Heidi Sipe. "In our community, we have many talented and intelligent kids, who simply don't understand the breadth of careers that are available, let alone aspire to attain success in those careers."

Heidi and the school board decided to make post-high school success a priority: The goal was to increase the number of college credits earned during high school. The high school was already undergoing change from 2007 through 2014, as students and teachers adjusted to new graduation requirements adopted by the Oregon State Board of Education. But the new requirements did not appear to be encouraging students to earn college credits. In 2011, only 5 percent of the high school's 400 students participated in early college programs, earning just 201 college credits.

"STEM fields are rapidly expanding...(but) I fear our kids will be left behind if they do not start to see the importance, and fun, of a STEM career," Heidi said. She realized she needed to find a way to change the culture of the high school – but she was faced with a significant challenge: the school board did not have any additional funds it could access or spend.

Heidi's experience got her invited to testify at a Senate Health, Education, Labor and Pensions hearing about changes to the *No Child Left Behind Act*. She was interested in encouraging STEM (science, technology, engineering, and math) among Umatilla students because of a shortage of both industry and opportunity. "Too few kids attend college," she added.

That began to change in 2011.

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— HEIDI SIPE, UMATILLA SCHOOL DISTRICT SUPERINTENDENT

## Bringing STEM to Umatilla

After Heidi, who once taught in the gifted and talented program, returned from that Senate hearing, she learned about an after-school STEM program that might be able to help Umatilla’s students.

Unfortunately, there was virtually no business support in rural Umatilla, only a drug store, a car wash, a few restaurants, and a grocery. And the Umatilla School District did not have the funds to contribute to an after-school STEM program.

But that didn’t stop Heidi.

Encouraged by Deb Mumm-Hill, a former regional director for Oregon for *FIRST*® (For Inspiration and Recognition of Science and Technology), a non-profit organization that inspires young people’s participation and interest in science and technology, Heidi decided to try establishing a *FIRST*

team for Umatilla. Said Mumm-Hill, “I convinced Heidi to start a *FIRST* team, so she pulled her math teacher husband from coaching the football team and tasked him with starting a *FIRST*® Robotics Competition team. With the help of JCPenney and NASA, we got them going.”

With support from the school board but no funding, Heidi had to turn to grants and the community. And it wasn’t easy. There were a number of doubters initially, concerned that *FIRST* would siphon resources from athletics.

## *FIRST* Steps

Heidi created Umatilla’s *FIRST* Robotics Competition team in the 2011-12 school year. Despite misgivings, the town raised the money to field the *FIRST* team. Known as the “Confidential 4125,” it was comprised of just nine students.

The team struggled its initial year and did better its second year. In spring of 2013, Confidential 4125 won a Regional event, qualifying for the *FIRST* Championship in St. Louis. The team was excited, but had only two weeks to raise \$15,000 to take the entire team to St. Louis. Again, the community rallied. The team bus received a police escort welcome home when it crossed back into Umatilla after its long drive.

Meanwhile, Heidi, who was named the 2016 Oregon Superintendent of the Year by the Oregon Association of School Executives (OASE) and the Confederation of Oregon School Administrators (COSA), led the creation of the STEM Academy of Umatilla (SAU), a free K-12 after-school program for more than 600 students at all three schools. In 2013, Heidi applied for a 21<sup>st</sup> Century Grant, a federal grant worth \$2.1 million over five years, to help expand programs in her community to all students in grades K-12.

Students participate 12 hours each week; classes focus on developing interest in STEM, with robotics as the backbone of the academy’s programming. High-school students now run the after-school programs in the younger grades.

## *FIRST* Things First: The Mentors

The community is too small for the district to draw on residents to mentor. Heidi, her mother, her son, her husband Kyle Sipe, and one other employee are the only *FIRST* Mentors; she uses vacation time to help support the program. “You are looking at a grant writer and one of the Mentors for each of our 24 teams.



*Umatilla School District Superintendent Heidi Sipe (bottom left) introduces students to the importance, and fun, of a STEM career*

“One of the largest impacts of *FIRST* is the culture it has created.”

— KYLE SIPE, 7TH GRADE MATH AND SCIENCE TEACHER, UMATILLA MIDDLE SCHOOL



Umatilla's *FIRST* Robotics Competition Team "Confidential 4125" now boasts 51 students

Our adult Volunteers do it all. We've even taken turns driving the bus on the 27-hour trip from Oregon to St. Louis to save on air fares," Heidi noted, adding, "The effort is worth it."

Although funding is still a struggle, Heidi said community support remains amazing. Residents see the potential in the students and how hard they're willing to work. In turn, students donated 6,000 hours to the community, which helps build pride and support.

Heidi said *FIRST* provides a different experience from what students get in the classroom because *FIRST* creates a less restrictive environment, with more hands-on collaboration. And this happens even though there are few STEM professionals in the community. "But we most definitely have people who are committed and willing to help the kids in our community become the next big names in STEM," Heidi added.

## *FIRST* Impact on Students: Knocking Down Barriers

Umatilla High School's *FIRST* program now includes 51 students, and boasts a 100 percent graduation rate for students who remain in the program through their senior year. Many Confidential 4125 team members go on to attend colleges such as Dartmouth and the Rochester Institute of Technology. The impact of *FIRST* has grown beyond high-school students to support all four *FIRST* programs for K-12: *FIRST*®LEGO®League Jr., *FIRST*®LEGO®League, *FIRST*®Tech Challenge, and *FIRST*®Robotics Competition.

And while students play on teams or cheer for the Vikings, a growing number also want something more after high school – and often, that includes furthering their education.

Five years later, Umatilla has become known for robotics as much as for sports. Many Confidential 4125 team members play sports as well as participate in robotics. The Vikings sports teams regularly support Umatilla's *FIRST* team on their Facebook pages, and the robotics team supports the sports teams as well.

"When others look at the demographics of our school, they see barriers to college, including limited financial resources, lack of college-going role models, and citizenship status. Kids often believe success is there for other people. The challenge is helping kids to see they are worthy," Heidi said. "But inside our schools, our students no longer accept those barriers. Umatilla students are college material, and in fact are college success stories. They see themselves for the stars they are.

Kyle, who is a 7th grade math and life science teacher at Umatilla Middle School, said *FIRST* "has exposed children in our community to experiences, Mentors, and careers that they would never gain access to (previously). So many kids have been able to meet with STEM professionals, visit state-of-the-art STEM businesses and facilities."

“It is this sort of program that embodies the qualities of life in small communities and our desire to embrace the exceptional.”

— BOB WARD, UMATILLA CITY  
MANAGER, RETIRED

But to Kyle, “One of the largest impacts of *FIRST* is the culture it has created,” he added. “High quality personal skills are practiced throughout the organization, making it infectious. Due to this culture, our community has started to change and embrace the type of people that our kids are becoming and really want to be part of the change and the overall success. Our kids understand that winning isn’t everything, but being a better person and acquiring lifelong love of gaining skills and learning is everything. That is what *FIRST* provides.”

One unexpected benefit of *FIRST* is students now see engineering is a “cool career,” Heidi said. “A lot of kids talk about being engineers, not football players.” Heidi thinks *FIRST* bursts stereotypes; athletes can pursue engineering, and engineers are not considered nerds, but can pursue athletics. There is no need for an “us versus them” environment between students.

*FIRST* is “a really powerful model” for students to develop a variety of skills such as doing interviews, making eye contact, shaking hands, and “schmoozing,” Heidi said, adding, “It’s exciting to see students build skills, and see the skills they’re building have direct application.”

One of Heidi’s favorite stories is about a new team member doing “pit duty” at a competition. She helped the student prepare with basic social skills, such as shaking hands and looking people in the eye. When the student returned home, the mother told Heidi he talked. She learned the student had been painfully shy and introverted, but successfully used his new social skills while working the pit. Now he’s head videographer and teaches in the after-school program.

“The *FIRST* program has broadened the extra-curricular opportunities for students, giving them a forum to showcase talents that might otherwise be closed to them,” said Bob Ward, recently retired city manager for Umatilla. “The success of the program and the performance of the team at local, regional, state, national, and international competitions has shown the world the quality of our educational system and caliber of our students. It is this sort of program that embodies the qualities of life in small communities and our desire to embrace the exceptional.”

## *FIRST* Impact in District

By 2015, nearly half of UHS students earned at least three college credits and many pursue STEM fields. The total number of college credits earned – 1,968 – represents a staggering 897 percent increase, attributable in part to the team’s effect on the school’s culture.

Compared to a district average of 68 percent, 100 percent of Confidential 4125’s senior participants graduated high school and went on to STEM fields. One student graduated from Oregon Institute of Technology, another received a full scholarship to Dartmouth, and a third graduated with his Associate of Arts Oregon Transfer Degree (AAOT) in high school and started as a junior at Washington State University. One is now attending Rochester Institute of Technology. And one current team member – the first generation son of Mexican immigrants – is considering going to MIT, though he has never been on an airplane and didn’t first know where the school is located.

With 24 teams at all levels in the district of 1,400 students, Umatilla now ranks second in the nation in the percentage of students involved in *FIRST* programs. Umatilla has won numerous robotics competitions and awards in recent years, and twice qualified for the *FIRST* Championship to compete with teams from around the world.

“Kids in rural, impoverished communities have all the talent and none of the access,” Heidi said. “*FIRST* gives them the access to dream new dreams. Our entire town still bursts with pride at the success of our team, and they’ve come out to help volunteer and work alongside the kids at all levels.”

[www.firstinspires.org](http://www.firstinspires.org)

