

Celebrating CTE Success in Alaska Sitka High School's Fabrication and Design Lab (AKA "Fab Lab")

Sitka is a lush, green island community on the edge of the Pacific, with 9,000 people and 1,300 students. That rural setting makes technology all the more important. Here is an interview with Sitka's Superintendent, Mary Wagner on the high school's Fab Lab, building expansion for their CTE program, and much more!



What challenges did you encounter on the road to success for your CTE program and how did you overcome them?

Two of the biggest challenges to the success of our Fab Lab program were finding initial funding sources and ensuring adequate professional development for the CTE teachers to be able to leverage the new resources in their work with students. The CTE teachers had a vision and worked passionately to realize that vision, and

they did so by partnering with other districts around the Pacific Northwest who were already working in the area of fabrication and design. Once the program got started and people both inside and outside of the district started to see the successes, then other funding sources started to appear because we were offering a deep and meaningful CTE experience for our students. Partnerships with other districts combined with Carl Perkins funds have helped to support the professional development needs of our CTE teachers; however, continued training is an on-going challenge and need, and the loss of the RADFAB program will be a major struggle for the state.

The CTE teacher's initial vision was that our Fab Lab would model real-world communication and project development skills that students will need when they enter the world of work, and they have been successful in realizing this goal. The CTE teachers have presented at statewide and regional conferences to share our story and enlist partners, and we have hosted training opportunities for both local and out of town teachers to learn how to implement design and fabrication projects with their students. Some of the more recent funding sources are designed to support this outreach to other districts interested in developing or expanding their Fab Lab programs. Currently, CTE teachers from around Alaska are participating in a Sitka-sponsored distance-delivered series of training sessions, and then in the spring the CTE teachers will come to Sitka along with some of their students for a hands-on opportunity to use the equipment. When faced with challenges, our CTE teachers partnered with others, and we continue to partner with other districts to help them overcome their challenges so that students everywhere can have the opportunity to learn with and through the design and fabrication process.

Please share a student success story related to your CTE program.

While still in high school, a student who was in the Fab Lab program was hired to collaborate with an inventor to design a product that is currently being manufactured. According to the student, this experience has inspired him to go to college to become an engineer.

How has your CTE program impacted the local community, especially connected to the workplace, future economic and labor market needs?

The Sitka School District recently completed a building expansion to support our CTE program. The contractor who was hired to build the CTE addition is a graduate of our CTE program who started a local contracting business. In addition, many of the employees hired by the contractor to build the CTE addition were also graduates of our CTE program. There are direct and indirect economic benefits to having a strong and relevant CTE program, and our CTE building expansion is one such example. (Watch a video of the expansion: <https://www.youtube.com/watch?v=ocUDvgKsOfA>.)

Our Fab Lab is an example of how our CTE program is aligned to meet future labor market needs. Through a combination of district funds, CTE grants from the Alaska Department of Education and Early Development, and Capital Improvement Project funds associated with the CTE building expansion, we have been able to secure a variety of CNC equipment giving our students a world class opportunity to gain skills that will carry them into their adult lives regardless of whether they choose a career or college pathway after graduation. Through the Fab Lab program, students are gaining skills they will need to be successful in life, which include but are not limited to communication, problem solving, collaboration, as well as the technical skills needed to produce a product. (Watch a video on the Fab Lab: <http://sitkaschools.org/domain/533>.)

The success of the Fab Lab has put a spotlight on the power of combining design with technology. As a compliment to the Fab Lab program, the Sitka School District has adopted Arts, Culture, and Technology (ACT) standards that are designed to bring context to the content standards, similar to how CTE provides the application and purpose for academic knowledge. A series of lesson plans are currently being developed that integrate the ACT standards into classroom activities throughout the district. Teachers who are creating the lesson plans participate in summer institutes to learn about arts, culture, and technology and how to integrate these areas into everyday classroom learning activities. One teacher shared the following reflection on his/her participation in a summer ACT institute:

“I am so grateful for this institute. It shaped a different, more engaged class for me last year, and with this added experience I feel I have a deeper depth of experience and am able to take it all a step further. I hope this institute continues on for every teacher in Alaska to participate who wants to see student improvement.”

Our focus on relevant student learning both through our Fab Lab and in our ACT work were factors that led to the Sitka School District recently being invited to be the first Alaskan district

to join the League of Innovative Schools. The League is a network of forward-thinking education leaders focused on improving outcomes for students. League districts are using technology and digital tools in ways that helps students explore, create, contribute, and learn. Seventy-three school districts in the nation are part of the League. To learn more, visit <http://www.digitalpromise.org/initiatives/league-of-innovative-schools>.

Has/have your CTE program(s) been duplicated elsewhere within the state and if so, where?

Through a series of professional development opportunities that we have provided to other teachers, including mini 3-D printers that are given out to teachers who participate in the training, Sitka High School's Fab Lab program has been duplicated at other grade levels in our district and in other districts in Alaska. These classrooms are not as fully-featured as our Fab Lab, as they lack all of the CNC equipment we have at Sitka High School. However, by collaborating with Sitka's high school students, students in remote classrooms are able to gain access to all of our fabrication and design equipment.

Is there anything else you would like to share that contributed to the success of your CTE program?

The Sitka School District benefits from having strong community partners who support our CTE program. These include, but are not limited to, the Sitka Conservation Society who secured the funds for our students to build a tiny house in our new CTE addition. Additionally, numerous local business and individuals, our Advisory Board members, and our local City administration and Assembly have contributed greatly to the success of our CTE program. The importance of having a school board who understands the value of CTE in all students' educational experience cannot be understated. The Sitka School District's School Board has demonstrated on-going and unwavering commitment to ensuring that our students are prepared to be successful in today's world, which includes tangible support for our CTE program. A special note of appreciation and thanks are due our Representative, Jonathan Kreiss-Tomkins, and our Senator, Bert Steadman for their support of education in general and specifically support for the value of CTE. For example, Senator Steadman has secured funding for enhancements to our physical plant over the years that were necessary for our CTE program to prosper, including but not limited to funding for our new CTE addition. We appreciate and honor the community spirit that lives within our CTE program!

If you are interested in learning more, you can contact Mary Wegner, Sitka Superintendent, at 907-966-1251 or wegnerm@sitkaschools.org. You can also contact Sitka High School's CTE Teachers directly: Mike Vieira (vieiram@sitkaschools.org) and Tim Pike (piket@sitkaschools.org).