

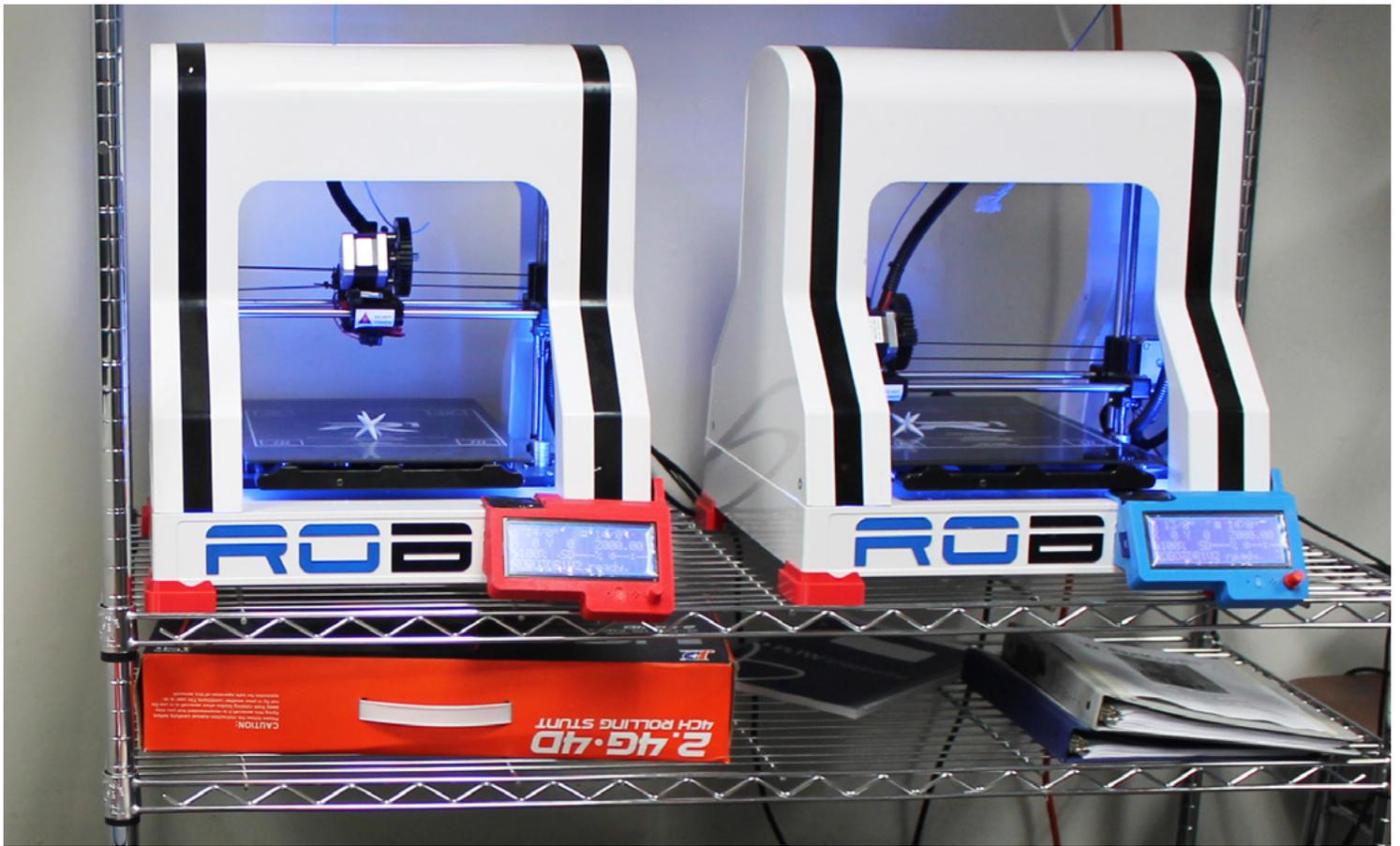
Education Case Study



How Robo 3D printers challenge and improve important aspects of education

Students at Joe Walker Middle School develop life skills and hone their creativity using Robo 3D printers in Project Lead The Way classes and VEX Robotics Competitions — all while learning how 3D printing technology plays a role in future career decisions

robo



3D printing **inspires** a better way to learn

As traditional classrooms evolve to support more STEAM-related subjects and activities, students need the necessary tools to thrive in this new approach to learning. By accessing and developing key skill sets through Robo 3D printers, students begin to understand important lessons about trial and error, problem-solving, patience and time management for a wide range of projects. It also gives them an edge as early adopters of 3D printing — providing them with newfound creative skills that translate to career success for future jobs within the fields of science, technology, engineering, design, mathematics and manufacturing.

Preparing **students** for the future

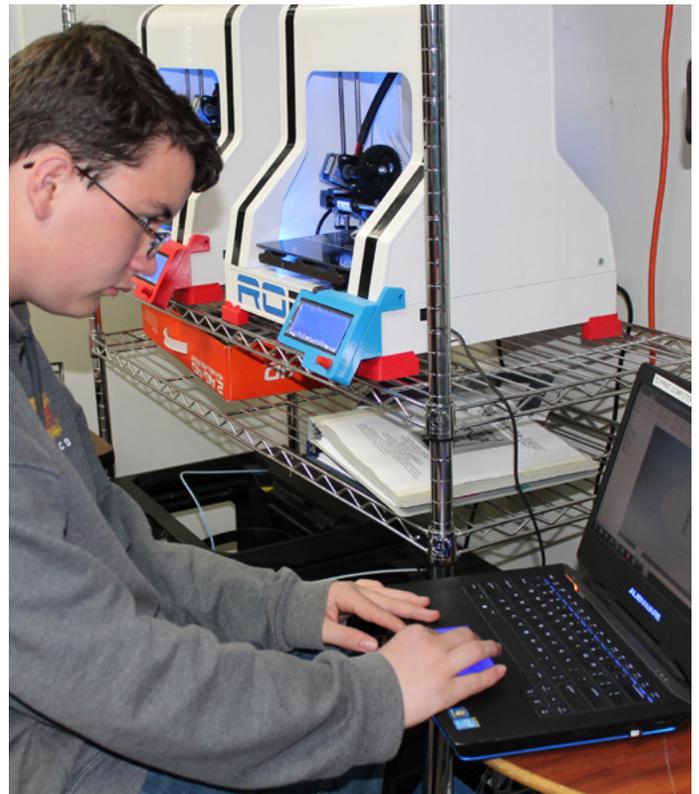
With more than 28 years of experience in the education field, Matt Anderson is passionate about helping his 6th – 8th grade students develop new skill sets to better prepare them for jobs of the future. Anderson does this by teaching Project Lead The Way classes and also serves as the Robotics teacher for VEX Competitions at Joe Walker Middle School in Lancaster, CA.

Project Lead the Way is a non-profit organization based in Indianapolis, Indiana whose mission is to prepare students in grades K-12 for the global economy by developing STEM curricula, while providing professional development training for instructors. Anderson has been a Project Lead the Way Master Teacher and VEX robotics teacher for the past six years. In the elective VEX robotics class, he prepares his students for the VEX Robotics Competitions that includes 17,000 teams from 40 countries playing in over 1,350 competitions worldwide.

Traditional **methods** need additional support

Prior to using Robo 3D printers in the classroom, Anderson used a more traditional approach and says his students struggled to correctly and efficiently measure objects as they relate to the lesson plan. He felt that these traditional methods had become outdated since and made it difficult for his students to become fully engaged in the lesson plans. He knew something had to change.

While reviewing education methods with other Project Lead The Way instructors one summer, Anderson noticed that they had a 3D printer listed as a purchase item. He knew that if he had to teach others about this new technology, he'd have to learn it himself. And if Anderson was this excited about learning how to incorporate 3D printers into his lesson plans, he was certain his students would be as well.



Providing **students** with tools to advance their skill sets

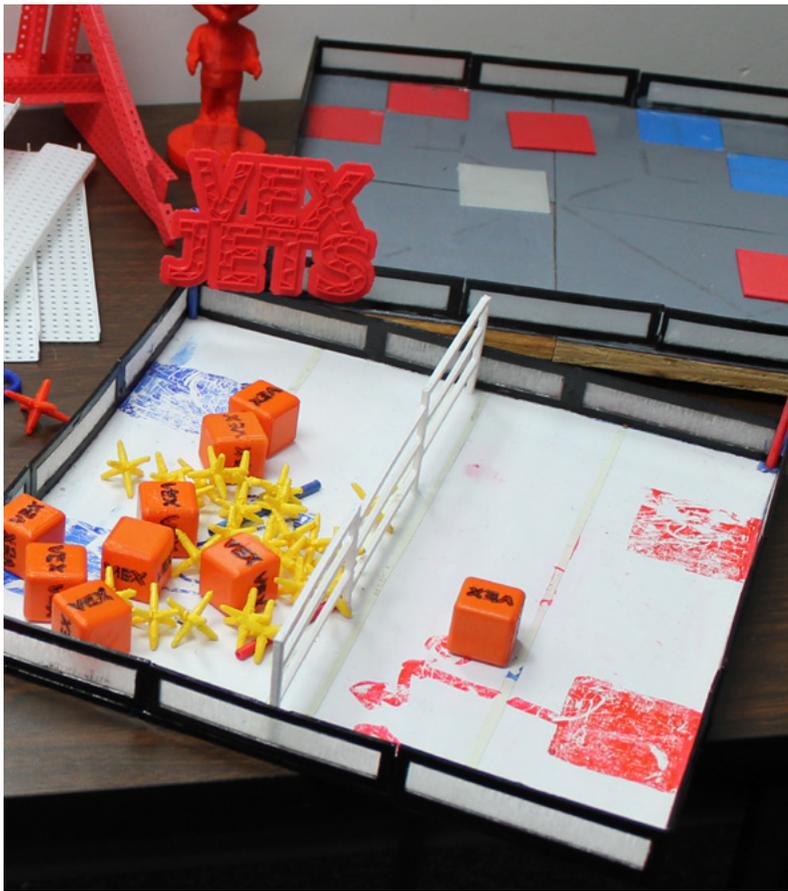
Anderson introduced Robo 3D printers paired with Autodesk Inventor software — a computer-aided design application for creating 3D digital prototypes used in the design, visualization and simulation of products — to his students to help them become more confident in their abilities to better execute the measurements related to their lesson plan.

He chose to implement two Robo R1 +Plus 3D printers in the classroom to teach aspects of the manufacturing process. He also uses the printers to build scaled versions of a robotics competition field to better explain game strategy to alliance partners, mounting a white board underneath the 3D printed field while students use markers to draw their game plan.

The students have gained experience designing with 3D modeling programs, which in turn gives them the edge on students not using 3D printers for future jobs in the real world.

– Matt Anderson

His Robo 3D printers also allow students to remake and print other parts and pieces (e.g. broken/missing pieces from classroom toolboxes, battery chargers and various equipment used in the robotics program) that are essential to their curriculum. He also found that the Robo 3D printers provide the best ease of use for him and his students.



Breaking barriers one print at a time

He also says that the 3D printed fields used at competitions even helped break down language barriers when his team partnered with another from Korea for the world championships. The Korean team members did not speak English, and using the scaled model playing field gave Anderson's team a means of communicating and collaborating with the Korean team on game strategy. It helped the students improve elements of their public speaking skills.

Anderson believes his Robo 3D printers have been excellent tools for teaching key basics about 3D printing, including extrusion speeds and filament exchange. He also enjoys watching how students learn new concepts through trial and error, and how certain failures are often their biggest victories in terms of project development.

Robo recommendations

Robo 3D printers give students the ability to learn in a more hands-on way, providing them with a tool that elevates critical thinking and analysis for subjects like math, science and more. Essentially, students are given a physical means to create the solutions they seek in real time.

And, given how Robo structures cost to ensure its 3D printers remain accessible to everyone while improving technology with each new product launch, more schools will see myriad benefits by bringing Robo products into their classrooms.

About Robo

Robo is the future of 3D printing, and that future is now — whose goal is to give makers of all ages and skills levels the tool needed to help turn their passion into a physical reality, as quickly and as easily as possible.

Founded in 2012 by a group of students from San Diego State University, Robo delivered its first model to customers in 2013. Since then, the company has grown into a leading brand in the desktop segment of the 3D printing industry

Robo is still based in sunny San Diego and continues to improve the total experience of 3D printing with its diverse range of products — most recently with the launch of the Robo C2 compact smart 3D printer with Wi-Fi and the Robo R2 high-performance 3D printer with Wi-Fi.

To learn more about Robo, visit www.robos3d.com