

Minnesota School's Fab Lab Is First in the Nation

Mahtomedi High School

Mahtomedi, Minnesota



TRANSCRIPT

Kathe Nickleby, Principal, Mahtomedi High School: Our engineering focus started back in 2005. A man, a retired community member, from 3M as an engineer, was passionate to bring engineering to the forefront of education

Dale Johnson, Retired Engineer: in my experience, and I believe it's true, engineers do things that make people's lives better. And at the same time, they provide the meaningful jobs that we need in our economy.

Matt Young, 6-12 Engineering Specialist: MIT had a program that they'd started a few years ago, kind of based off a course called "How to Make Almost Anything" I went through MIT's Fab Academy, the the Fab Foundation's academy in the spring of 2012, I believe it was their second or third class. I was actually the first high school the first teacher period to go through the program, and we are the first K 12 program period in the world to do the program.

Kathe Nickleby: So now all of our students are exposed to engineering and we also have, in grade 9, every student that walks through our high school has a course called science and engineering. And that's with the state engineering standards are embedded into the science curriculum.

Matt Young: From there, we've expanded to several other courses. We have a toy engineering course, we have an electrical course, bio-mimicry and modeling, we have an engineering capstone course and a fundamentals of engineering course just at the high school.

Colin Bergman, Senior: So my capstone project this year is an all-terrain drone. So it has motors and propellers under each of the flaps that will make it fly. And then the motors under the two flaps here interface with the wheels to make it spin the wheels so it can go along the ground. It kind of came from my own invention, I haven't seen anything like this that exists. I really wanted to go into capstone creating something new, something that wasn't really hadn't existed before. I really wanted to challenge myself, so I came up with the idea. It's actually inspired by a lady bug.

Matt Young: Toy engineering is a class where students who have already taken how to make almost anything can now move up to a higher level course. The real basis of the class is to teach mechanical engineering concepts through the vein of toys. So really focusing on how does a toy work. What does it do, and really learning the mechanical process behind toy design.

Jodie Tester, Intervention Specialist: Speaking to the engineering program for our students with disabilities, or any students that may struggle, the hands on approach for students gives them an amazing opportunity to learn in a different way. And often our students who struggle—sitting down at

a paper and pencil—it doesn't work for them. But being able to have that hands on approach and look at things differently, as I say, "outside the box"—what a great opportunity!

Jade Geiger, Senior: A lot of my friends were really curious why –why I was in the Fab Lab and I decided to create a girls in engineering club because I wanted to introduce them to that and to kind of get them as interested into it as I am. I have eight –consistently about ten—girls who come and we just kind of do projects that we want to do. They all come up to me and they say "Oh, I want to do this" and then I'll I help them through that with the computers and the software and the different machines that they want to use. My project started as a foldable bicycle and then I changed that to a foldable pedal Segway. And so what that is, is It's kind of like a trike without a seat

Courtney McCormick, K-12 Engineering Coordinator: Our schools provide rigor in all content. We have AP courses, college in the schools, honors, across all curriculum across all content areas so the rigor is everywhere. It's not just about the engineering program. It's about teaching our kids how to communicate, how to write, high level thinking in math, how to express themselves through the arts. It creates a whole student and it's looking at that holistic approach to sending out into the world the best graduate we can from Mahtomedi high school.