



Novi Woods Principal David Ascher works with students on assembling a hand.

Photo by Bill Roose/Novi Community School District



Stretchy string is threaded into a plastic purple-colored hand.

Novi Lends a Hand to Help People Around the World

e-NABLE volunteers hope to make 200 prosthetic hands by June

Designing and building 200 plastic hands in less than 10 months may seem like a daunting task to anyone outside the prosthetics industry.

But in Novi, a growing community of students, teachers, public employees, and families have come together to make hands for individuals in need around the world.

They're part of a global network of volunteers called e-NABLE that uses 3D printers and open source design files to make prosthetic limbs for those missing fingers, hands and arms because of congenital defects, war, disease and natural disasters. The hands, made of plastic filament, cost \$20-\$50 to make, depending on their design. Recipients, mostly children so far, get them for free.

Worldwide, e-NABLE volunteers have delivered approximately 1,800 hands to children since the online community was started in 2013. Novi's contingent of e-NABLE volunteers is on track to design, 3D print and assemble 200 hands by the end of the school year in June.

"I think we'll be able to reach that goal," says Fenton Lawler,

a Novi High School senior and member of the school's robotics team, Frog Force 503.

Each hand consists of several pieces, printed using plastic filament, that must be assembled to form a working hand. Stretchable string is added to make the fingers open and close. Lawler likens the process to creating with Legos.



These Novi students understand the precise detail needed to create the perfect hand.

Spreading love

Novi's involvement with e-NABLE started a few years ago when Frog Force 503 members learned to print and assemble hands with the help of a mentor from the University of Michigan.

"We did quite a bit back then, but when those seniors left, the project died with them," Lawler said.

The team revived the project in January 2017, and ramped up its efforts after Lawler and teammate Kirsten Anderson met e-NABLE's founder at a world robotics competition.

The encounter inspired Lawler, who realized that e-NABLE is as much about "spreading love and giving back to the community and helping people," as it is about making prosthetic hands.

"At that point we probably had 10 hands printed and at that



Photo by Bill Roose/Novi Community School District

Novi students work together on a prosthetic hand that will help someone in need.

time I started planning what I wanted to do – move the scope of the project,” Lawler said. “I had ideas to do stuff at the elementary schools, because every school in Novi has a 3D printer.”

Community effort

With the help of Lynette Curtiss, a friend of Lawler’s mother, he and Anderson approached Julie Farkas, Novi Public Library Director, to talk about involving the community in the cause.

“I have a big heart, but when a high school kid can sell you on something and show such passion for what he believes, it’s a big deal,” Curtiss says. “When we walked out of the library that

day I said to the kids, this is going to be huge.”

She and Lawler printed pieces for the hands and forearms during the summer before school was back in session. Depending on the design, some prosthetics take five to 12 hours to print. Curtiss, a mechanical engineer with two children in the district, plans to continue working with the project, even after Lawler graduates.

Farkas describes the program as a “win-win” for everyone involved.

“We have a partnership with the library, the school district and the community,” Farkas says. “These kids are absolute geniuses. They have amazing hearts and the gift of love. It’s all coming from them. I’m just offering an opportunity for the public to get involved.”

Farkas is taking the steps needed to establish the library as an e-NABLE chapter, which will make it easier for volunteers in Novi to accept requests for custom work, in addition to making prosthetics in standard sizes. Chapters also are identified on e-NABLE’s online map.

Registration filled up fast for the library’s first hand assembly day in December, giving community members of all ages a chance to build a hand. Farkas hopes to schedule another in the spring.



Second grade teacher Carly Musa watches Parkview Elementary school student Elyse Jones try on a hand.

Ready to join Novi’s e-NABLE effort?

- You can donate to the program by making checks out to the Novi Public Library and writing e-NABLE project in the subject line. As little as \$5 buys hand supplies. A \$30 donation pays for a spool of filament. For credit card payments call the library’s administration office at 248.869.7204.
- Robotics teams and 3D enthusiasts can work with Frog Force Team 503 to design and assemble custom hands. Sign up by filling out the Enabling the Future brochure, available online at novilibrary.org, and return it to the library.
- Build hands at a community event. The public library had a waiting list for its first assembly day in December. Individuals and families signed up to build one hand each during the four-hour workshop. More assembly days are planned in 2018.

Students teaching students

Meanwhile, fourth graders at Parkview Elementary and at Novi Woods, have assembled approximately 50-55 hands during the first half of the school year. The goal is to expand the program to all fourth grades.

“Ultimately we’d like to see fourth graders continue to take the lead and then pair up with a second-grade class,” says Jenifer Michos, Parkview principal. “We would want the second graders to come in and help the fourth graders build the prosthetics.”

Samantha Chu said her class at Parkview made chess pieces and puppets on the school’s 3D printer last year. Now she’s helping other children around the world.

“My mom said it’s pretty cool that we could make hands for people who need them,” she said.

Her classmate, William Lindsey, looks forward to mentoring second graders.

“We’re really enthusiastic about the idea that our students are working, thinking together. We are emphasizing leadership and influence,” Michos says. “Some day they are going to be leaders in the world.”