

APPRENTICESHIP

Students Get a Taste of Lab Machinist Work

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Lauren Graham, a junior at Foothill High in Pleasanton, wanted to be an engineer ever since she took a class in eighth grade. Still undecided about her precise career path, she is trying to expand her knowledge base and learn about all aspects of manufacturing. After seeing the many milling and welding machines, lathes and precision tools used at [Lawrence Livermore National Laboratory](#) (LLNL), and learning about the process and teamwork that go into making a part, Graham said she's considering becoming a machinist.

"I never really thought about how they made parts before. I thought it was interesting that a lot of it is done by hand. It's not just robots doing the same thing over and over. There's more thought that goes into it," Graham said. "It made me understand how people are involved in the process. It really shows how you can have any career you want. If you don't like a specific part of engineering, there are so many different sub-categories. It's good to see your options."



High school students learn from veteran machinists about how the lab machines work and the design-to-manufacturing process on an interactive tour of Lawrence Livermore National Laboratory manufacturing facilities. (Photo courtesy of Lawrence Livermore National Laboratory)

Graham was one of 27 students from schools across the Bay Area and Central Valley who attended LLNL's first-ever Manufacturing Workshop for high school students. During the workshop, which ran from July 9-11, students received experience with state-of-the-art tools and hardware used by Lab machinists and engineers. They were also able to learn from veteran machinists and graduates of the LLNL's machinist apprenticeship program about how the machines work, the design-to-manufacturing process, and the future of manufacturing through talks and interactive tours of the lab's manufacturing facilities.

The free workshop received overwhelming demand from local high schools, receiving nearly 80 applications from students to attend. LLNL manufacturing engineering superintendent Pete Schoenenberger, who organized and led the workshop, said he was pleased to see the students interact with current LLNL machinist apprentices and have the opportunity to allow the students to witness real-life machining operations.

"On the tours, they saw some things that they've probably never seen before and that's exciting," Schoenenberger said. "I could see the wheels turning. That's the whole idea behind this."

Over their three days onsite, students were introduced to the machinist apprenticeship program, one of the most highly-regarded programs of its kind in the state. Many apprentices go on to secure full-time jobs at LLNL. Mike Prokosch, who started as an apprentice and became a machinist then moved onto management and recently retired from LLNL as a section leader in manufacturing, serves on an advisory committee for local high schools and junior colleges.

He participated in the workshop, leading a tour of the Lab's machine shop and presenting a talk on the importance of teamwork in manufacturing. Prokosch said he didn't know what he wanted to be when he was in high school, and he hoped the workshop would raise the students' awareness about manufacturing and stoke a passion for it at an earlier age.

"We realized that a lot of students or potential apprentices were unaware of the pathway into the manufacturing trades," Prokosch said. "We recognized at the junior college level, where we were focusing it was already too late, so we decided we needed to kick it down one level to the high schools, and help juniors and seniors be more aware of the career pathway and their opportunities."

The workshop concluded on July 11 with a ceremony where the students were presented with certificates for participating in the program. Schoenenberger said he was surprised to have 100 percent of the students attend all three days. Following the workshop, Schoenenberger said he was approached by several of the students who asked detailed questions about the next step to pursuing a career in manufacturing.

"The workshop far exceeded my expectations," Schoenenberger said. "The kids interacted well with each other and everyone involved. They were actively engaged in conversations with journeyman machinists as well as current apprentices while touring the lab's machine shops. It took a lot of people to make this event successful and to all of them I am very grateful."