

# Made in the USA: Manufacturers Look for Skilled Workers

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For many people, a job in manufacturing calls to mind dusty factories and long assembly lines offering hours of repetitive, boring work. Yet despite persistent stereotypes, much has changed in the U.S. manufacturing sector, opening up a new world to today's math- and technology-minded students.

“Over the last 20 years, manufacturing has changed dramatically. Most of the low skilled and unskilled positions were either eliminated through automation or moved overseas in search of cheaper labor,” says Gardner Carrick, vice president of The Manufacturing Institute, an affiliate of the National Association of Manufacturers. “The jobs that remain in the U.S. are both high skilled and high tech. When you look at today's manufacturing companies, you'll find most employees working with computers and using complex equipment.” Carrick and others in the industry are gearing up for National Manufacturing Day on October 5.

## Half a Million New Jobs

While in past years, much manufacturing business shifted overseas to Asia, Carrick says that some of the business is coming back to the U.S., especially the more advanced manufacturing processes. He cites higher labor costs in Asia, prohibitive shipping costs and an inability to make quick product changes as main reasons for the drive back to the United States.

In the last several years, the manufacturing sector has added half a million jobs in the U.S. According to the Manufacturing Institute, 600,000 jobs are currently open. Oftentimes, these jobs require specific skill sets, and companies have trouble finding individuals who fit the need.

One organization seeking to bridge the gap between the number of available manufacturing jobs and the number of individuals qualified to take those jobs is “Project Lead The Way” (PLTW), a provider of science, technology, engineering and mathematics curricula to 4,700 middle and high schools across the U.S.

“PLTW's mission is to prepare America's students for the global economy. As American companies are increasingly looking to hire American workers, we want to prepare students with the appropriate skills to ensure that companies can

find the talent they are looking for right here at home,” says Jennifer Cahill, director of communications. For individuals looking to carve a niche in manufacturing, Cahill says that nurturing technical skills, problem-solving ability, critical thinking and team building skills are all important components of high school-level coursework.

PLTW coursework has served as a jumping off point for many students, who have built upon that foundation through further education and now hold positions at leading U.S. manufacturing locations.

Chad Bayer, a participant in PLTW programs in Fairmont High School in Ohio as well as a recent graduate of Sinclair Community College and the University of Dayton, was hired in June as a manufacturing engineer and Six Sigma specialist for Harbison Walker Refractories, a high-end ceramic manufacturer involved in multiple industrial applications. He is currently receiving training at its Pittsburgh, Pa., location, with plans to locate permanently to Windham, Ohio.

Learning manufacturing skills in high school “set me up for greater success,” says Bayer. “All products in the world are produced by some sort of machine. Understanding the fundamentals in manufacturing and how machines and mechanisms work is crucial in this century because technology changes so rapidly. The equipment will become more advanced, but the principles stay the same.”

Bayer also learned soft skills in PLTW classes that he hadn’t learned elsewhere. “I remember the first day of class, [my teacher] told [us] that each person had to perform the research and show technical understanding of the topic before he would help us. This, in itself, prepared me for my career because it taught me to be self-sufficient.”

### ***How It’s Made and Myth Busters***

These skills pay dividends in the workplace. Daniel Miller, who studied PLTW curricula at Cazenovia High School in New York and went on to graduate from the Georgia Institute of Technology with an industrial engineering degree, sees the vast employment opportunities for students who are specially trained. He is currently employed as an industrial engineer for the Rock Island Arsenal in Rock Island, Ill., a government-owned weapons manufacturing facility. “Engineering jobs are in high demand and could be a solution if students have a great interest in the field. Not just engineering, but manufacturing jobs in general –including welders and machinists — are highly sought after. Someone who wants to be more hands-on can pursue vocational training or an apprenticeship,” Miller says.

Within the manufacturing sector, the career path can vary widely, crossing a number of industries and job responsibilities. Richard Budnar’s manufacturing interests led him to pursue aeronautical and mechanical engineering at Clarkson University. Budnar, also a graduate of Cazenovia High School, was hired two months ago as a process engineer with 3M in Aberdeen, S.D., where he works on the manufacturing floor to make sure machinery and manufacturing processes run to par.

Budnar was first attuned to manufacturing in seventh grade, when middle school students were shown technical projects completed by high school PLTW students. “I really enjoyed math and science, and the presentations piqued my interests. I decided to take one class — Design and Drawing for Production. I enjoyed it so much [that] I decided I would take all of the PLTW courses my high school offered.”

While a manufacturing career is a great fit for some, it is not for everyone. Budnar jokes, “The types of students who would be most successful in this sector would be those who DVR the shows *How It’s Made*, *Modern Marvels* and *Myth Busters*. On a more serious note, the most successful students would enjoy any of the following: being challenged to think outside the box, solving problems with no right answer, knowing how things work and knowing how things are made.”

## Questions

What types of manufacturing jobs are coming back to the U.S. from Asia, and why?

Why might it be valuable to learn manufacturing skills in high school, other than improving your job prospects?

How has your image of manufacturing jobs changed after reading this article? How might you describe the new era of manufacturing?

## Related Links

- [Bloomberg BusinessWeek: Worker Shortage? Teach Teens Manufacturing Skills](#)
- [The Manufacturing Institute](#)
- [National Manufacturing Day](#)
- [Community Colleges Grow and Improve Manufacturing Training](#)
- [Skills USA](#)
- [Skills for America's Future](#)