

## Is Your Child Ready to Build the Future?

GRADES  
9-12

### Background

Did you know that, by 2030, 77% of skilled baby boomers will have left the workforce? Did you also know that advanced manufacturers use innovative processes that involve exciting technologies in robotics, 3D printing, and augmented reality? Most young adults are not familiar with advanced manufacturing, and some adults are not aware of the innovative shifts manufacturing has taken over the past few years or the variety of technical careers.

Economic growth depends on manufacturing growth. The future of U.S. Manufacturing relies on a skilled, talented workforce, and educating young adults about the diverse opportunities available to them in advanced manufacturing.

If your child is interested in building the future, advanced manufacturing provides many career opportunities for them to explore and pursue!

### Start

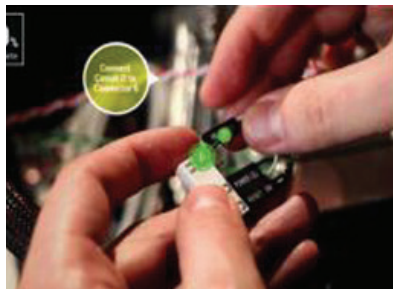
Ask your child if he or she has learned about manufacturing in school or is familiar with the term. Ask: What does it look like? How are things designed and made? What types of careers might be involved in making a product?

Explain that, at one time, the word “manufacturing” might have made us picture dark factories crammed with people assembling products. It should now bring to mind images of innovation and collaboration of people working to build the future. The average salaries of manufacturing workers make more than \$77,000 a year.

### Discuss

Your child might be interested in the innovative technologies with which modern manufacturers work. These include technologies such as rapid prototyping, robotics, and augmented reality.

Rapid prototyping, also commonly called 3D printing, is a method used to accelerate the innovation process. This type of additive manufacturing builds objects layer by layer. This technique can quickly fabricate a scale model of a part or assembly using three-dimensional computer aided design (CAD) data.



Today's robots work with or beside people to extend or augment human capabilities. Along with increasing productivity in the manufacturing sector, today's robots assist with dangerous missions, help scientists accelerate discoveries; and improve our safety and well being. Looking into the future of manufacturing, Augmented Reality (AR) is already evolving to be a mainstream experience making a presence in publications, games, news, medicine, military, and advertising. The basic idea of augmented reality is to superimpose graphics, audio and other sensory enhancements over a real-world environment in real time. Ask your child to consider how these technologies help manufacturers solve real world problems. How could 3D printing be used in fashion? How could robotics be used on another planet? How could augmented reality be used to locate an item in a warehouse?

## Organize

Use the table below to organize your child's interests in the five main characteristics of manufacturing careers. Your child can rank each characteristic by checking if they are very interested, somewhat interested, or not at all interested.

Next, share potential careers from the table below that align with characteristics that most interested your child. Ask your child to identify one or two careers they would like to learn more about.

		Very Interested	Somewhat Interested	Not at all Interested
<b>Design and Engineering</b> What do I want to make? How do I make it?	Advanced manufacturing occupations include materials analyst, robot technician, assembler, plant accountant and design engineers.			
<b>Materials Science</b> What are things made of?	Advanced manufacturing occupations include materials analyst, design engineers, materials analyst, and machinists.			
<b>Process Technology</b> How are things made?	Advanced manufacturing occupations include materials analyst, robot technician, assembler, plant accountant and design engineers.			
<b>Quality</b> How can this product make a difference?	Advanced manufacturing occupations include green careers industrial engineering technicians, manufacturing engineering technologist, and manufacturing engineers.			
<b>Management</b> How do I get this product to consumers? (supply chain, sales, process chain/instructions writing)	Advanced manufacturing occupations include chief manufacturing executive, chief quality control executive, facilities manager, and plant operator.			

## Next Steps

Once your child has identified the two or three jobs that are most appealing, suggest that he or she engages in additional research using [Careers.org](https://www.careers.org). Encourage your child to speak with someone in the profession or help him or her network by reaching out to a local business. Then, consider working with your school counselor to learn about the right courses to take to help your child best prepare for a career of interest.