Exploring Engineering Careers: A Family Toolkit

As your child starts to think about life and work after high school there are two pieces of information you need to know:

- Parents (especially moms) are the key influencers of what career their child chooses to pursue.
- 95% of students who graduate with an engineering degree find a job right out of college.[1]
- Students who start thinking about college in middle school and early high school are more likely to go to college.

What Is Engineering?

Engineers are changing the world all of the time. They dream up creative, practical solutions and work with other smart, inspiring people to invent, design, and create things that matter.

Career Outlook

Engineers and Technicians are among those who graduate from college and find jobs quickly and easily. And they are well paid too. New engineers—those who have just graduated from college—were among the highest paid in the class of 2013, averaging a $62,535 annual salary[2] And it doesn't stop there. Over the course of a lifetime, engineering majors will earn 1.4 million more dollars then a liberal arts major[3].

Education Options

Whether your child is heading toward a two-year technical degree or a four-year engineering degree, there are countless education options. Read "Pathways to Engineering" for more information.

Conversation Starters

Most young people don't know an engineer or what engineers do. Use the following set of questions with your child to start exploring a possible future career in engineering.

Question 1: What kind of impact do you want to have on the world?

You can start the brainstorming by asking them, do you want to:

- help people stay healthy?
- make it easier for people to connect?

- make sure people have enough to eat?
- keep the planet healthy?
- help us be better prepared for natural disasters?
- keep people entertained?
- How else do you want to make a difference in the world?

Talk with them about how engineers are at the heart of medical breakthroughs. Engineers are the creative drivers behind movie special effects and virtual reality games. How engineers work in teams to design engines that emit less pollution. If your child is interested in making a difference in the world, engineering is a great choice as it gives them the skills and expertise to impact thousands of lives every day.

Question 2: When you've worked on a project (at home or at school), what were the types of things you did and which ones did you like to do? If they have trouble answering this question, tell them what you like about your work (i.e., I like working on a team project, I like organizing my co-workers, etc.).

Does your child's list cover any of these:

- Using their imagination to solve problems?
- Teaming up with other people?
- Designing ways to make something better?
- Organizing a group of people or process to get things done?
- Travelling to new places?
- Being challenged in new and interesting ways?
- Working on big, complex projects?

These are all hallmarks of how engineers do their work. Understanding how you like to work is important to consider when exploring a future career.

Question 3: Is there an area you are interested in or considering?

Make a list of the different areas your child is thinking about. In most cases, a degree in engineering is an excellent path to many careers—lawyer, doctor, business person, or teacher. In many of the fields your child may be thinking of engineers play a critical role. For example:

- **Medicine**
  Biomedical engineers develop artificial lenses that restore sight to the blind, radiation treatments that fight cancer, or incubators that keep premature babies alive.
- **The Environment**
  Environmental engineers find ways of cleaning up our oceans, rivers, and drinking water, developing air pollution equipment, designing more effective recycling systems, or discovering safe ways to dispose of toxic waste.

- **Food**
  Agricultural and biological engineers design methods of keeping harmful microorganisms out of our food supply, create innovative systems for growing fruits, vegetables, livestock and fish, or help developing countries preserve more of their harvested grain against insects and mold.
- **Fashion & Entertainment**

  Computer Science engineers develop cutting-edge music software, create shopping apps that helps customers choose styles—and then recommends matching accessories, and where to buy them, or produce a digital set design program that adds virtual actors to the set and shows how all the elements interact.
- **Entrepreneur & Business**
  Engineering is a great platform on which to build a successful career in business. For example, mechanical engineers are often referred to as the general practitioners of the engineering profession, since they work in nearly every area of technology, from aerospace and automotive to computers and biotechnology. While industrial engineers organize people, places, equipment, and information, ensuring that complex and large-scale systems operate safely and efficiently.

For more information about different types of engineering go to www.discovere.org.

Question 4: What characteristics do successful engineers have?

Many people have outdated views about who becomes an engineer. Explain to your child that there is no one "type" of person who becomes an engineer. Engineers . . .

- are creative and imaginative
- like collaborating with others
- are curious and persistent
- want to make a difference
- like solving problems or improving processes

As you go through this list, are you and your child surprised that "excels at math and science" is not on this list. While it's important that engineers have a solid background in math and science, ultimately, the best engineers are people who use their communication skills, imagination, and analytical abilities to invent, design, and create things that matter.

Does your child have learning differences or a physical disability? Don't let this stop them from considering an engineering or technical career.

Continue to Explore Engineering

The following ideas will give your child a chance to continue exploring engineering. Whether they have five minutes or five months, they'll learn more about themselves, refine their goals, gain a richer perspective about the world of engineering, and maybe even boost their college applications!

1. Do you or your parents know an engineer or technician? Schedule a time to talk to them and ask:

- What kind of projects do you work on?
- What do you like about your job?
- What do you wish you knew about engineering before you started in this career?

2. Visit a science museum or go a local engineering event. Visit www.discovere.org and look at our event calendar to find an event near you.

3. Does your school offer any engineering or technology classes? Talk to your guidance/career counselor or science teacher and ask what classes they'd recommend.

4. Look for a summer engineering camp. Many universities and colleges offer one or two sessions and some even have summer long programs. In addition to learning more about engineering, this is a great way to check out possible schools.

5. Talk to your guidance/career counselor about internships or apprenticeships. These opportunities are a great way to try on a potential career.

Learn more about engineering at www.discovere.org.

[1] http://career-advice.monster.com/job-search/company-industry-research/2013-engineering-jobs-outlook/article.aspx
[2] National Association of Colleges and Employers, Job Outlook 2013
[3] The Boston Globe, Best Places to Work, 2012