

Career Readiness



The STEM pathway is an amazing way to get ready for your future, and a career in that field that really interests us is Aerospace Engineering. Aerospace Engineering is an amazing way to put the skills we learn to good use, we are helping build the shuttles that may one day take us to other planets, and bettering transport across the world. Vex IQ is giving us the chance we need to prepare so we can one day get into Aerospace Engineering. As this field is growing faster and faster, we'll be lucky to have been part of this program, as it's setting us on our path to our future.

Vex IQ uses many of the Engineering principles that are a major part of Aerospace Engineering. In the program we use the Engineering Process, which as stated is “designing a solution, building a prototype, and testing and refining the prototype” (1) That of course is how most engineers make their ideas come to life, and the base of most of the work an Aerospace

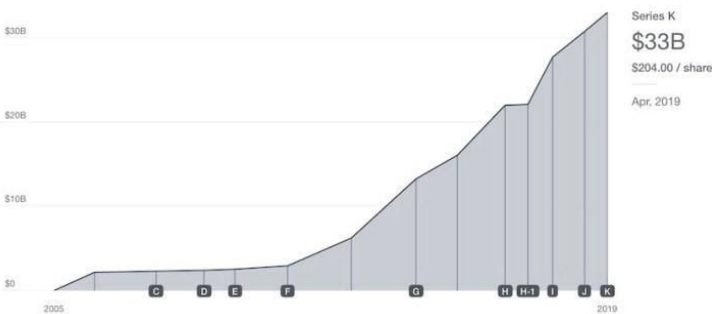
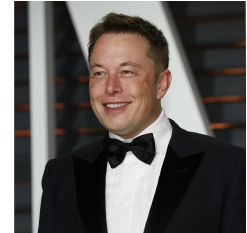


Engineer does. “An aerospace engineer designs, tests, and manages the manufacturing of aircraft, spacecraft, satellites, and missiles.” (2) Another process that this program is preparing us for is building in components. When we build our robots, we break them down into components and work on them separately, then we put them all together to complete

the robot. Aerospace engineers use this method in a grander scale to build all of their designs, from planes to space shuttles. “An airplane comprises a number of major components, such as

fuselage, wings, empennage, undercarriage and one or more engines. Each and every one of these components consists of thousands of small parts. The smaller parts are constructed individually and then put together” (3) Those are some of the many ways Vex IQ is preparing us for Aerospace Engineering.

Aerospace Engineering has already shown it can be a fantastic career, as it has helped bring up one of the most well-known billionaires of recent times, Elon Musk. A way he has inspired us to learn more about this career path is how successful he has become from working in the engineering field, for example a company he founded, SpaceX, is now valued at \$36 Billion Dollars, which shows how successful you can become through Aerospace



Engineering.

“SpaceX, Musk's rocket company, is now valued at nearly \$36 billion.” (4) Elon Musk was not born rich, he had to work hard to achieve his success. “Amid an often difficult childhood, Musk developed a relentless work ethic (he is known to work as many as 80 to 100 hours per week) and a

tenacious single-minded vision” (5) Elon Musk is also an innovator and entrepreneur in several different fields, he has founded SpaceX, Paypal, and Tesla. He is always looking towards the future which has also helped him get to where he is today. “Innovator. Disruptor. Game-changer. These words are synonymous with Elon Musk. How else can you refer to the man who founded Paypal, SpaceX and Tesla?” (6) Elon Musk is proof that experience in Aerospace Engineering can pay off and help make you one of the most successful people on the planet.

Aerospace Engineering is a challenging job, so you would need many different skills and



experience to get a job in that field. Usually, most people who want to become Aerospace Engineers should have at least a bachelor’s degree in Aerospace Engineering, or other types of engineering and science degrees. “Aerospace engineers must have a bachelor's degree in aerospace engineering or another field of engineering or science related to aerospace systems” (7) Aerospace Engineers would need to have strong Writing, Math, Analytical, Business, and thinking skills to really excel at their job.

“Aerospace engineers typically possess the following skills: Analytical Skills...Business

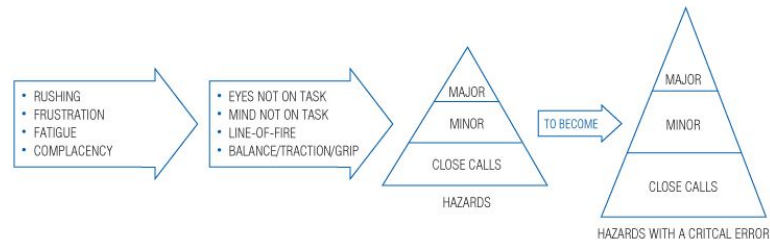
Skills...Critical Thinking Skills...Math Skills...Teamwork...Writing Skills” (8) There are many skills that an Aerospace Engineer will need to succeed, and we need to start preparing if we want to get into this job.

Many of the skills we need for Aerospace Engineering we will learn through VexIQ. A skill that will help us when we become Aerospace Engineers is knowing how to take it slow. What this means is to never rush anything, as stated in this article, “Rushing to get our jobs done can result in injury to ourselves and those around us.

Statistics from one insurance company show that 92 percent of the time, the reason accidents occur is because workers aren't doing their tasks properly.”

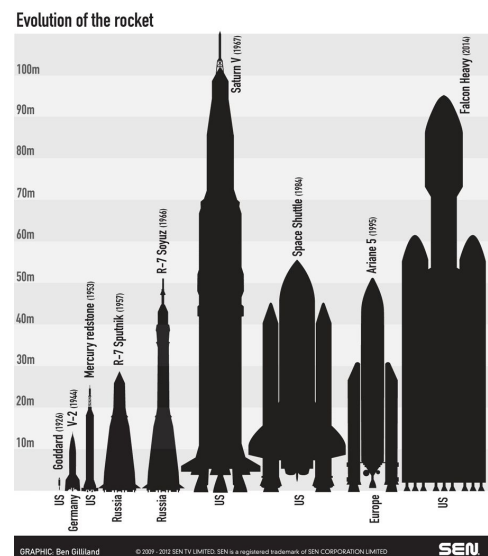
(9) I learned this during a prior competition because my team and I finished a robot in 3 days, and when we tested it, it only drove forward, so we rebuilt it slowly to not make the same mistakes. Another of the many skills VexIQ teaches us that we'll use in the future is teamwork. Whenever we do anything, we have our team members by our side, we help and learn from each other to do the best work we can. That is the reason we succeed, and a very important skill we'll need to learn if we are ever going to get into Aerospace Engineering.

STATES cause **ERRORS** which cause **LESS RISK** to become **MORE RISK**



Aerospace Engineering like any other job will grow with time, and these are some of the ways it will evolve in 10 years. As stated here, “Employment of aerospace engineers is projected to grow 2 percent from 2018 to 2028, slower than the average for all occupations.

Growth in research and development activities will be tempered by a projected decline in employment of aerospace engineers in the manufacturing industry.” (10) The field is lacking some projects to work on, but nevertheless it is still a promising job due to the growing field of space exploration. There are still hundreds of inventions that we may invent someday, and many more projects that may come in the future. As an Aerospace Engineer, we will have countless opportunities to help better travel and to push humanity to the next frontier. As stated here, “The median annual wage for aerospace engineers was \$116,500 in May 2019.” (11) So, we will be paid more than enough for the challenging work and that number will keep growing. With all



of the skills we've learned from Vex IQ, and the future that this program is pushing us towards we will all have a chance to become Aerospace Engineers, and we're grateful for that. Aerospace Engineering has always looked like an amazing job, and I'm glad we had the chance to explore it.

VEX IQ Online Challenge Career Readiness

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Bibliography:

- 1** Holmes, Brian. **Using a Makerspace Effectively.**
Academy of Aerospace and Engineering, November 6, 2016.
- 2** careereexplorer.com. **What does an aerospace engineer do?**
CareerExplorer, 2020
- 3** Aviation Facilities. **Aircraft Construction: How are airplanes made?**
Oxford Saudia, December 04, 2018
- 4** forbes.com. **Elon Musk.**
Forbes, 2020
- 5** Blystone, Dan. **How Elon Musk Became Elon Musk.**
Investopedia, March 4, 2020
- 6** Youshaei, Jon. **Elon Musk's 10 Secrets To Success.**
Forbes, March 6, 2018
- 7** collegegrad.com. **Aerospace Engineers: Jobs, Career, Salary, and Education Information**
CollegeGrad, 2020
- 8** Wind Energy Technologies Office. **Career Map: Aerospace Engineer**
Office of Energy Efficiency and Renewable Energy, 2020
- 9** linux.geodatapub.com. **The Dangers of Being In a Hurry**
GEMPLER'S Tailgate Training Tip Sheet, 2009
- 10** bls.gov. **Aerospace Engineers**
U.S Bureau Of Labor Statistics, April 10, 2020
- 11** bls.gov. **Aerospace Engineers**
U.S Bureau Of Labor Statistics, April 10, 2020

Pictures:

- 12** Clarke, Chris. **Watch A Fabulous Time-Lapse Of Boeing Building The Dreamliner**
Aviation Buzzworld, October 9, 2015
- 13** Hutchins Kathy. **Elon Musk**
Shutterstock, 2020
- 14** forgeglobal.com. **SpaceX Valuation**
Forge, April, 2019

15 Kgoimo, Mokgethwa. **THIS-CERTIFICATE-IN-AEROSPACE-ENGINEERING**
My Certificate, March 9, 2014

16 Wilson, Larry. **Dangerous States of Mind**
SafeStart, May 2001

17 Gillard, Ben. **Evolution of the Rocket**
SEN TY Limited, 2012