



# Space Challenge

## Q&A

### **What is the Base 11 Space Challenge?**

The Base 11 Space Challenge is a \$1 million+ prize for a student-led university team to design, build, and launch a liquid-propelled, single-stage rocket to an altitude of 100 kilometers (the Karman Line) by December 30, 2021. Launch competitions will be held at Spaceport America in New Mexico.

The Challenge will feature annual competitions where students reach milestone achievements during the development of liquid-fuel rockets, including design, static testing, and smaller pop-up innovation challenges. The biggest purse, which is fully funded, is the \$1 million space launch prize.

### **Why was the Challenge created?**

The mission behind the Base 11 Space Challenge is to dramatically increase the science, technology, engineering, and mathematics (STEM) talent in the United States with greater representation and inclusion of women and minorities, while empowering the future workforce with the education and skill-training necessary for jobs in the aerospace and related industries.

### **Why is spaceflight important to improving STEM?**

Space launches, including the dramatic recent launch of SpaceX's Falcon Heavy, continue to captivate imaginations around the world to dream of realizing a New Space Age. Space exploration is critical for our civilization to survive and thrive beyond the 21st century. The opportunities are endless, but we are faced with a huge problem: a STEM talent gap crisis. There are simply not enough qualified engineers and computer scientists in the pipeline to fill the growing demand of US industry and government.

### **How is the Base 11 Challenge different from other programs?**

A \$1M+ prize is a significant incentive for universities to bolster their rocketry programs for students to learn more than the theory of liquid propulsion systems. The Base 11 Space Challenge is supported by universities, industry, government, and individual donors, mentors and volunteers, interested in increasing underrepresented groups in the aerospace and related industries. Student participants will develop skills and real world experience in industry level safety protocols, systems engineering, propulsion, electronics, bench testing, computer aided design (CAD), navigation, flight regulation, diversity and inclusion, business development, teamwork, and innovation.

## **How will students learn about the Challenge and where do you sign up?**

The Base 11 Space Challenge is being hosted on the **HeroX prize platform**, a spinoff of the XPRIZE. The platform, located at [Herox.com/spacechallenge](http://Herox.com/spacechallenge), will host applications, detail annual competitions and prizes, provide an online forum for competitors to ask questions and seek advice, help corporate mentors connect with teams, and direct teams to mandatory safety training and other requirements throughout the challenge.

## **When does registration open?**

The Base 11 Space Challenge will be publicly announced on June 6, 2018 and teams must register by October 2018. Teams will be encouraged to focus on achieving diversity and be inclusive in their membership make up as both a competitive advantage and to feed the STEM pipeline to meet the needs of industry.

## **How will the challenge address diversity and inclusion?**

Base 11 is a nonprofit STEM workforce and entrepreneur accelerator on a mission to solve one of the country's greatest problems: the growing science, technology, engineering and mathematics (STEM) talent crisis, fueled by the underrepresentation of women and ethnic minorities. By solving this problem, we can also establish a sustainable middle class inclusive of *all* Americans.

The Base 11 Space Challenge enhances the STEM talent pipeline and supports inclusion by requiring university teams to strengthen their own talent pipeline. By partnering with local community colleges, high schools, and nonprofits to share outreach activities, teams can engage and ultimately recruit more diversified talent to enhance and sustain their teams over the four-years of the challenge and beyond.

## **How can I get involved if I'm not a student?**

There are opportunities for everyone to get involved. Companies can join the Base 11 Space Challenge as sponsors by providing funding, materials, facilities, or expertise to support the teams. Individuals can volunteer their time as mentors for teams or make financial contributions.

## **Why is the focus only on liquid fuels?**

Currently, the commercial space industry, including SpaceX and Blue Origin, use liquid-fueled engines, yet most existing student rocketry programs focus on solids or hybrids. Because the Base 11 Space Challenge aims to fulfill the urgent need for diverse, well-trained STEM talent of the future, the challenge focuses on liquid propulsion.

## **How will Base 11 ensure the safety of the students during the various phases of the rocketry competition?**

Creating and implementing a world-class safety protocol for liquid fueled rocketry teams in universities across the US and Canada is a top objective of the Base 11 Space Challenge. A team of nationally recognized safety experts is developing guidelines specifically for the student teams participating in the challenge. We are working with Spaceport America, various private companies, and the operations division of the FAA's Office of Commercial Space.

Further, each team will be required to designate a Safety Officer and complete mandatory safety training, including maintaining detailed safety logs.

### **What are the expected outcomes of the Challenge?**

By 2021, the Challenge is expected to deliver:

- A well-trained and fully vetted talent pipeline that will be available to aerospace and tech employers.
- Participants will learn the safety requirements necessary for working with rocketry and particularly liquid-fueled launch vehicles.
- Student participants will have documented the real-world job skills they gained, such as engineering design, 3D imaging, project management, and systems integration.
- One or more university teams will have their rockets reach the edge of space.
- The silos between industry, academia, philanthropy, and non-profits will be broken down and an integrated, scalable STEM talent development model will be established on a national scale.
- Hundreds of students will be accelerated into the [Base 11 Victory Circle](#).