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Program Update

StellarCamp

Our StellarCamp pilot season has kicked off with three* successful camps so far!

At the camps, students are learning how to use Systems Tool Kit, a professional tool used by the industry to manipulate orbital mechanics. These camps are serving as fun ways to introduce students to STEM education and getting them excited about space! Starting in Summer 2022, we look forward to conducting StellarCamps nationwide in areas where there are already StellarXplorers teams and new areas, too! Please stay tuned for these StellarCamp opportunities starting 2022 Summer. Announcements about opportunities to get involved with StellarCamps will be posted on our website.



STLX VIII Mentors

If you are interested in mentoring a StellarXplorers team for this upcoming competition, reach out to us at info@stellarxplorers.org!

STLXVIII Overview

Check out this [video](#) for a quick overview of StellarXplorers VIII!

Stellar Spotlight

Major Carl Knox

Major Knox is the Team Director for the National Championship team of StellarXplorers VII, the "Africanized Killer Bees" from Aurora Composite Squadron, Portland, Oregon.



Maj Knox has been involved with StellarXplorers for 5 years and has his team has made National Finals on several occasions.

"How have and your team evolved throughout the years of StellarXplorers?"

The last few years his team has been very strong, but it took some time to get there. In their second year the team made finals, but one crucial weight mistake took them out of the running. They also learned the value of being able to work together well. In their third year the team wasn't as cohesive as they could have been and Carl believes this was a major factor in the team not being able to crack into the top three that year. Since then, the team has taken home a second and first place title at National Finals. "The little things in competitions all add up, and never underestimate teamwork".

"What is one of your favorite moments working with StellarXplorers?"

This last year while his team was working finals, Maj Knox told them "You all are going to do everything. I'm standing back and you guys do it all—the downloads, the extract, all of it". The team ended up grabbing the file but had forgotten to extract it. They finished the competition and sent in their file. But the file was cleaned out, completely empty. Amazingly, they still had all the numbers in their head and was able to resubmit. Being late was a big deal though since you lose points for each minute you're late, but the team was still able to have enough total points to take home first place!

"What advice would you give new teams?"

Maj Knox had a couple of major takeaways for how their team has improved over the years. "First, each round you need to come up with something in the end that you are completely happy with—submitting your best possible solution". "Second, teamwork activities" He stressed the importance of building up your team's ability to work together, because even though the 6 hours of competition time sounds like a lot each round, it's over in a flash—having a team that communicates and works well together makes all the difference.

For new Team Directors, Maj Knox stressed that you "don't need to be a scientist to oversee a team. The textbook has all the information you need to assist your team. Teaching your team members how to manage their time is crucial too. But most of all, have fun with it!"

Aerospace News

[Jeff Bezos launches into space on Blue Origin's 1st astronaut flight](#)

The richest person on Earth has now traveled beyond it. Jeff Bezos, the billionaire founder of the spaceflight company Blue Origin, launched into suborbital space with three other people on July 20 on the first crewed mission of the company's New Shepard vehicle – a landmark moment for the man and the space tourism industry.

The autonomous [New Shepard](#), which consists of a rocket topped by a capsule, carried Bezos, 57, his brother Mark, 53, 82-year-old aviation pioneer [Wally Funk](#) and 18-year-old Dutch physics student [Oliver Daemen](#) 66.5 miles above Earth, then came down for a parachute-aided, dust-raising landing in the West Texas scrublands. The rocket also returned safely, making a vertical, powered touchdown at its designated landing zone. Its descent was punctuated by a deafening sonic boom, along with raucous cheers from the Blue Origin workers here who watched the flight. All of this action, from liftoff to landings, took just over 10 minutes. But it was doubtless the experience of a lifetime for the four passengers.

"Oh my god!" Bezos said during a post-flight press conference today. "My expectations were high, and they were dramatically exceeded."



flight.

[Virgin Galactic launches Richard Branson to space in 1st fully crewed flight of VSS Unity](#)

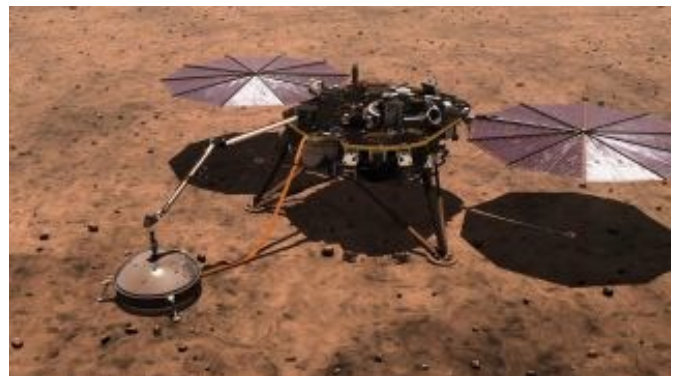
On July 11, billionaire [Richard Branson](#) and five other crewmates briefly launched into space for the first fully crewed spaceflight of Virgin Galactic's SpaceShipTwo spaceplane. The crew of [Virgin Galactic](#)'s Unity 22 test flight mission took off from the company's [Spaceport America](#) facility in New Mexico and flew just above the boundary of space, where the four passengers and two pilots experienced about four minutes of weightlessness. It was "the experience of a lifetime," Branson said during a live broadcast of the

Following this successful launch and landing, the crew will now inspect the vehicles and begin an extensive data review, according to the same statement. This review will help to inform the company's flight program and future missions like this. Virgin Galactic is aiming to launch two more crewed test flights before beginning full commercial service in 2022.

[Marsquakes reveal Red Planet has surprisingly large core, thin crust](#)

Quakes on Mars have unveiled its interior to an unprecedented degree, revealing surprising details about the Red Planet's crust, mantle and core.

Measurements taken by NASA's InSight (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport) lander have uncovered details, including a crustal layer that varies dramatically from previous understanding, a mantle less dense than the surface and a core that is larger and less dense than previously estimated, new results reveal. These



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Space Careers

Cybersecurity Engineering

Cybersecurity engineers identify threats and vulnerabilities in systems and software, then apply their skills to developing and implementing high-tech solutions to defend against hacking, malware and ransomware, insider threats and all types of cybercrime. They often serve as a go-to team member for security policies and procedures.



"No matter what kind of system you're trying to build, there's someone out there that wants to hack into it. Cybersecurity touches everything from how we build our systems to how we respond to attacks. Throughout my career I've hacked systems to discover new vulnerabilities, worked with teams to ensure software was developed securely, and built security in from the start with full lifecycle systems security engineering. I'm constantly looking at ways we can increase our cyber resiliency and doing research on how we can securely adopt newer technologies like 5g. Change is constant and there's never been a more exciting time to be in cybersecurity." - Katherine Grzywacz, Chief Cyber Architect, LM Space

Aerospace Opportunities!

[Virtual Space in the Community](#) is a series of videos in association with leading companies and business partners with STEM resources for students and teachers alike!

They have some truly amazing interviews and videos, spanning topics such as career paths like Opto-Mechanical Engineering and Image Science and Satellite Imaging to topics about Mars Lander Design, Mars Habitat and Life Science!