

News from the field of the premiere DoD Youth STEM education program.

STARBASE Minnesota's Summer Next Generation Program: Mars Survival!

"I'm here and I just wanted to say hi and say this is awesome!"

Liam writes in a "chat" to instructors via LearnDash, STARBASE Minnesota's new online learning platform.

Liam is one of 400 students, representing 76 school districts in the Twin Cities and across Minnesota, to attend STARBASE Minnesota's Summer Next Generation Program: Mars Survival!, a remote learning opportunity that is anything but a typical distance learning program.



Adapted to comply with Minnesota's COVID-19 restrictions of large gatherings, the program has over 40 hands-on STEM activities packed into a "Mars Survival Pod" that includes lesson materials, supplies, apps to download for CAD and simulation, a mission log, direction cards, grant-funded t-shirts and incentives for completion. Private donors added a mini-Sphero robot to help make students' summer special after months of traditional

distance learning. The 40 STEM lessons are engaging, academic, and even topical, drawing girls and boys alike into "real world" events such as the recent establishment of Space Force and their focus on Mars and the launch of the Mars Perseverance Rover, with students solving problems from their "home pods" that collectively contribute to the advancement of human exploration of Mars.

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The U.S. needs 1 million more STEM professionals over the next decade than it is projected to produce at the current rate. @NMSI



UPCOMING DATES

August 2020

Submission of Upcoming School Year Curriculum Schedule

Instructions will be sent prior to submission date.

August 2020

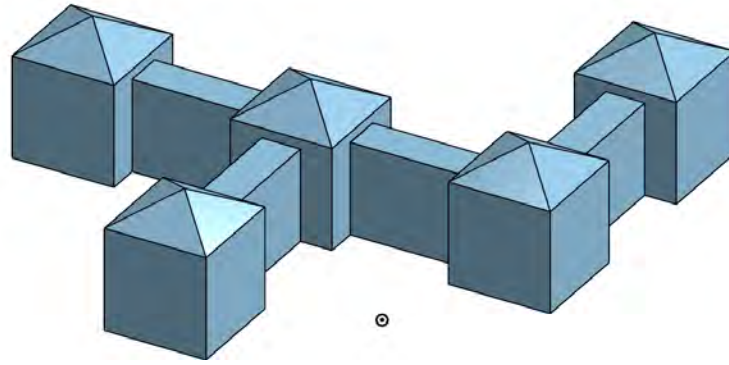
Submission of Photos & Accolades for Annual Report

October 2020

Submission of Financial & Property Management Information

After end of Fiscal Year, instructions will be sent regarding submission.

(STARBASE Minnesota...Continued from Page 1)



These “Mars Explorers” complete eight self-paced Mission areas, each area essential to survival on Mars. The Journey Mission teaches Newton’s First Law of Motion and an engineering design process through the real-world context of how to safely land on the red planet. Students discover how engineers designed Ingenuity, the novel Mars helicopter launching this summer. Students explore [STEM careers](#) by viewing and reflecting on culturally relevant videos of STEM professionals. Many of the featured engineers, doctors, and scientists live and work locally in Minneapolis – St. Paul, representing the diverse STEM field within the Twin Cities. They also receive a pack of career cards, like trading cards, reflecting the 33 STEM career videos. One parent shared how their child would not go to sleep that night until he watched all of the videos!

In addition to the Mission Log workbook and materials in the “Mars Survival Pod,” students use LearnDash, the online learning platform, to receive instructional support and tap into additional resources. LearnDash offers students the opportunity to ask instructors questions through live chat and to view nearly 30 videos featuring STARBASE Minnesota instructors providing guidance to lessons. The share page, designed to foster a sense of community and collaboration, provides students a space to share their work and to view the work of their peers. Within the first two weeks of the six-week program, the Learn Dash share page received over 180 submissions of student work, so much so that the STARBASE instructor team, or “Mars Advance Team,” developed response videos to their work.

Looking ahead, STARBASE Minnesota hopes to culminate the summer program with a socially-distanced rocket launch as a way to celebrate student learning and growth. During the 2020-2021 school year, STARBASE Minnesota envisions offering LearnDash to partnering school districts as an extension opportunity.

STARBASE Minnesota is encouraged to hear of high levels of student engagement, as well as responses from families. One STARBASE family wrote, “We want to thank the entire NEXT GEN team for creating such amazing materials! This camp has been so fun!! This has been a great week here exploring all of these activities. You really made our week/month/summer! Thank you!”

For more information and access to the website contact Kim Van Wie, STARBASE MN-St Paul. SB.MN-StPaul@dodstarbase.org 612-713-2530



STARBASE 2.0 Programs: 2006–2020

“The Pipeline” was introduced by Ernie Gonzales, former OASD/M&RA Program Director, in the early 2000s. Can DoD STARBASE programs provide STEM curriculum for Middle and High School students? Research and discussions were conducted on the possibilities of reaching Middle School students for the next point along the “Pipeline.”

The Mentoring and Middle School Steering Committees were combined in 2006. The following considerations were addressed in the Annual Reports of 2006 and 2007. These considerations served as foundations for developing the STARBASE 2.0 Programs as we observe them today.

Middle School Initiatives- (From 2006 Annual Report)

- » **Mission:** To identify and review mentoring programs that would be compatible, supportive, and effective in improving student performance in the subject areas of the DoD STEM Curriculum.
- » **Action:** In the process of working with the Middle School Committee to develop a pilot program for the summer of 2007. The program would incorporate both a middle school and mentoring component.

Middle School and Mentoring (From 2007 Annual Report)

- » **Mission:** To identify, review, and assess instructional materials to strengthen and enhance the core curriculum and mentoring components of the middle school curriculum.
- » **Action:** The committee convened and developed a middle school outline. Members of the committee tested parts of the curriculum at eleven academies during the 2007 summer session. A total of 217 students participated in the different pilots.



DoD STARBASE offerings have expanded to include STARBASE 2.0, a unique school-based afterschool program that targets at-risk 6th to 8th graders. The program takes place in partnering schools that have expressed the desire for additional DoD STARBASE program resources. As with other school-based afterschool mentoring programs, DoD STARBASE 2.0 is highly structured and is intended to help support school goals by increasing student interest and knowledge in STEM, increasing engagement with school, and increasing STEM career awareness. Individual programs use a variety of different team projects to achieve these goals. STEM projects include topics like Scalextrics, robotics, rocketry, engineering, physics, FIRST LEGO League, solar cars, chemistry, technology, and aerospace. Mentors play a vital role in the success of the program by serving as successful STEM professional coaches and role models.

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Update from the Curriculum Committee

The Curriculum Committee has been meeting virtually several times a month since March 2020 to work through backlogged lesson plan submissions and on some exciting new curriculum updates. More information on the updates will be published in the next newsletter, but they wanted to share a preview of several new lesson plans that should be published in the first few weeks of August:

1. Physics & Chemistry	A: Appendix A. Newton's Activities (New activity) B: Appendix A. Fluid Characteristics (New lesson plan) B: Appendix B. Buoyancy Activities (New activity) B: Appendix C. Bernoulli's Principle Experiments (New activity) C: Creating and Building Molecular Models (New activity)
2. Energy	A. States of Matter Experiments (New activity) A. Physical and Chemical Change Experiments (New activity) A. Double Bubble Trouble (New lesson plan)
3. Technology	A. Coding the Road (New lesson plan) B. Robotics Challenge Activities (New activity)
4. Engineering	A. Sphero Solutions (New lesson plan)
5. Math	A. Atmospheric Ratios (New lesson plan) A. Ratio Is Sinking (New lesson plan) C. What's My Angle (New activity) C. Does Your Robot Measure Up (New lesson plan)

(STARBASE 2.0...Continued from Page 3)

In FY 2019, school districts and schools partnered with DoD STARBASE at 99 locations to operate 128 STARBASE 2.0 clubs. Over 2500 middle school students and approximately 575 mentors participated in these clubs. The mentors came from a variety of STEM professions and included military, non-military, DoD professionals, industry professionals, participating school staff, and college students.

In the following months, some of the 2.0 Programs will be highlighted in the DoD STARBASE "Circuit" newsletter.

2.0 Program Basic Requirements

- » Program supports STEM activities and targets middle school students
- » Curriculum is structured and has STEM focus (Team Building and Goal Setting is embedded)
- » Project based (Some examples: FLL, TARC, Aviation, CAD, Rocketry, Forensics, EDP w/projects)
- » Program should be school-based
- » STARBASE 2.0 Clubs take place outside of normal academic class time
- » Participating schools must have at least one teacher or designated school representative
- » Each STEM Coach will support no more than 4 students
- » Meet for no less than 4 hours each month, for a minimum of 20 hours for the school year
- » Prior attendance at a STARBASE Academy is not required

STARBASE Kelly Hosts STEM Summer Academy

For the first time, two entities, STARBASE Kelly and Joint Base San Antonio (JBSA)-Lackland's Youth Center, combined forces teaching STARBASE Kelly's Science, Technology, Engineering, and Mathematics summer camp here June 12.

"We are so happy to have had the chance to collaborate with the Lackland Youth Center and provide a STEM Camp for their children," said Kathy Kiolbassa Spalding, STARBASE Kelly director. "Due to COVID-19, we were unable to bring students to STARBASE Kelly, so we took our program to them. The response was great, and we hope to continue this partnership in the future."

STARBASE Kelly customarily teaches the summer camp totally on their campus; but this year, a portion of the summer camp was given at the JBSA-Lackland's Youth Center.

"Because of COVID-19, we had to take additional safety measures because we're used to going out doing stuff that has to do with STEM," said Luqman Abdul Jami, a teacher with the STARBASE Kelly summer camp.

(Source: <https://www.433aw.afrc.af.mil/News/Article-Display/Article/2223881/starbase-kelly-hosts-stem-summer-academy/>)



The 2020 Call for Participation

Throughout 2020, this newsletter will continue to spotlight the achievements, partnerships, and tips of the participants of the DoD STARBASE program.

Please share your achievements, success stories, and helpful tips with us at email@dodstarbase.org.