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# STARBASE Summer Students Boldly go Into STEM

**Joint Base San Antonio-Lackland, Texas** -- Summer vacation for elementary school students typically consists of swimming, sleeping late and socializing. This is not the case for nearly 25 students attending DoD STARBASE-Kelly, one of the hands-on, week-long courses offered at the 433rd Airlift Wing, here. The program is designed to motivate elementary students to explore science, technology, engineering and math.

For almost 20 years, STARBASE-Kelly, has offered a fun a tuition-free educational program for students from three area school districts around JBSA-Lackland. The program falls under the Department of Defense and is under the sponsorship of the 433rd Airlift Wing.

The program is offered to fourth and fifth grade students who carry a military ID card and includes aircraft tours, scientific experiments, rocket building and launching and computer flight simulations.

"The program at STARBASE-Kelly is aviation based," said retired Col. Ron Jackson. "Not all STARBASE programs are aviation based; we take them out to visit the C-5's, our instructors take them to visit the F-16's. We use the airplanes as part of the curriculum and try to make aviation part of the program," he said.

The program seeks interest in learning and improving the knowledge and skills of at-risk youths to help develop an educated and skilled American workforce to meet the advance technological requirements of the Department of Defense.

"The idea is the DoD has a huge need for science, technology, engineering, and math," Jackson said. "The DoD hires more scientists and engineers than any other company in the world," he said. "Most of the big STEM programs focus on high school and college. STARBASE is the only elementary school program," Jackson said.

Some of the highlights of the lessons include using a computer aided design program to design simple objects, such as key chains. They then manufacture their creation using a 3-D printer. The students also use a flight simulator program and fly airplanes using a pilot's yoke on a desktop computer.

Student's work with their table partners to construct their rocket for a launch on the last day of class. The culmination of the program is a model rocket launch on the last day. This is the day when parents, family, and friends show up to watch students individually launch and catch the

rocket after the parachute opens and it drifts back to earth.

"We try to make the program fun," Jackson said.

"It's a very rewarding program," retired Chief Master Sgt. Juan Villareal, DoD STARBASE-Kelly, assistant director, said. "To see the students enjoying this, a lot of stuff we do is high school stuff, and they absorb it like sponges," he said.

"From their perspective they have a lot of fun, and from my perspective, I have a lot of fun. It is positive all the way around," Villareal said.

"Our goal is to spark an interest in STEM versus actually teaching," he said.

"Oh man, she had fun," Master Sgt. Arnold Villareal, an avionics technician with the 433rd Aircraft Maintenance Squadron, said about his daughter Victoria's experience at DoD STARBASE-Kelly.

"It's the best program I have been in. It is really fun," Victoria said. "We got to do experiments, and I liked launching and building the rocket, designing a key chain on the computer and making it with the 3-D printer, and the flight simulator," she said.

"This program is very educational. It's a good learning experience for the kids, and it is fun for them. I just wish it was longer," her father said with a smile after watching his daughter's rocket successfully launch and parachute back to earth.

"We want to get them interested in education and show them that learning is fun. We try to show our students that science is basic, science is everything," Jackson said.

For more information regarding DoD STARBASE, call (210) 925-3708.

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