



FACT SHEET

UNITED STATES AIR FORCE

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AFRL La Luz Academy Overview



AFRL La Luz Academy is an Air Force Research Laboratory (AFRL) education outreach program at Kirtland Air Force Base in Albuquerque, New Mexico, through a Cooperative Agreement with New Mexico Tech. Our goal is to increase student interest in pursuing science, technology, engineering, and math (STEM)-related studies and career paths. The interactive hands-on activities we provide target students in fifth through twelfth grades, and focus on applications of the basic STEM concepts behind the technologies developed by the Directed Energy and Space Vehicles Directorates. AFRL La Luz Academy is divided into Flights, each designed for certain grade levels and aligned with New Mexico and Common Core State Standards.

The *Mars Missions Flight* is a classroom-based Mars colonization simulation for fifth graders. It's based on the Challenger Center for Space Science Education's acclaimed *Marsville*,[®] the *Cosmic Village* program, and has been modified to include Air Force technologies and terminologies to provide a unique hands-on learning opportunity for students. Students prepare in their classrooms for and then simulate going on a manned mission to Mars to build a colony of habitats during the culminating Link-Up Day event in the Spring.

The *DoD STARBASE Flight*, for fifth graders, is designed to motivate students to explore STEM as they continue their education. Students come to the AFRL La Luz Academy for five days during the school year. The inquiry-based curriculum focuses on required topics which include Physics, Chemistry, Technology, Engineering, Mathematics Operations and Applications, and STEM Careers.

The *Technology and Engineering Challenges (TECH) Flight*, for middle school students, consists of three non-consecutive days of instruction, in either the fall or spring semesters. The fall semester focuses on rocketry; students simulate a rocket launch on the computer, and design,

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construct, and launch an actual 6-foot rocket in teams. In the spring semester, students focus on problem solving and the engineering design process to explore STEM concepts related to specific engineering disciplines.

The *Robot Systems Flight*, for middle school students, is a school-based initiative in which students explore the basics of systems engineering and robotics by learning to assemble and program small wheeled robots called Boe-Bots[®] to run a series of increasingly challenging obstacle courses. At a teacher training session, teachers learn the basics of assembling and programming the Boe-Bots[®] and then return to their classrooms with materials to teach their students these concepts over the course of the fall semester. Scientists and engineers from AFRL attend the training and then provide assistance to the teachers and students as they work on the robots at their school sites. In February, AFRL La Luz Academy hosts a Robotics Expo where student teams demonstrate what they accomplished with their Boe-Bots[®].

The *STEM Challenge Flight* provides an opportunity for teams of three or four high school students to plan and carry out a real-world STEM project using a multi-phase engineering design process. Students complete assignments for each phase of the project and submit their work using an online environment. Scientists and engineers (S&Es) provide technical support and feedback to the student teams as they complete project assignments. Teams earning a set minimum number of points on their assignments are invited to compete at the the annual STEM Challenge Symposium.

AFRL La Luz Academy also provides other STEM activities:

STEM Expeditions are short visits, typically one or two hours long, scheduled as time permits, for student groups to explore STEM. They are ideal for extracurricular groups such as New Mexico Mathematics Engineering Science Achievement (MESA) Inc., Scout troops, Junior ROTC groups, and Civil Air Patrol cadets. During the summer, as resources allow, we provide a summer STEM camp for upper elementary children of military personnel on Kirtland Air Force Base. Students spend a week engaged in a variety of hands-on/minds-on STEM activities in topics such as flight simulation and robotics.

Pinpoint WeatherNet is a joint project with Albuquerque's KOB-TV (Channel 4). It provides real-time weather data to New Mexico schools. A network of 50+ weather stations, located at New Mexico schools, are equipped with high-quality, fully automated weather stations. These stations include a sensor suite, data display unit, and a master control unit.

For more information, contact AFRL La Luz Academy at (505) 846-8042
or go to: <http://prs.afrl.kirtland.af.mil/LaLuz>.

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