



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 State Content Standards and Benchmarks.

The *Mars Missions Flight* is AFRL La Luz Academy's 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 for and simulate going on a manned mission to Mars to build a colony of habitats.

The *DoD STARBASE Flight*, for elementary fifth and sixth 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 sixth and seventh graders, consists of three non-consecutive days of instruction, in either the fall or spring semesters. The fall semester focuses on rocketry, and the spring semester focuses on satellites. The hands-on

curriculum uses STEM research topics related to the AFRL's Directed Energy and Space Vehicles Directorates as a springboard for student investigation.

The *Robot Systems Flight*, for eighth graders, 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.

The *STEM Challenge Flight* provides an opportunity for teams of three or more high school students to plan and carry out a real-world STEM project using a systems engineering approach. This activity is evolving to include the use of social media to provide opportunities for more interaction between AFRL scientists and engineers and the student participants. Teams who earn a qualifying score from completing work on the project share their results with peers and other invited guests in 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. The Summer STEM Camp is a week-long STEM Expedition at AFRL La Luz Academy, held annually during the summer, for rising fifth, sixth, and seventh grade children of military personnel on Kirtland Air Force Base. Students spend the week engaged in a variety of hands-on/minds-on STEM activities in topics such as flight simulation and robotics.

The *Teacher Institute* is a week-long STEM professional development activity for teachers, with support from AFRL scientists and engineers, conducted by AFRL La Luz Academy. During the Institute, teachers work in teams to complete an assigned STEM project that they present to their peers at the end of the week. Teachers tour AFRL facilities, listen to guest speakers, and engage in various hands-on STEM activities. Their project presentations demonstrate understanding and appreciation of the concepts they have been introduced to.

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: www.vs.afrl.af.mil/LaLuz.

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