

Spaceport supports STEM Education

One of the foundational objectives of Spaceport America is to encourage and promote education, particularly STEM education (science, technology, engineering, and mathematics). Our interest is both self-serving and altruistic. We rely on the availability of employees with highly developed skills in many of the STEM fields to operate and maintain our high-tech facility, and so we work to “fill the pipeline” with future employees.

At the same time, as individuals who possess STEM skills, spaceport staff members believe it is our responsibility to encourage everyone to achieve a level of STEM proficiency, to assist them in that endeavor, and to encourage students to make one of the STEM fields their life’s work.

These fields are highly rewarding both from a job satisfaction and salary perspective. For those who choose different career pursuits, the need for literacy in the STEM fields is the highest it has ever been. Democratization of science empowers citizens to reach their own conclusions about the scientific issues of the day and not have to rely on media sound bites.

There are two major methods by which Spaceport America participates in STEM education. One is our student virtual tour program. Some of us spend part of nearly every Thursday talking with students in Las Cruces Public Schools and taking them on a virtual tour of spaceport facilities. We do this in conjunction with the Challenger Center. Every sixth-grader in the LCPS will participate in a simulated, but in many ways very realistic, space mission at the Challenger Center.

A Spaceport America virtual tour is provided to each group before their Challenger Center mission. In these tours, we talk about space and rocket science with emphasis on Spaceport America, answer questions, and conduct a tour of Mission Control and the Fire Station. After their mission, Virgin Galactic conducts further discussions with the students.

We and VG conduct our sessions virtually. Spaceport America participants are physically at the spaceport while the students remain in their classrooms. This method keeps costs to the schools low. A single iPad costs less than the price of bus transportation for 50 students. Given that every sixth-grader in the LCPS will participate, the cost savings achieved by using the virtual method reaches to the tens of thousands of dollars.

In spite of our physical separation, we still are able to interact meaningfully with the

students. We conduct similar sessions with students around New Mexico, and have held sessions with students in other parts of the United States and as far away as Australia. As to LCPS students, I am amazed at the perception and depth of thinking exemplified by their questions. Their obvious understanding of a complex technical program belies the grim stories we are constantly bombarded with that would have us believe that our public school students are not learning very much.

The other major way Spaceport America participates in STEM education is by hosting student launch activities. Most of our student launches have been conducted for the purpose of flying student payloads. Many of the launches have been sponsored by the New Mexico Space Grant Consortium. Students from the level of middle school through college have had the opportunity to fly payloads to altitudes as high as 75 miles. Their payloads have included experiments with cosmic radiation outside the atmosphere, advanced communication systems, liquid propellant behavior in microgravity, and characterization of the microgravity environment of the rocket.

Spaceport America also has hosted launches of student-built rockets in which the rocket itself is the research project. This past spring, for example, New Mexico Tech launched a student-built rocket to test its flight performance against predictions, and to test the electronic systems they designed and built for on-board data acquisition and for safely arming the rocket motor.

Spaceport America's commitment to STEM education is unwavering. We look for every opportunity to work with the schools for the benefit of the students, our state, and our nation.

Bill Gutman is the director of Aerospace Operations at Spaceport America.