

Alamo Heights High School Rocketry Program

This marks the 10th year the Alamo Heights High School Science department has offered the SystemsGo Aerospace Studies program. This is the first year we have we are offering a class for all 4 grade levels and we have almost 150 students enrolled. Our Freshmen class is taking Concepts of Engineering and Technology, sophomores Principles of Manufacturing, juniors Rocketry I and seniors Rocketry II. With all 4 classes in place, we will have the ability to fulfill the state requirements for the STEM Endorsement making us one of the first school districts in the state to accomplish this.

The mission of this program is to enhance education for better workforce development and to ignite tomorrow's innovators. The goal is to incorporate a problem-solving education philosophy into the school through a project-based curriculum. This curriculum has proven to encourage students to enter academic and career paths in STEM fields that lead to careers in the engineering industries. One Alamo Heights ISD school board member recently stated that, "This program is literally changing the trajectory of your student's lives".

This is a whole new methodology in teaching. We are working on not just educating our students, but developing them for the workforce. Coming out of this high school program, these students will understand design and development, testing, analysis, and program management - all things the industry needs in the workforce of tomorrow. In fact, almost nine out of ten students who have completed the senior year of this program have gone on to engineering school. Many of the nation's top engineering schools are now actively recruiting our students including Embry-Riddle.

A former student, Julia Heydenreich, wrote in the school newsletter, ***"I learned so much through this program that it even surprises me. I look at seniors in college that are in aerospace engineering at the University of Washington, where I will be attending college in the coming year, and they are building rockets that are in the same league as mine. I now have a bit more confidence as I head off to college."*** Julia has graduated from Washington State University with degrees in aeronautical engineering and geology. She is currently working on her P.H.D. in Planetary and Space Sciences and designing "penetrator rockets" for NASA. These are rockets that fire downward instead of up in an attempt to penetrate the surface and determine the composition of planet, comet, asteroid, etc. we are studying.

Another student, Joe Soules commented, ***"This class was, without a doubt, my most memorable high-school experience, and influenced me to pursue a degree in Aerospace Engineering at the University of Texas. The leadership, mechanical skills, and work ethic I learned from this project have been indispensable tools in my college career and are definitely more valuable than any calculus or physics course I've taken since"***.

Using design, testing and launching of a sophisticated rocket as the inspiring centerpiece of the program, we promote the use of problem-solving and project-based learning to stimulate skills in design, development, testing, analysis, innovation and teamwork.

The program began during the 2007-2008 school year as an after school club but in 2007-2008 it evolved into a course offering with 17 students. The following year, 2008-2009, enrollment exploded. We grew to 3 classes with over 60 students enrolled and the growth continued the following year (2009-2010) with over 70 students in three classes. Since then the program has expanded to include all four grades levels with over 150 students currently enrolled. We anticipate having over 200 students next year with between 7 to 9 class offerings.

Even though the rockets we build are quite impressive, they are not the final valuable product/goal. The skill-set the students obtain and, as a result, what they are capable of doing through this experience are what is most valuable. Almost 90% of last year's students went on to engineering school and received thousands of dollars in scholarships from the best engineering schools in the country. As impressive as this is, it is not the whole story. The "real life" experiences and training is not lost on those who do not go to engineering school. One of my students from last year dropped by to visit me recently. He came by to show me pictures of an older car he had purchased and wanted to show how what he learned here was enabling him to repair the car himself. He told me that when he went to auto repair shops, armed with CAD drawings and electric schematics, that the mechanics were amazed at his knowledge and abilities. They all want to know how he learned how to do this. ~ Colin Lang, AHHS Science Dept, Aeroscience Studies