MathPOWER Students Discover that “Learning Defies the Boundaries of Space and Time”

Summer Academy 2013 Highlights:
- Students had the chance to participate in 5 clubs, over the course of 5 weeks
- Of the 21 clubs from which they could choose, 2 stood out as overwhelming favorites
- Aerospace Engineering and Rocket Science offered unique perspectives on science and opportunity

The buzz surrounding Algebra Plus Summer Academy’s most popular clubs begins in late spring, when those young scholars who will be attending Summer Academy first receive their Club Preference Sheets. In preparation for Summer Academy 2013, expectant middle schoolers received a list of the 21 clubs awaiting them. These clubs, run by MathPOWER’s mostly college-aged teaching assistants, offer varied opportunities for students who have spent four hours of their morning honing new and review math skills. The clubs range from leadership to jewelry making, from basketball to creative writing, and they are all designed to be outlets for critical thinking, relaxation, team-building, and academic enrichment. It quickly became obvious that two of this summer’s most popular clubs would be Aerospace Engineering and Rocket Science. Actually, It is Rocket Science.

Chris Kochling, an Aeronautical Engineering student at Embry-Riddle Aeronautical University in Daytona Florida, joined the MathPOWER team this summer and took on the possibly daunting task of engaging adolescents in a typically complex academic discipline: rocket science. Not only was he able to get through to the kids who were previously interested in science, but Mr. Kochling created two of the biggest hits of the summer, drawing in youth who had never before considered science to be compelling. Mr. Kochling described Aerospace Engineering as follows:

“The kids learned how to make scale drawings of gliders, then, using the drawings, cut and assembled balsa wood parts to make balsa wood gliders. In the process, students also learned the basic parts of an airplane: wings, fuselage, ailerons, elevator, rudder etc., and the scientific principle that explains how they fly: Bernoulli’s Principle. At the end of the club, everyone got a chance to launch their planes and compete for the longest distance.”

Kochling added that some students’ balsa gliders flew the whole length of Northeastern University’s gymnasium.

Regarding the Rocket Science club, Mr. Kochling explained:

“Students learned the three forces that act on a rocket: thrust, drag, and gravity. Using this knowledge, they created compressed air rockets capable of flying up to 150 feet or so. Then, they learned how to use some basic robotic components (servo, battery, receiver) to make a remote control parachute system for their rockets. At the end of the club, each pair of students launched their rocket.”

He further described how one team member would be responsible for launching the rocket, while the other would be in charge of deploying the parachute with the remote control. This, he noticed, really seemed to promote teamwork among the participants.

MathPOWER Algebra Plus Summer Academy’s club activities, like the in-classroom portion of the day, are designed to further the exploration of the summer’s essential question. For Summer Academy 2013, that question was: What skills do I want to add to my backpack for life? Chris Kochling’s two clubs approached this question from a unique vantage point, allowing the kids to quite literally expand the physical and theoretical boundaries of their learning.

Aeronautics and rocketry provide an engaging and thought-provoking real-life application for the science and mathematics students are learning in class. They also pique students’ interest in a career path that is almost mythical, fantastical. They allow students to imagine that they can design and build rockets, fly airplanes, and maybe even travel to outer space. On the last day of Summer Academy 2013, 10 very lucky students were able to accompany Mr. Kochling to Logan Airport, where he brought them into the cockpit of a JetBlue commercial airplane, further hitting home the notion that aeronautics can be a realistic pursuit and ambition. What better way to unleash a young person’s imagination than to show him how his education can allow him to defy gravity? Mr. Kochling’s clubs left a lasting impression and set a very high bar for Summer Academy enrichment in years to come.