

Great Ideas for Great Public Schools

TENNESSEE

Connecting math and science to real life

The NEA Foundation awarded a \$5,000 student achievement grant to teacher Luajean Bryan (a member of the Bradley County Education Association) and her colleagues at Walker Valley High School in Cleveland, Tennessee, to increase student interest in math and science courses with a series of lessons called **"From Earth to Sky."** This initiative focused on minority and low-income students and diverse learning styles. The district and the local education Association strongly supported the project—a great example of how an NEA Foundation-funded initiative can have a significant effect on education.

Real-life applications

- In April 2007, 22 physics and calculus students took part in the "sky" lesson as they flew in untethered hot air balloons. After the flights, students used classroom concepts to determine the logistics of their personal experiences: the pressure needed in the balloon for flight, the height at which they flew, and the distance covered.
- In October 2007, 34 biology and pre-calculus students took part in the "earth" lesson, an overnight expedition to underground Cumberland Caverns. Like their "sky" peers, they found that concepts learned in the classroom enhanced their field research: exploration of the complex network of caves.
- In February 2010, Bryan and a biology teacher repeated the earth portion of the project.

Positive results

- Calculus enrollment has quadrupled, growing from 13 students in 2006-07 to more than 50 in 2010-11.
- More minorities and students of low socioeconomic status are taking high-level math and science courses, which their teachers attribute to connecting learning with real-life experience.

- Encouraged by the project's success, several teachers are integrating math and science lessons.
- Bryan received a grant from the National Council of Teachers of Mathematics to publish her pre-calculus projects (in a manual and in CD format) so they can be distributed to math teachers across the nation.

Response from students

- "I never thought I was good at math before—I thought geometry was as high as I would go. Now I have taken pre-calculus and signed up for AP calculus next year."
- "It's a love-hate type thing. I love the projects, but I hate the projects. I hate when I'm working on it and I can't get it to work, and my teammates don't have an idea, and we struggle trying to work through the problem solving. But I love it when we're finished because I'm so proud of what we've done. And then we can answer questions on tests—they seem so easy for me now."

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Great Public Schools for Every Student