

## **FY08**

### **Los Alamos National Security, LLC Education Sponsorships**

#### **Northern New Mexico Expanding Your Horizons**

Expanding Your Horizons (EYH) in Science and Mathematics conferences are designed to nurture girls' interest in science and math and to encourage them to consider science and math-based careers. The Northern New Mexico EYN now in its 28th year, organized by Los Alamos Women in Science (LAWIS). The conference targets eighth-through tenth-grade girls and also features a concurrent "Teacher's Conference," which provides information on new ideas for teaching math and science. Approximately 150 young women and 15 teachers participate in the NNM-EYH conference from area schools including Los Alamos, Pojoaque, Espanola, McCurdy, Mesa Vista, Penasco, Santa Fe, Santa Fe Indian School, St. Michaels, and Taos.

#### **New Mexico Math, Engineering, Science Achievement (NM MESA)**

NM MESA has served students from throughout the state for 25 years by enhancing their academic performance and leadership skills through their pre-college program in math, engineering, science and technology. NM MESA has a strong program that serves northern New Mexico including the areas of Mora, Espanola, Pojoaque, Santa Fe, Jemez, and Bernalillo. NM Mesa is a year-long, multi-year initiative that works with school districts, colleges/universities as well as underrepresented students to encourage them to pursue careers in science, technology, engineering, and mathematics.

#### **School to World**

School to World is a business, government, and education partnership event where eighth-and ninth-grade students meet one-on-one with professionals to learn what they need to study in high school to achieve their career dreams. Career clusters include Science, Engineering & Technology, Trades, Arts & Communications, Business (including Hospitality & Tourism), and Community & Education. Los Alamos National Laboratory and Sandia National Laboratories are major sponsors for the School to World event.

#### **Regional Middle and High School Science Bowls**

The Middle School Science Bowl (for grades six through eight) and the High School Science Bowl (for grades nine through twelve) are academic competitions sponsored by the Department of Energy. The Science Bowl tests students' knowledge in all areas of science. Students are quizzed in a fast-paced question and answer forum at a regional event. For both events, a regional competition is held in Albuquerque, with the winning team going on to the national competition. Los Alamos National Laboratory, the Public Service Company of New Mexico, Albuquerque Public Schools, and Sandia National Laboratories are sponsors of the regional event. The Department of Energy is a sponsor of both the regional and national events.

#### **Regional Hydrogen Fuel Cell Car Competition**

LANL is a co-sponsor of the annual Hydrogen Fuel Cell Challenge, usually held in Albuquerque. Other sponsors are the Public Service Company of New Mexico, Albuquerque Public Schools, Sandia National

Laboratories, and the Department of Energy. The competition provides a hands-on opportunity for middle school students (grades six through eight) to understand the need for renewable energy sources and explore the emerging technology of hydrogen power. The competition consists of three areas that include the car design, an essay competition (optional) and the race itself.

### **New Mexico Hispanic Youth Symposium**

In 2008, LANL was a sponsor the New Mexico Hispanic Youth Symposium in Albuquerque. The conference helps sophomore and junior-level high school students address issues such as academic achievement, career choices, community service, and personal responsibility. In addition to the professional focus, students are given the opportunity to culturally express themselves through participation in essay, speech, art, and talent competitions. Up to 200 Hispanic students got a glimpse of college campus life, have access to a variety of professional to help them enter and stay in college as well as year-round support to achieve their academic goals.

Other sponsors included Sandia National Laboratories, Lockheed Martin, the University of New Mexico, and New Mexico Math Engineering Science Achievement (MESA). National sponsors include the Department of Justice and the Department of Energy.

### **American Indian Science & Engineering Society (AISES)**

Founded in 1977, the American Indian Science and Education Society (AISES) was established to increase the representation of American Indian and Alaskan Natives in engineering, science, and related disciplines.

Through a variety of educational programs, AISES offers financial, academic, and cultural support to American Indians and Alaska Natives from middle school through graduate school. The organization also provides professional development activities to enable teachers to work effectively with native students.

### **Multiple Minds**

Multiple Minds Educational Foundation is a new, non-profit organization that offers innovative, state of the art, multimedia, technology-based, science-learning programs for middle and high school teachers and students in northern New Mexico. In its first year, this company has offered professional development seminars for teachers (15 teachers participated in the one week, forty-hour class) and sponsored a summer camp for 95 northern New Mexico students ranging from ages seven to eighteen.

### **Summer Environmental Science Project**

The objective of this project is to increase hands-on environmental science education exposure for middle school and high school students from northern New Mexico Pueblos. The program workshops are conducted by scientists from Los Alamos National Laboratory and the Valles Caldera National Preserve and are coordinated with Pueblo teachers and education coordinators.

Activities have focused on carbon science, the greenhouse effect; local geology and terrain; water, soil, and air sampling; riparian habitat evaluation; aquatic and terrestrial insects; coyote radio telemetry; plant biology; and the culture and history of the Valles Caldera. A total of 41 students participated in this project during the summer of 2008.

## **Pueblo Education Outreach Program**

LANL's Tribal Relations Team, in partnership with the Los Alamos National Laboratory Foundation and Northern New Mexico College, conducts the Pueblo Education Outreach Project. The long-range purpose of this initiative, now in its fifth year, is to develop a student pipeline to provide a local source of qualified graduates in science and engineering to fill technical positions at the Laboratory. The program is targeted to Pueblo elementary schools and takes place in April and May.

- Tie Dye (for grade level K) - Students learn basic chemistry concepts through activities designed to develop their knowledge of general mathematical concepts. This activity also stimulates art and science skills.
- Rocketry (for grade levels 3-4) - Students learn the basics of aerodynamics, weight and balance, stability, propulsion, drag, rocketry terminology, units of measure, and basic geometry by building and launching model rockets.
- Robotics (for grade levels 5-6) - Students learn about robots by investigating applications of robots; discussing robot terminology and units of measure, energy conversion and storage; basic circuit diagrams and electronic components; programming; interactions with the environment; and finally by actually building their own solar-powered robot from a kit.

## **Santa Fe Community College Adult Basic Education**

The purpose of the Adult Basic Education (ABE) Program at Santa Fe Community College helps students identify career pathways, increase retention and goal achievement, gain skills that lead to academic success in future educational endeavors, and increase the number of students who transition to college.

## **Supercomputing Challenge**

The Supercomputing Challenge is a program in which teams of students complete science projects using high-performance supercomputers. Each team of up to five New Mexico seventh-through twelfth-grade students and a sponsoring teacher define and work on a single computational project of their own choosing.

## **Summer Science Program**

This is an academic, six-week, residential enrichment program in which gifted high school students complete a challenging, hands-on research project in celestial mechanics. By day, students learn college-level astronomy, physics, calculus, and programming. By night, working in teams of three, they take a series of telescopic observations of a near-earth asteroid. They then write software to convert those observations to predict the asteroid's orbit around the Sun.

In New Mexico the program takes place at the New Mexico Tech campus in Socorro. There's also a program in Ojai, California. Enrollment at each campus is limited to 36 students, mostly seniors chosen through a rigorous selection process. For information, including prerequisites and application instructions, visit <http://www.summerscience.org>.