

New Mexico SciAds continue efforts in technology and education outreach

By **Cheerie R. Patneau**

The Science Advisors (SciAd) Program, a community-based effort begun in the Las Cruces Public Schools in New Mexico in 1990 to help school-aged children become more knowledgeable in math, science, and technology, continues to flourish.

Pleddie Baker, a NASA White Sands Test Facility employee, was instrumental in establishing the SciAd Program to improve math, science, and technology education of schoolchildren. A SciAd program was created at the Sandia National Laboratories in Albuquerque, New Mexico, but after repeated calls asking them for support in southwestern New Mexico 230 miles away, Sandia asked White Sands Test Facility to establish a similar program for Las Cruces. With help from Sandia, the Atmospheric Research Laboratory at White Sands Missile Range, and the LCPS, the SciAd Program was established in southern New Mexico.

Baker indicated that there were reasons for wanting to implement the program. "Many students avoid math and science when they reach middle and high school because they fear it is too hard or they can't do it, many students graduating from high school are not prepared for a job in a technical field or prepared to pursue a technical degree, and the labor market has shifted and there are more jobs available for skilled labor now than unskilled labor."

Participation in the program has been "very positive at WSTF and in the community," Baker says, "with women and men engineers, scientists, and technicians participating and even more requests coming from teachers than we have SciAds to fill." Another indication that the program is succeeding is that "math and science aptitude test scores have increased in the LCPS district" since the program began. "This cannot be attributed solely to the SciAd Program, but responses from teachers and students certainly indicate it is a major factor."

Past Science Education Alliance president and Honeywell Technology Solutions Inc. employee Scott Hill was effective in establishing the SEA, a 501-C3 (nonprofit) corporation, which oversees the SciAd Program and promotes increased community awareness, participation, and commitment. Hill said of the program, "I'm grateful for the opportunity to have participated in SEA for the past five years. We've transformed it from a grass roots organization into an organization with structure and life and continual personal involvement."

"To that end, we were able to become incorporated as a nonprofit organization, hire a coordinator, assist in training and coordination of SciAds and each school's SciAd teacher activity representative, and work with the schools defining the needs of the teachers and schools and the roles and responsibilities of the various participants."

"Lastly, our goal was to obtain a reliable source of funding other than NASA. All of those goals have been accomplished to some degree or another.



Honeywell Technology Solutions Inc. Program Manager Bob Baker, right, presents Las Cruces Public Schools Superintendent Jesse Gonzales, left, with a check for \$5,000 to enable the SciAd Program to continue. Also attending the check presentation is LCPS SciAd Coordinator Marie Haaland.

The LCPS School Board has agreed to fund 50 percent of the budget and with the corporation sponsorship from Honeywell, this provides a base for funding activities."

From the employees who work at WSTF, ARL, Physical Science Laboratory, New Mexico State University, and other

community organizations and members, the SciAd Program has pooled more than 40 special subject SciAds and 100 school SciAd volunteers. These SciAds not only support all the elementary, middle, and high schools in Las Cruces but also several parochial schools, a home-school association in Las Cruces, and at least one school in surrounding communities such as Alamogordo, Cloudcroft, Deming, Hatch, Lordsburg, and Gadsten school districts.

One of the technical advisors is HTSI employee Dennis Smith. Smith is a project leader engineer in the Propulsion Department and has been a SciAd for the past four years. Smith has held several Science Nights for parents and teachers at Hermosa Heights Elementary School where he promotes inquiry into science. Smith shows how materials change in outer space conditions. Smith may freeze bananas with liquid nitrogen and then use them as hammers to pound in nails or place flowers under the same conditions and shatter them on a table. When exposed to liquid nitrogen, Smith explains, "gloves shatter and balloons deflate." Smith may question his young audience. "What do you think it's going to do? Why?" He picks up answers from the crowd and repeats them back, creating suspense, before he shows his audience what the materials will do.

Smith carries over to the community the safety skills that he learned as a project leader engineer, using cryogenic protective gear, goggles, and gloves to shield himself and youngsters from splashes. He also demonstrates how different materials like those found in Ping-Pong balls, rubber, or plastic balls react because of their characteristics, and that safety gear

requires different materials to be effective, depending upon the job hazard. Smith also sets up textbook experiments for teachers at Hermosa Heights Elementary School on an as-needed basis. He believes that the students should learn about safety first.

HTSI employee and SciAd Joe San Filippo, who worked in the Laboratories Department for many years and is now an engineer for propulsion test systems, volunteers for the Dugan Tarango Middle School and Central Elementary School in Lordsburg, about 120 miles west of Las Cruces. San Filippo recently attended a

SciAd Award Banquet where a NMSU student was working for a restaurant catering the banquet. The student, Javier Placencia, recognized San Filippo from his visits to his school some seven years back. Of this recognition, San Filippo said, "It's a small world.

You never know when you will influence a young person, stimulate an interest in science or engineering or help someone down a career path." Placencia was "flabbergasted that Joe also remembered me," and said that the reunion was a "focal point for me. I was glad that the SciAd Program was in Lordsburg. We don't have a lot of opportunity to learn about different concepts and ideas there. The program opened my eyes to new ideas

and was a good influence." San Filippo says he doesn't remember what he talked about that day long ago in Lordsburg, but as he talked with Placencia, he recognized that the SciAd mission had been realized. Placencia is now studying business at NMSU.

San Filippo's SciAd repertoire includes lectures on electromagnetism, spaceship design, building mechanical structures, and data visualization. WSTF HTSI coworker, Tom Reiser, created the Earth Odometer, software that helps students realize how fast the Earth is traveling in miles per hour. During a lecture, San Filippo begins the software that simply displays an ever-increasing number, the distance the Earth travels, as he

is speaking. San Filippo asks questions of the students during the spaceship design class. "Have you ever traveled on a spaceship before?" Of course, the answer is invariably no. San Filippo also asks, "What seven things would you want to bring with you on a spaceship?" Most mention things like Nintendo, while others may "argue for a CD player and forget toilet paper," he said. At the end of the presentation, he reveals that they are all indeed on a spaceship at that very moment, and the computer shows just how far they have traveled since the beginning of the class.

Hill summed up the program by saying, "The SciAd Program is an excellent example of what can be accomplished by a few active, dedicated individuals. Through the program's excellent presentations, actions were provided that reinforced the value of community participation to the schools. The continued involvement of NASA personnel and HTSI personnel, with the LCPS system, is very important to the continual improvement of science and math education in Las Cruces.

"This ten-year activity has been exported to Houston and serves as a model for community involvement. I'm proud to have been part of the transition and feel privileged to have participated in this process with the dedicated personnel. Pleddie Baker, Nancy Chanover, SciAd program coordinator, Karen Matray, LCPS coordinator and SEA board member, and especially NMSU Physical Science Laboratory Director Kathy R. Hansen were instrumental in our success."

Baker believes the SciAd Program is outstanding. "Our primary objectives were to work with teachers and help them become comfortable teaching math and science and help them develop hands-on activities. We also wanted to show students that scientists and engineers were just regular people and that what the math, science, and technology students are learning in school are the important skills they need in real life. However, many secondary benefits have surfaced. SciAds have become role models for students and firm supporters for improvements in our education system. They have become voices throughout the community, pointing out the difficulties and obstacles teachers face every day, and the teachers' desire and commitment to improve. The SciAds' demonstrated dedication to help all children has also inspired parent and community awareness and participation.

"The employees of Honeywell Technology Solutions Inc. are unselfishly giving to make every child's life and future a better one; they are truly leaders by example."

Students, teachers, or volunteers interested in the program can contact the <http://www.wstf.nasa.gov/sciad/educate.htm> Web site for further information. ■

The author is a technical writer with L & M Technologies, Inc., a subcontractor to Honeywell Technology Solutions Inc.



Dennis Smith



Joe San Filippo

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