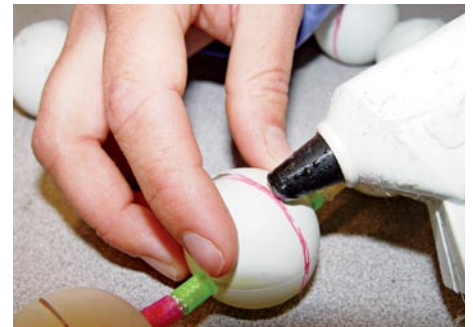


Students and teachers prepare the balloon launch vehicle for its adventure at the edge of space. Right: gluing the PearlSats; the finished "String of Pearls."



PEARLS OF WISDOM

Kids in San Jose use PearlSats to discover what happens at the edge of space BY WIL SIMON

What's a PearlSat? The kids from Sherman Oaks Community Charter School in San Jose, California know. A PearlSat is a ping-pong ball containing items that the students choose to test in the upper atmosphere. The balls are cut in half and then resealed once they are filled with various everyday things like erasers, marshmallows, plant seeds, and popcorn kernels. They are then attached to a balloon on 10-to-15-foot-long strings and launched to the edge of space, 90,000 to 100,000 feet above the earth. The balloon then rises to the upper atmosphere where it bursts. A GPS tracking device in the balloon gondola sends a signal that allows the students to monitor the descent and landing location of the PearlSat balloon.

On May 11, the Sherman Oaks students had more than 300 PearlSats linked to their balloon, which resembled a giant jellyfish sailing into the sky. After about three hours, their PearlSat balloon eventually landed in

a tree northeast of Stockton, California—about 75 miles from San Jose.

"The kids are completely jazzed!" says Sherman Oaks principal Julie Henderson. "We've got tons of things going on, but bless their little hearts, they'd like to do it again! I'm hearing how the erasers shrank, the M&Ms don't taste as good as before they went into space, and the roly-pollies escaped, etc. Teachers are equally excited. Rumor has it the principal is, too."

"They're using the scientific method" adds Henderson, "and developing habits of thinking, questioning, probing, testing, and rethinking. We want the children to develop a deep understanding and knowledge of the possibilities in life."

Sponsored through the Workforce Innovation in Regional Economic Development (WIRED) grant that is managed by the Cali-

fornia Space Authority (CSA), the PearlSat space mission endeavors to expose students to the larger world of space exploration through scientific inquiry.

Bob Twiggs, Stanford professor and a major contributor to the project sees value in early exposure to science, math, and technology. "Why are we doing this? A common theme from US technical companies is that they do not see the graduation rates from engineering and science university programs that will fill their future employment needs," he says. New students do not go into these careers because they are generally perceived as boring or requiring too much work. The students seem to make these career choices in the fourth and fifth grades. Students in grade and high schools tend to find that subjects such as math, science, and English have no applicability to real life. Doing these hands-on projects with the outreach programs can demonstrate not

PHOTOS: JULIAN MANN (1); WIL SIMON (2)



Above: The Sherman Oaks fifth grade class with one of their many “strings of pearls.” Left: Julie Henderson, the principal of Sherman Oaks Community Charter School, is enthused about the PearlSat program and the possibilities it opens up for her kids.

only the applicability of these subjects, but the interrelationship between them.”

Whereas the initial PearlSat program involves the whole school, the WIRED grant program encourages long-term mentoring

and focuses specifically on the Sherman Oaks fourth grade class. Their mentor is Al Tadros, a senior engineer for Space Systems Loral in Palo Alto. As the students progress through elementary school and into high school, they will be presented with increasingly challenging science projects. The idea is to encourage young people to consider careers and opportunities in science, technology, math, and engineering.

“It’s the real world,” says Julie Henderson. Children must own their values and ideas just like aeronautical engineers and astronauts. Living it, having this experience, is what makes it real for them. For the children, these are their PearlSats going up 90,000 feet or more and their PearlSats that might land in the desert or in a field. The students understand the value in what they are doing.”

Rebekka, a student in Mr. Osvaldo Rubio’s fifth-grade class agrees. “We get to study

what happens to the PearlSat and learn more about outer space.”

“Yes,” replies her classmate Gary, “I want to see what happens to something from Earth that we put into the PearlSat.”

Alexandra agrees, “It’s exciting to put something into it that you want to see change.”

Henderson believes the program has merit for many other schools. “Any teacher can do this—it’s do-able!”

Amanda, another fifth grader, said it best. “I want to learn if there is life in space, and if we can live on a planet other than Earth... like Mars. This will help me know.” Indeed, if Amanda and her classmates decide to become engineers or scientists, they will be part of a whole new generation that can solve the challenges we face both here on Earth, and in space. ✦

PHOTOS: WIL SIMON