

# SAN MARCOS: Summer camp sparks science education

## CSUSM sponsors middle school science study

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At summer camp Monday, 22 North County students had their hands full of crustaceans.

First they took the crabs and measured them, noted their physical characteristics and learned their scientific names, then they matched the observations to photographs to see if they could identify them individually.

"It was fun to carry the crabs," said Lucero Zavala, 12, an eighth-grader at Vista Magnet Middle School. "And I thought it was really exciting how you can identify the gender of the crabs."

While summer camp has always been a place for kids to experience the natural world, the session offered at Cal State San Marcos gives middle school students a chance to observe, record and analyze it.

Marrying science and computer technology, the iQUEST project is part of a national effort to spark interest in students who may become part of the next generation of scientists and engineers.

"If you want to develop the kind of skilled work force we need, you want people who are going to be interested in taking on that course work in college, and majoring in it and maybe going for advanced degrees," said Maria Zacharias, a public information officer for the National Science Foundation, which provided the nearly \$1.5 million grant for the three-year iQuest program.

"If you lose them in middle school, the research shows that it's going to be harder to get them back," she said.

The Investigation for Quality Understanding and Engagement for Students and Teachers program is in its second year at the university, where it offers four weeklong sessions for select groups of seventh- and eighth-grade students and teachers from around the San Diego region each summer, said Katherine Hayden, an associate professor of educational technology at Cal State San Marcos, and the director of iQUEST.



Two sessions of summer camp for seventh- and eighth-graders introduce students to science at the university's laboratories. Teachers attend one of two professional development courses on employing cutting edge technology to teach fundamental science.

IQUEST is one of 161 National Science Foundation projects in 39 states that aim to introduce science to students in elementary through high school.

It targets girls and ethnic groups such as blacks and Latinos, who are represented in the scientific professions at only about half the rate that they are present in the overall work force, according to the foundation.

Maria Hallberg, also an eighth-grader at Vista Magnet Middle School, was reluctant to stand up in class when she got all six crabs correct, saying she was embarrassed by the attention.

But she grew animated describing her interest in science, particularly the workings of the human body.

"It's really fun to know what you have inside your body and how your eyes work," said Hallberg, 12. "It's really exciting."

So is she squeamish about the lesson on dissecting cow eyes planned for later this week?

"I feel it's going to be a little funner than (dissecting) frogs," she said.

Teachers who've attended the teacher academy said they gleaned new ideas on using computer programs as the hook for teaching basic science.

Debbie DeLucia, a seventh- and eighth-grade science teacher at Escondido Christian School, said she assigned students to record podcasts describing the properties of buoyancy and density.

Jamie Hagen-Holt, an eighth-grade science teacher at Vista Magnet Middle School, asked students to use a video program to make movies about the periodic table of the elements.

Students invented characters such as "Aluminum Foil Man," and detailed the adventures of "Sodium Man and Chlorine Boy," who defeat an evil snail by combining their powers to make salt.

"You ask them to do a research paper about an element and they couldn't care less, but if you ask them to make a movie, they're more engaged," she said.

The hands-on summer camp projects bring science to life for students, said Traves O'Neill, a physics teacher at Vista High School and an instructor at this week's camp.

"They see that I get to get my hands dirty, I get to play with the stuff and still learn," he said. "We're hoping they'll be the seeds in the classroom that will spread the excitement about science."

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