

Youth take the first steps toward science careers

Christian Senda, 12, is eager to show people how they can conserve water in their potted plants through the use of superabsorbent polymers called hydrogels.

"I think the hydrogels would help my mom keep her plants alive," says the Carson City Mark Twain Elementary School student. "My friends and I are also excited to learn if the hydrogels could be used in disasters such as gasoline spills or maybe oil slicks."

Hydrogel polymers are long molecule chains that grab onto water molecules.

Senda, together with Mark Twain students Jose Sepulveda and Cindy Cardenas, celebrated the first 4-H National Youth Science Day, Oct. 8, by demonstrating water conservation experiments at the University of Nevada Cooperative Extension office in Carson City.

Alice Good '78 is an emerita communications specialist with Cooperative Extension.

The youth joined with more than 300 other students who conducted experiments in clubs and after-school programs throughout Nevada, as well as thousands of other sites around the country. This national science initiative hopes to inspire the six million 4-H members to explore scientific careers, and in turn, make a difference in their communities.

"The new campaign champions the national goal of attracting one million new youth to the 4-H science, engineering and technology programs in the next five years to help our country remain globally competitive," says Karen Hinton, Cooperative Extension dean and director.

How hydrogels can help conserve water

Members of the Pyramid Lake and Silver



Pyramid Lake 4-H Club members Cristal Rosales-Vega and Tyler James measure a drink mix in an experiment showing hydrogel's ability to retain water in soil in a demonstration on campus.

Paws 4-H Clubs showed that hydrogel polymers can absorb water and be used in environmental applications at the University's Mathewson-IGT Knowledge Center on Science Day.

Sabrina Nelson, 13, and Tenaya James, 12, collected a sample of hydrogel from the cotton and plastic lining of a clean, disposable diaper. The two then placed the stuffing material and plastic lining into a zipper-lock bag. After shaking the bag, they removed the powdery hydrogel polymer from the stuffing. When they mixed the powder with water, it became a goeey solid, showing it was able to absorb water from the diaper.

"It's fun to see how we can help the environment by saving water," says Nelson, an 8th-grader at Traner Middle School in Reno. "We need to start realizing that if we don't start, no one will."

Sarah Chvilicek, coordinator of 4-H youth development programs, says she is hopeful that more young women such as Nelson will consider careers in science, as they are underrepresented now.

In the second experiment, Tyler James, 17,

and Cristal Rosales-Vega, 10, poured potting soil into two clear plastic bottles. In one bottle, the pair mixed 1 tablespoon of hydrogel into the potting soil. Then they mixed a packet of unsweetened powdered drink mix into a cup of water, and poured a quarter-cup of solution into the two soil soakers. The bottle with hydrogel absorbed the liquid into the soil while it seeped through the soil in the other bottle.

"This experiment shows there's a potential for conserving water for indoor and outdoor plant use," says Mark Walker, who mentored the students. "The hydrogels change the infiltration rate in the soil, slowing down evaporation so we don't lose it."

Walker says the experiments open the door to a wide range of important questions, which is what science is all about. This kind of demonstration could be a starting point for these and other students, who might later conduct research that could change the way we use water.

Walker is environmental sciences graduate program director, state extension water quality specialist, and natural resources and environmental science associate professor.

How science programs expand 4-H offerings

4-H clubs in Las Vegas took advantage of the national science day to encourage youth and their parents to form more local clubs based on science, especially in urban areas.


“Kids in the city don’t always have room to raise swine or horses, but there are a lot of other sciences they can experiment with,” says Walter Barker, 4-H youth development specialist.

Barker says there are 12,000 youth participating in 4-H in southern Nevada. Science clubs experiment with Global Information Systems (GIS) and Global Positioning Systems (GPS) units, alternative energy, robotics and rocketry.

“These programs reach youth who otherwise don’t have the chance to build robots or launch rockets and give them a

relaxed environment away from school,” says Sandy Sanders, a community-based instructor. “It’s a fun environment with their friends and it gives youth more time to expand their interests.”

Silverado High School student Alyssa Barker, 16, says the 4-H space program gave her the chance to experience a flight simulator and meet an astronaut.

“In school, there’s a lot more paperwork,” she says. “In rocketry, we spoke to an astronaut and asked him questions. In class, we would have just read what he says.” 



Pyramid Lake 4-H Club member Tenaya James, a 7th-grader at Mendive Middle School in Sparks, shows the solid form the hydrogel powder turned into after absorbing water from a diaper.

For more information on 4-H programs in Nevada, contact Steve Schafer, (775) 784-6207, or schafers@unce.unr.edu, or your local Cooperative Extension office.

University of Nevada

RENO JAZZ Festival

APRIL 23-25, 2009

Always the best in JAZZ —
concerts, competitions and clinics!

Celebrating student
achievement for 47 years!

VISIT WWW.UNR.EDU/RJF

Tickets: 1-800-225-2277 • Jazz Fan Pass: (775) 784-4ART

