The Water Wheel

Published by Coachella Valley Water District to develop responsible water users for tomorrow.

Winter 2012

Jewish Community School students experience Project WET

Project WET is a great way to bring water education into your classroom. The activities are fun and many are thought-provoking.

Last summer, CVWD educators hosted their fourth Project WET workshop for teachers. One of the attendees was **Talia Lizemer-Hawley**, a 5th/6th grade teacher at Jewish Community School of the Desert. After the workshop, she said she was very excited about doing some of the activities with her students.

Talia selected an activity from the Project WET Curriculum and Activity Guide that would allow her students to be creative but also cause them to think about the ramifications of their actions. She examined the book and decided on an environmental science activity.

The activity – Sum of the Parts. The scenario – You have just inherited a sizeable piece of riverfront property and $10 million. The assignment – Draw a picture showing how you would develop your piece of land using the $10 million you just inherited.

Once they had finished their creations, the pieces were laid out forming a stretch of river. Beginning at the upstream end of the river, each student described how they had developed their property, how they used water and what affect their development would have on the river. It was pleasantly surprising to hear that some of them "purified" the water before it left their property.

Jewish Community School of the Desert students from left to right: **Jacob Hough**, **Erika Kort**, **Sivan Platt**, **Samuel Veliz**, **Seth Menn**, **Raya Cowle**, **Chloe De La O** and **Jordan Etziony** describe how they developed their parcels of land.

Student reactions included: **Sivan Platt** really enjoyed using his imagination. **Jacob Hough** said he had a lot of fun deciding what to draw and that he was surprised when all the pieces came together.

Chloe De La O built big houses, a hotel, an underwater kids center and a radio station while **Erika Kort** wanted only a farm because she loves nature. She also had to hire someone to clean up all the pollution that came her way.

Raya Cowle was sad that the pollution hurt the animals. At the downstream end of the river was **Samuel Veliz**. He carefully developed his property and said that he purified the water after using it. He said he was upset when the pollution from the other properties flowed downstream to his property.

Talia shared that the most important thing her students learned from the activity was that actions each of us take not only affect other people, but often the environment, and sometimes in a negative way.

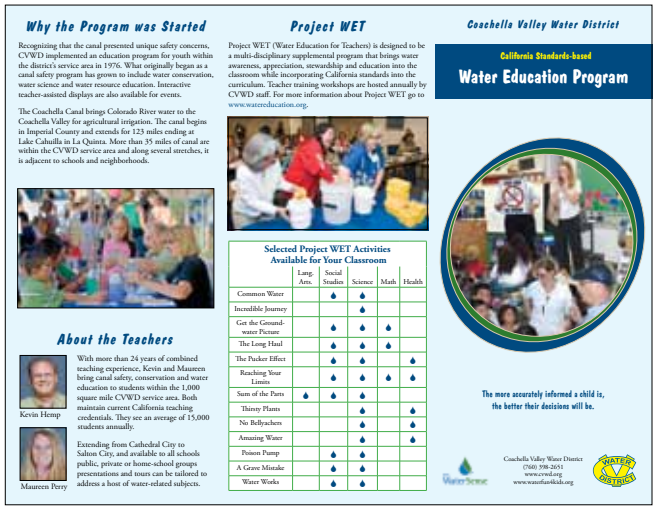
Look for more details about the next Project WET workshop on the CVWD website at www.cvwd.org this coming spring.

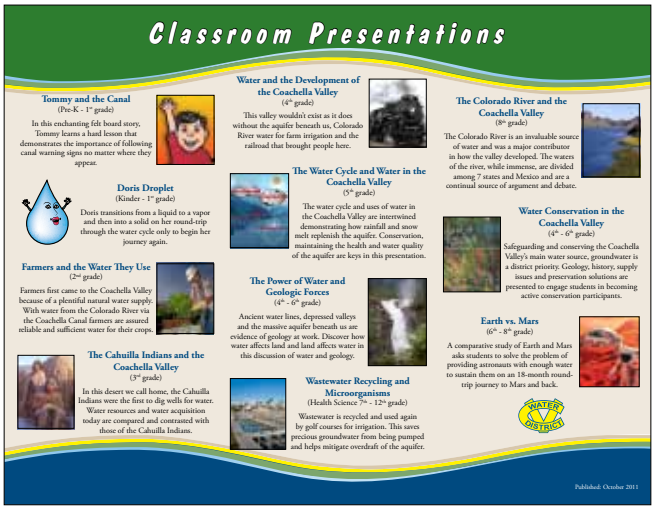
What's new

In the fall, CVWD teachers visited schools in the Coachella Valley's three school districts. The goals were to schedule classroom presentations, update contact lists and to share the new Water Education Program brochure.

The brochure was prepared to provide an overview of the education program offered by CVWD teachers to schools in the valley. The goal is to partner with teachers to provide an effective and timely canal safety and water education program.

If you don't have a brochure, request it by calling (760) 398-2651 and ask for either Maureen Perry or Kevin Hemp. You can also email your request to mperry@cvwd.org. Indicate how many copies you would like and where to send them.





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www.cvwd.org or www.waterfun4kids.org

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Thermal area residents connected to CVWD water and sewer services

Families living in a Thermal area mobile home park known as Duroville will now have access to high-quality tap water and updated sewer systems.

As a joint project with Desert Empire Homes, Inc., Coachella Valley Water District and the County of Riverside Redevelopment Agency, the U.S. Department of Agriculture Rural Development's Water and Waste Disposal Program awarded three grants to fund most of the $6.3 million project costs.

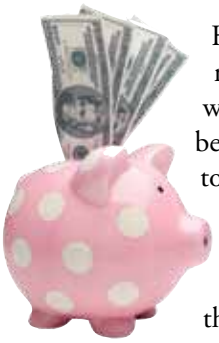
The project will provide water and sewer infrastructure extensions and connections from CVWD-operated systems to the Mountain View Estates Mobile Home Park in Thermal. As part of the grant requirements, 75 percent of the estates residents need to have been prior residents of Duroville, a community that has been declared unsafe by federal courts.

The Redevelopment Agency has been working to relocate residents from their residences in Duroville to the estates where the water and sewer connections are being constructed.

The estates currently has 160 mobiles homes and is expected to add 400 more mobile home lots to allow for incoming Duroville residents and others looking to live where they will have access to safe and clean drinking water.

Community leaders hope more projects of this type will be funded so other mobile home parks in the lower Coachella Valley with aging septic systems and tap water from private wells that does not meet government water quality standards can receive CVWD services.

The Cost of Water



Here's some good news. Your tap water is free! Now, before you get too giddy, please understand that it is also highly recommended that you continue to pay your water bill.

On the surface this seems as contradictory as offering someone boneless ribs, or vegetarian meatballs; however, be assured that, unlike jumbo shrimp, free water is not an oxymoron.

Water, like the air we breathe, is free. The reason you don't get an "air bill" in your mail each month is because all that's required to deliver it to your lungs is you.

Water delivery, on the other hand, is a lot more complex. Wells need to be drilled, pumps need to be installed, pipelines need to be built, personnel and equipment need to be mobilized, storage tanks, treatment, testing and maintenance all need to be operating before you get your first drop of water. The water is still free but you are billed for the cost of providing service.

Water rates are in constant flux. As services and outside water supply costs increase, so do rates. The key components affecting the cost of water include testing and treatment costs, infrastructure maintenance, investment in additional water supplies and energy costs.

Testing and Treatment

It's important to keep in mind that as drinking water regulations become more stringent, new treatment technologies are researched, developed and implemented in order to ensure that tap water remains compliant with state and federal standards.

CVWD performs about 15,000 water quality tests annually and maintains a state-certified laboratory.

Infrastructure

Providing 24-hour a day service, CVWD keeps a watchful eye to assure a reliable drinking water system that is comprised of nearly 2,000 miles of pipeline, 100 wells and 60 reservoirs.

Maintenance, repairs and upgrades cost about $12 million annually. In addition, regular testing of the system's ability to properly support emergency/fire suppression services is a vital and necessary expense.

Imported Water

CVWD's imported water costs are nearly $60 million annually. Imported water from the Colorado River and State Water Project are necessary for agricultural and golf course irrigation, and groundwater replenishment.

Energy Costs

It takes a lot of electricity to pump, treat and deliver water. CVWD pays approximately $7.5 million annually in tap water related energy costs.

Despite all that's involved in providing water service, CVWD customers can still purchase 7,000 glasses of tap water for about $1. Comparatively speaking, how much soda, gasoline, milk, coffee or even bottled water can be purchased for the same amount? So remember, the next time you're looking to quench your thirst, CVWD tap water is the best deal around.

California Education and the Environmental Initiative

The Education and the Environment Initiative (EEI) was signed into law in 2003. The law mandates the creation of a standards-based curriculum to bring education about the environment into California's K-12 schools.

This new curriculum has been approved by the California Department of Education.

The California Environmental Protection Agency is the lead agency for developing and implementing the EEI. Key state agency partners include the California Department of Education, the State Board of Education, and the California Natural Resources Agency.

The curriculum is aimed at shaping today's students to become environmental stewards who understand that human activities have impacts on the natural world.

The EEI lessons align with instructional material already in place so it's easy to know where to use the EEI lessons as replacement lessons.

Also available are ample support materials, including beautiful graphics and stories that relate the academic standard to relevant California topics.

Go to www.calepa.ca.gov/education/eei/curriculum/ to view the lessons. Everything is free!

Notable News

A recent discovery uses colored glass that often sits in recycling centers with nowhere to go because there's very little demand for recycled colored glass. However, thanks to Dr. Nichola Coleman, a senior lecturer in materials chemistry at the University of Greenwich's School of Science, recyclable colored glass may soon become a high demand item.

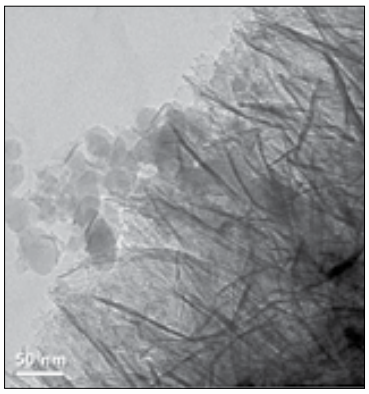
Dr. Coleman has invented a process that converts waste glass into tobermorite. This is significant because tobermorite as an ion-exchange filter is highly effective in removing heavy metal contaminates from water both above and below ground. It can also be used as a barrier to prevent polluted or undesirable groundwater from moving laterally and possibly polluting clean groundwater.

Tobermorite can be manufactured by taking a mixture of ground glass, lime and caustic soda and heating it to 100° Celsius in a sealed stainless steel container. What's even better is that making tobermorite in this way costs very little.

Thanks to Dr. Coleman, the glass is finally greener on the other side.

Dr. Sharmila Mukhopadhyay, director of Wright State's Center for Nano-Scale Multifunctional Materials, has something to be excited about. She and her research team have developed near molecular-sized nano brushes that can clean polluted streams, rivers, lakes and municipal water.

These nano brushes look like nano-sized mascara brushes. The bristles are made up of thousands of tiny, jellyfish-like strands that significantly increase the surface area available for attracting pollution or killing bacteria. To give an idea of size, the strands are about 2 nanometers in diameter compared to a standard sheet of paper that is 100,000 nanometers thick. Just one gram of the material, if spread out, would cover about 5,380 square feet.



Nanofibers shown capturing virus-sized silica particles.
Source: NASA.gov.

The great thing is that the strands can be coated to attract specific types of pollution or kill certain bacteria. And, multiple coatings can be used which means that one filter could be used to eliminate several different types of pollution. Sounds almost too good to be true, but maybe good things truly do come in small packages.

Water is the best of all things.
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