

The Water Wheel



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

Spring 2018

Applause goes to water science & engineering award winners

Since 1991, the Coachella Valley Water District has been recognizing students who have participated in the science fair by developing projects that demonstrate excellence in water science or engineering having to do with water. Every year is different and we're always excited to see what each year holds. As judges, CVWD employees are looking for projects that show a student's passion and understanding for the topic they are researching as well as for the scientific process. We wish every student success and offer kudos for putting in the time to develop and prepare a science/engineering project. Congratulations goes to each and every student.

Coachella Valley Unified School District

Astrid Mejia is a 12th grader at Coachella Valley High School. Her project, **Water Filter**, tested for a water filtration system that could be made inexpensively out of readily available materials so that more people living in third world countries could have access to clean drinking water. She was able to prove that, depending on how certain materials are layered within the filter, a homemade water filter can be effective at removing larger particles like silt from the water. However, despite this fact, she noted that the final and most important step, disinfection, which she was not able to achieve, would require further study. We truly appreciated Astrid's interest and effort to solve this problem. Her science teacher is **Miss Parks**.



Desert Sands Unified School District

Bryan Cheng is an 8th grader at Sacred Heart Middle School. His project, **Can Copper Foil Help Solve the World's Water Shortage Problem Using the Oligo-Dynamic Effect** focused on an inexpensive disinfection method that might make a contaminated water supply safer. It turns out that copper ions in water can be toxic to E. coli, a disease causing bacteria. When bacteria die from exposure to these ions it is called the Oligo-Dynamic Effect. Brian proved that after 48 hours of exposure, containers lined in copper foil effectively killed all contaminants. Bryan admits that this project created more questions than it answered. To that we say, "That is why a scientist's job is never done." Keep up the good work! His science teacher is **Mr. Lethcoe**.

Palm Springs Unified School District

Tracy Inting is a 4th grader at Katherine Finchy Elementary. His project, **Vermicomposting, the key to a Green Thumb** tested the organic soil his family creates by using red earthworms as a composting agent for decaying organic material against store-bought soil for growing plants and vegetables. Tracy wondered if their homemade soil was as good as or better than commercial soils. To find the answer he conducted a series of tests that determined which of the soils produced the best tomato plants. The tests revealed that the family's compost was just as good as, but not better than Miracle Grow Potting Soil, and, better than several other leading commercial brands. Great job Tracy on your "growing" interest in science! His science teacher is **Mrs. Tapia**.



Read Across America Day at Cesar Chavez Elementary

Every year on March 2, schools across the nation celebrate the birthday of the ninth-best-selling fiction author of all time, Dr. Seuss.

Guests are invited to schools to read Dr. Seuss books to their students. This year commemorates what would have been Dr. Seuss's 114th birthday. CVWD Education Specialist Maureen Perry was invited to read to students at Cesar Chavez Elementary School in Coachella.

"It's one of the times I get to be playful and silly with the students," said Maureen. "I absolutely love reading Dr. Seuss books aloud. When I taught kindergarten, my Dr. Seuss books were heavily used.

"One of my favorite Dr. Seuss quotes is, 'Today you are you! That is truer than true! There is no one alive who is you-er than you!'"



Education Specialist, Maureen Perry reads One Fish, Two Fish, Red Fish, Blue Fish to a group of 2nd graders at Cesar Chavez Elementary School in Coachella.

We are learning too

Many of CVWD's operations workers have so much experience that they are qualified to train other employees. After receiving certification to provide training for credit, many of CVWD's operations staff set up and provided training in 16 different functions that are regularly performed by staff. This was an opportunity for people to be exposed to and cross-trained in other areas. Cross-training makes an individual more valuable to the agency and also gives them a sense of satisfaction because their skill set is enhanced.



Art Acuna, domestic serviceworker, explains all the various parts of a well and how they work.

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Flushable wipes really aren't flushable

Coachella Valley Water District provides sewer service to more than 94,000 accounts. We operate five wastewater reclamation plants with the total capacity of more than 33 million gallons per day. It is an important service that we consider critical to the citizens of the Coachella Valley. But our system, like those all over the world, is fighting damage caused by users flushing items or putting items down the drain that don't belong there.

For instance, London is currently working to remove an 820-foot long, 130-ton blockage out of their system. In systems like CVWD's which relies on pumps and motors to move waste, the problem can create serious damage to pumps and other equipment.

If objects such as "flushable" wipes and diapers clump together, they can get stuck in our equipment. This can cause damage and even destroy pumps, which could cost more than \$40,000 to replace. Each year CVWD spends about \$1 million maintaining and cleaning our sanitation system. A great deal of that

effort is removing items that should not have gone down the drain in the first place. The District had adopted a slogan that says, "No wipes in the pipes."

Many items can cause this damage, but the most prevalent ones that CVWD sees are grease, diapers and "flushable" wipes. Remember, just because an item says it is flushable does not mean that it will disintegrate or breakdown, and the old wives tale that putting grease down the garbage disposal is ok is simply untrue.

In addition to causing damage to the CVWD system, items like this can also harm the private plumbing at your home or business, creating clogs or other damage.

So remember to be sewer smart — don't flush or drain any item that should go in the trash or be disposed of another way. For instance, these items should not be flushed or put down the drain:

- Fats, oils and grease

- Flushable wipes, cotton pads and swabs, facial tissues, or personal hygiene items
- Paper towels
- Eggshells, coffee grounds, any non-organic materials
- Hazardous waste such as household chemicals, cleaning paint, cement, stucco, or pool grout
- Medications of any kind

If you are curious about whether "flushable" items are really flushable, check out the small print on the packaging. Flushable wipe packaging will most likely say something such as it is recommended that they not be flushed. There might even be a lengthy list of situations where they absolutely should not be flushed. Please read the packaging closely.

Unless you have a plumber on speed dial and want to give them a little extra income, because your drains are clogged, be careful about putting oils, grease or anything that may not easily breakdown into a drain. What may be liquid, such as hot oil when it goes into the drain, it will quickly solidify and make a messy clumpy mess in your pipes.

Below: Pipe clogged by congealed fats, oils and grease. Yuck!



James Workman Middle School learns about wastewater recycling

In February, **Mrs. Theony** brought her James Workman Middle School 6th grade students to CVWD's wastewater treatment plant in Palm Desert to learn about how the District receives raw sewage and uses microorganisms to clean the water so it can be reused to irrigate golf courses.

While there is a big “yuck” factor associated with treating sewage water, if you're a science nerd, what goes on behind that big beige gate on Cook Street is fascinating. Once the large items and things that the microorganisms can't eat are removed at headworks, the real work begins. It's as simple as pre-screening, aeration, clarification, separation and filtration. Well, not really, but in a nutshell that's pretty much the whole ball of wax.

If you are interested in having your class or special interest group receive these one-of-a-kind, unforgettable and highly informative tours, contact either Maureen Perry at mperry@cvwd.org or Kevin Hemp at khemp@cvwd.org.



Top: Maureen Perry, education specialist, shows students how the cleaned water is separated from the activated sludge (microorganisms) so they can then be processed separately. The water is chlorinated and filtered and the sludge is either removed from the system or sent back to the beginning for another time through the process.

Above: Maureen explains how the sludge has a polymer added to it so the belt press will extract as much water as possible before sending it off to Arizona to be composted.

Right: Kevin Hemp, education specialist, talks to the students and describes the entire treatment process. He also shows the microorganisms as viewed through a microscope and then projected onto a 60" monitor. What can't be seen with the naked eye becomes larger than life as evidenced with all the oooohs and aaaaaahs that come from people when they realize what they're looking at is found in a single drop of water.

