



California Project WET Gazette

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Spring Measures

Spring arrived early in my neighborhood this year with the roar of lawn mowers, the scent of freshly cut grass and sparkling streams of water erupting to life in February. Time to once again check the house and yard for leaks before the long, hot summer arrives. I've heard from some who think this is such a silly waste of time when our water is so cheap and conserving it only provides more water to spur greater loss of the local landscape to development or for export to other regions of the state, but we tend to forget we are all collectively paying for the delivery and treatment of water whether through a bill or well maintenance costs – and small leaks add up to huge losses we are also paying for when spread across thousands of homes and businesses. Yes, we do consider new water conservation measures, but for many of us greater 'water use efficiency' is the larger goal – Are we getting the most out of the water we are using?

Let's start with a challenge for anyone who thinks leaks don't add up to much. The Project WET activity '*Money Down the Drain*' (p: 351) helps students of all ages learn how to measure leaks and calculate average rate of water loss and cost into the future, then you can apply your new skills on actual leaks at home or school. Most people are shocked at the amount of water even a barely dripping faucet can lose over a month or year if left in disrepair. Most people are equally shocked at how little that same volume of water will cost you on your water bill throughout much of the state, despite rhetoric that claims the opposite. Check your water bill or ask your local water provider to get your local water rates. Use the local prices for bottled water – or better yet, the bulk water some stores sell in re-fill stations – to see what your water would cost in the open market!

Each of us leaves unique footprints as we travel through life, whether it is the prints we leave on a trail, walking barefoot through the grass – or using natural resources. The Project WET activity '*My Water Footprint*' (p: 441) helps students and adults alike begin to understand, investigate and begin to measure their own water footprints. The activity begins with each person brainstorming the ways they use water on a daily basis, then creating a simple pocket water meter to get a rough approximation of the water they use over a 24-hour period. This is followed by an analysis of the amount of water used, a brainstorm of conservation actions they could implement and another 24-hour period using the meter to measure the reduction in their water use using their water conservation actions.

'*Water Audit*' (p: 469) is a similar activity, but where '*My Water Footprint*' is solely focused on personal water use and behavioral changes that can conserve water, '*Water Audit*' has students assessing water use throughout their home or school and comparing technological as well as behavioral changes to use water more efficiently. One of the conundrums in achieving greater efficiency and conservation in water use at home is the relatively low cost of water and our ability

as humans to rationalize avoiding anything that seems complicated – including fixing drippy faucets, leaking toilet valves or out of whack sprinklers or irrigation timers! With this activity, students assess the likelihood of success to affect a behavioral change to achieve great water use efficiency versus the cost of using a technological change. *'Water Audit'* also shifts student focus from purely conservation to evaluating water use efficiency – Where is the water being used at home or school? Is this the correct volume of water for the given use? Can water from other uses be reused to reduce the volume of new water required by the high volume use? Can the water be applied at a different time of day to reduce cost? The student recommendations from the *'Water Audit'* activity can easily be used and integrated into a service-learning program that not only engages student interest in real-life applications, but can also potentially save the bottom line for their school and parents!

Project WET activities are designed to help students understand a concept in as simple a format as possible and use the lowest cost materials available based on teacher reviews, but there is nothing stopping an educator from adding other elements. Don't like the paper meters or water calculation worksheets? There are a number of on-line calculators that can be used to assess personal and home water use, including one developed by the U.S. Geological Survey. Would you like to instill greater appreciation in students for the wonders of modern plumbing? Run them (literally!) through the Project WET activity *'The Long Haul'* (p: 273), which gives students a sense of what life was like – and still is in some parts of the world – without modern plumbing. Please use the remaining water at the end of the activity in the school garden or landscape! Looking for more detail – including higher level math equations – to use with the 'Water Audit' activity? The Project WET guide activity was derived from the Arizona Project WET School Water Audit Program (SWAP) and all the materials to implement the entire program at your school are available online. Would you like to expand student awareness on hidden water uses, water users or get them thinking about career opportunities in the water sector? Check out the Project WET activities *'Virtual Water'* (p: 289), *'8-4-1, One for All'* (p: 299) and *'Urban Waters'* (p: 413). Want to know how to take more sophisticated measurements of water use or how to repair or install some of the more efficient water technology? Greg Chick is a certified Green Plumber in Ramona, Calif. who has developed the "do it yourself" website DIY Plumbing Advice.com, where you can learn how to replace faucet aerators, toilet flapper valves, check for hidden leaks – and when it is time to call a plumber!

One final note on why an assessment of our personal and combined water use may be important this spring – the recent snow survey results confirmed that January and February have been the driest in California's recorded precipitation history. Despite a few early storm events that brought heavy precipitation, the amount of actual water deposited has only been a fraction of what is needed to fully maintain California ecosystems, urban areas and food production. Farms and cities have already received notice of severe water delivery cutbacks if a 'March miracle' of storms does not materialize to bring the much-needed precipitation – and you can probably guess what this could mean for future water rates. Please check out the **'Websites of Interest'** to learn more. If you are able to use the water assessment activities with your students this spring, please send me a note and share your results on the amount of water your class was able to save or use more efficiently!

WEBSITES OF INTEREST

DWR: California Cooperative Snow Surveys

<http://cdec.water.ca.gov/snow>

As the successful use of snow surveys in the forecasting of runoff became known, several water agencies began independent snow survey programs. After a few years, these agencies and the State of California, recognized both the inherent value that such information could have for water users throughout the State

and the need for centralized coordination of the snow survey program. *This page includes the latest snow survey results and a link to current California statewide water conditions.*

The USGS Water Science School

<http://ga.water.usgs.gov/edu/sq3.html>

How much is your daily indoor water use? How much water do you use when you take a shower? Wash a load of clothes? Flush a toilet? Even brush your teeth? Enter your use data from the Project WET 'My Water Footprint' or 'Water Audit' activities, choose the submit button, and we'll give you an estimate of how many gallons of water you used. NOTE: Our survey here is very general in nature...just to give you a quick idea of your water use, but we have links to more accurate calculators on this page!

H2O House Water Saver Home

<http://www.h2ouse.org>

Take the virtual home tour to investigate your water saving opportunities in each area of your home. Click on each location to show you both the facts and specific advice. Visit the virtual encyclopedia of water conservation information for your home and select the area of the home where you are interested in learning more about saving water, including leak detection and repair, water use efficiency in and outside the home and incentive or rebate programs available to you: <http://www.h2ouse.org/action/index.cfm>

HomeWaterWorks: Calculator

<http://www.home-water-works.org>

Want to conserve water? Not sure where to start? Our Water Calculator quickly estimates how much water your household uses and compares it to a similar average and a highly efficient home. The Water Calculator also shows you where to begin your home water conservation efforts. Throughout Home Water Works, you'll find useful tips and resources for saving water and money without sacrificing comfort or convenience.

School Water Audit Project

<http://cals.arizona.edu/arizonawet/teachersupport/swap>

Start a School Water Audit today! Developed by the Arizona Project WET program, the School Water Audit Project combines water education with practical applications of scientific methodology. It brings community members together with students for the purpose of accomplishing a unified goal. It empowers students and adults alike to be responsible water stewards. Download the SWAP lessons individually by clicking on the download option inside your lesson bubble. SWAP water waste for water efficiency!

Save Our Water

<http://www.saveourh2o.org>

Save Our Water is a statewide program aimed at helping Californians reduce their everyday water use. Browse the Save Our Water website to uncover ideas on saving water indoors and out. You'll find ideas for creating a beautiful, water-efficient garden, tools for calculating your water use and fun ways for kids to save water. Young or old, we can all make a difference in California's water use by making simple changes to our daily habits.

BeWaterWise: Landscape Water Calculator

<http://www.bewaterwise.com/index.html>

Many of us overwater our plants and lawns. But now, figuring out how much water your lawn and garden really need is easy with the Watering Index and Calculator. Get started by using the calculator below to create a customized watering schedule. Then use the Watering Index daily, weekly or monthly to adjust your schedule. The Watering Index is updated daily. You could save as much as 1,000 gallons a month by watering your plants only as much as they need.

WaterSense

<http://www.epa.gov/watersense>

The WaterSense program seeks to help consumers make smart water choices that save money and maintain high environmental standards without compromising performance. Products and services that have earned the WaterSense label have been certified to be at least 20 percent more efficient without sacrificing performance. Something as simple as twisting on a WaterSense labeled aerator and upgrading

to a WaterSense labeled faucet could save a household 11,000 gallons over the life of the faucet. Learn more about how you can save water and help WaterSense preserve and protect our nation's water resources.

DIY Plumbing Advice

<http://diyplumbingadvice.com>

Do-It-Yourself Plumbing info you can actually use! DIY Plumbing Advice strives to provide you with plumbing and water information that is reliable, responsible, and free. The purpose of this site is to show *YOU* how to do it, not just to show an abbreviated video of how I did it. A plumbing glossary is included on each subject page. The site was developed by Greg Chick, a certified Green Plumber who works in Ramona, CA. You can learn more about Greg at: <http://www.ramonasplumber.com>. You can learn more about Green Plumbers at: <http://www.greenplumbersusa.com/what-is-a-greenplumber>.

Water Efficient Landscapes

http://www.water.ca.gov/wateruseefficiency/docs/water_efficient_landscapes.pdf

In California, the largest use of all urban water is watering landscapes. When a landscape or irrigation system is poorly designed or poorly maintained, or the landscape consists of plants not suited to the dry and often hot California climate, water demand increases as a result of excessive evaporation, leaks, and runoff. Water consumption can be greatly reduced with careful planning, good plant selection, efficient irrigation systems and good water management and maintenance practices.

Recycled Water Use in the Landscape

<http://www.water.ca.gov/wateruseefficiency/docs/RECYLbrochure.pdf>

Recycled water is highly treated wastewater from various sources such as domestic sewage, industrial wastewater and storm water runoff. Gray water is untreated, non-disinfected wastewater that has not come into contact with toilet waste. Gray water includes wastewater from residential showers, bath tubs, bathroom sinks and washing machines which may be used in landscapes using an onsite collection system and must employ a subsurface irrigation method. Recycled water is cleaner, safer and has far less restrictions on its use than gray water.

Ecology Center: Greywater

<http://www.ecologycenter.org/factsheets/greywater.html>

Greywater is untreated waste water which has not come into contact with toilet waste. Graywater includes waste water from bathtubs, showers, bathroom wash basins, washing machines, and laundry tubs. It does not include waste water from kitchen sinks, photo lab sinks, dishwashers, or laundry water from soiled diapers. The Ecology Center facilitates urban lifestyles consistent with the goals of ecological sustainability, social equity, and economic development.

Greywater Guidelines

http://www.water.ca.gov/wateruseefficiency/docs/graywater_guide_book.pdf

California's Graywater Standards were developed and adopted in response to Assembly Bill 3518, the Graywater Systems for Single Family Residences Act of 1992. This Guide was prepared to help homeowners and landscape and plumbing contractors understand the Graywater Standards and to help them design, install and maintain graywater systems.

Water Science Storytime

<http://ga.water.usgs.gov/edu/dryville.html>

Have you ever had the desire to strike out on your own? Maybe you've had enough of big-city life and want to build you own town? Well, you can't begin your new town without considering water. From the smallest town to the biggest city, there always has to be a water plan. You need to be able to get water, use it, and dispose of what you don't want. You and some friends have found your (desolate) spot and have moved in. How would you develop your "Water Plan for Dryville?" Share this story with your students and bring it to life with any number of Project WET activities!

Water Facts & Fun

<http://www.water.ca.gov/education/wffcatalog.cfm>

Lots of free materials for California educators, including *'The California Water Works'* that has a colorful comic book character, Professor Goodwater, leading students through the water cycle, showing them how water is delivered through California's built and natural water systems to the end users. Guidelines for water conservation are provided as well.

The Water Cycle for Kids

<http://ga.water.usgs.gov/edu/watercycle-kids.html>

The U.S. Geological Survey (USGS) and the Food and Agriculture Organization of the United Nations (FAO) have teamed up to create a water-cycle diagram for kids and elementary and middle schools. The diagram is available in tabloid (17x11 inches) and poster (33x24 inches) sizes. The PDF versions are about 2 megabytes, the tabloid JPG is about 400 kilobytes, and the poster JPG is about 2.5 megabytes.

If you would like more information on Project WET please contact Brian Brown, California Project WET Coordinator at: projectwet@watereducation.org or (916) 444-6240.

Check our website www.watereducation.org and/or contact us for updates.