



Drought, Watersheds, and Water Science Resources – Courtesy of the CREEC Network www.creec.org

Finding Your Watersheds in Santa Barbara County:

County of Santa Barbara Water Resources Division –Project Clean Water

<http://www.sbprojectcleanwater.org/default.aspx>

SB County Map: <http://www.sbprojectcleanwater.org/impact.aspx>

SB Education Programs: <http://www.sbprojectcleanwater.org/whatyou.aspx?id=102>

“Basins of Relations” speech with Brock Dolman at Bioneers - Published on Dec 26, 2014. In this rousing tour-de-force, ecologist Brock Dolman reveals Planet Earth as Watershed Earth. He illustrates how the future lifeboat we’ll need is shaped exactly like our local watershed. All living things are inextricably linked by water and designed around its flow. With lessons from across the globe, he calls for a “rehydration revolution” – water systems based on good science, respect, and widespread community. <https://www.youtube.com/watch?v=5o1Nj4exhOg>

Basins of Relations Citizen’s Guide - <https://oaec.org/publications/basins-of-relations-a-citizens-guide/>

Water Wise, Sustainable Landscaping:

Water Wise in Santa Barbara County – <http://www.waterwisesb.org>

Water Education:

Department of Water Resources Online Catalog - <http://water.ca.gov/education/wffcatalog.cfm>

Project WET - <http://www.projectwet.org/>

Discover Water - <http://www.discoverwater.org/>

Watersheds for Kids from EPA - <http://water.epa.gov/aboutow/owow/kids.cfm>

USGS Water Science School - <http://ga.water.usgs.gov/edu/>

Drought for Schools - <http://drought.unl.edu/DroughtforKids.aspx>

Slow It, Spread It, Sink It – <http://sonomarcd.org/documents/Slow-it-Spread-it-Sink-it-Store-it.pdf>

Water Education Foundation - <http://www.watereducation.org/project-wet-supplementary-materials>

Waves, Wetlands, Watersheds - <http://www.coastal.ca.gov/publiced/waves/waves1.html>

1. **State of California Department of Water Resources - free materials for teachers**
<http://www.water.ca.gov/education>

Online Catalog:

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



2. Water Education Foundation <http://www.watereducation.org/> including Project WET <http://www.watereducation.org/doc.asp?id=1008> (More curriculum under "School Programs." and "Water Kids")
3. California Water Awareness Campaign
<http://www.wateraware.org/kits.html>
<http://www.wateraware.org/awaremonth.html>
(includes links for teachers and students and a great video to watch)
4. Captain Hydro Workbook
[www.ebmud.com/services/education & outreach/](http://www.ebmud.com/services/education_&_outreach/)
(“Curricula & Classroom Materials”)
5. Metropolitan Water District Orange County Water Lessons
www.mwdoc.com (under “For Students & Teachers” then to “School Program” link on left and you’ll find K – 5 Instructional Packets.
6. Waves, Wetlands, and Watersheds, California Coastal Commission Science Activity Guide, 2003 Grades 3 – 8 www.coastforyou.org
7. Use Water Wisely <http://www.usewaterwisely.com/totm0504.cfm>
(includes a resource directory and grant competition for teachers)
8. National EE Week – Be Water Wise
www.eeweek.org/resources/water_curricula
9. EPA
www.epa.gov/teachers/water/htm
10. American Museum of Natural History Water Exhibit
www.amnh.org/exhibitions/water

For Educators:
http://www.amnh.org/education/school_groups/exhibition.php?id=314

For Kids – “Water Ology”
www.ology.amnh.org/water

Water Quality Service Learning Program

SCHOOL SITE PROJECT IDEAS

- Pick up and analyze trash. Where is the trash coming from? What trash can be recycled and what cannot? What is the most common trash item? What can be done to eliminate the source of this trash (i.e., if the majority of the trash is plastic straw wrappers, can we do a campaign to reduce juice box use and suggest using a thermos instead)?
- Organize a student litter patrol to make sure trash is kept in trashcans and not left on the ground, particularly after snacks and lunches. Make posters to remind all students to reduce litter.
- Start a recycling program for paper, cans, glass, etc. At the campaign start, check the amount of large trash bins filled each week by the school, and then create a measurable goal to monitor and reduce that amount each month. Students may separate, weigh, and recycle trash for cash, and generate money for school activities.
- Make posters on good water quality management tips and post them in classrooms and sites around the community. Create a way to measure the effectiveness of the posters.
- Work with school facility managers to remove concrete and add more trees/grass areas/a school garden to your campus to absorb water and prevent it from flowing into stormdrains.
- Organize a water conservation campaign to reduce the amount of water used at your school. At the beginning of the campaign, check the amount of water used by the school, and then create a measurable goal to monitor and reduce the amount each month.
- Reduce the water runoff from pavement by landscaping an area using native trees, shrubs, flowers, and grasses that do not require a lot of water.
- Hard soil doesn't absorb run-off. Improve soil quality at the school by using mulch or another alternative such as ground cover in key areas. Monitor the results of your work.
- Teach other students, teachers, administrators, and parents about the school watershed. Design a "watershed tour" of the campus. This could include: what a watershed is, components of a watershed, where water is coming from, and where it is going, etc.



Water Quality Service Learning Program

COMMUNITY PROJECT IDEAS

- If water quality problems are the result of off-campus practices, write a letter to the principal, mayor, and/or city representative to provide ideas about resolving the problem. Follow up with them to see what can be done to address the problem.
- Pick up and analyze trash. Where is the trash coming from? What trash can be recycled and what cannot? What is the most common trash item? What can be done to eliminate the source of this trash (i.e., if the majority of the trash is plastic bags, can we do a campaign to reduce plastic bag use and suggest using canvas bags instead)?
- Find out about a watershed project (e.g., citizen's water quality monitoring project, stream, or beach clean-up) in the community. Join your family or class in supporting and volunteering for these events.
- Design and distribute flyers or brochures about the ways community members can help improve water quality. Create a way to measure the impact of flyers and brochures distributed.
- Adopt a stream, river, or local park. Clean up a portion and help maintain it. Figure out where the main sources of trash and pollution originate from and work to alleviate the problem.
- Stencil signs next to stormdrains warning people not to dump litter or other items into stormdrains (this will likely require permission by the local governing jurisdiction).

These ideas come courtesy to you from the California Water Boards online curriculum support website: www.waterlessons.org

Water Conservation Tips

Here are several easy water conservation steps you can take to reduce your water use at home. You may wish to discuss some of these steps with your children; Better yet, implement some of these conservation strategies and rainwater harvesting techniques in your garden.

1. **Cluster your moisture-loving plants.** If you choose to grow plants that require lots of moisture, place them together in one landscape bed to save time and money by watering just one area of your landscape rather than multiple areas.
2. **Install a Rain Barrel.** To install a rain barrel, choose a downspout adjacent to a garden where you intend to recycle the water. Make sure the barrel can be placed on a level surface; to help with leveling, we recommend placing a 3" layer of crushed gravel or stonedust below the barrel location.
3. **Add mulch.** Mulch helps in many ways to conserve water. First, as a buffer, it helps even-out soil temperatures. Second, mulch serves as a blanket of protection to the soil; this blanket greatly reduces and prevents against water loss by evaporation. Third, it suppresses against weed growth. Mulch reduces the amount of weeds that compete with your plants for moisture. Finally, mulch helps control against water-runoff by improving water infiltration. This helps keep the water where you intend it to go – to your landscape plantings.
4. **Add organic matter.** Adding organic matter such as peat moss, manure, composted leaves, grass clippings, kitchen and vegetable scraps to the soil helps improve soil structure and enhances its water-retaining capabilities.
5. **Add soil polymers.** What are soil polymers? Soil polymers are a small “jelly-like” spongy substances, also called “water crystals,” which retain and slowly release moisture to the soil. Soil polymers effectively help your plant bed retain moisture for long periods of time.
6. **Planting drought tolerant varieties.** One of the best steps for conserving water in your garden is to choose species and plant varieties that can handle a dryer environment. Many native varieties fit this category. If in doubt, contact your local Extension office for a local list of drought tolerant varieties for your region.
7. **Adding a rain garden.** A rain garden reduces storm water runoff by creating an area where the water can soak into the soil and recharge the ground water supply. Instead of letting the rainwater wash into a storm drain or continue to run-off along the surface where an erosion problem can occur, a rain garden provides a shallow and vegetated space where stormwater is purposely directed, collected, and filtered naturally with plants and soil.
8. **Aerate your lawn.** Aerating your lawn in early spring and in the fall will help increase water absorption and retention.
9. **Don't overwater your lawn!** Water your lawn only when it needs it. In general, lawns only need about 1 inch of water per week,. You can easily check to see if your lawn needs water by stepping on it. If grass blades quickly spring back up, you don't need to water. If they remain flat, then it is time to water the lawn.
10. **Water very early.** Believe it or not, the best time of day to water is between the hours of 4am and 6am. Water can easily evaporate when your lawn is watered in the middle of the day under direct sunlight; this is why you should set your irrigation system to go on in the early morning hours. The best time to water is just before sunrise!

11. **Adjust mowing height.** Set your mower at a higher cutting level and mow frequently enough so that you are not removing more than one-third the height of the grass blades at each cutting. The higher the grass blades, the more moisture the soil retains.
12. **Install a drip irrigation system or soaker hose.** A drip irrigation system of tubes and hoses either placed above or below ground helps direct water to the roots of your landscape plantings. A sprinkler system broadcasts water and a higher percentage is lost to evaporation before reaching the plants' roots.
13. **Never water when very hot, windy or rainy.** Small particles of water will easily blow into the air and never make it to your lawn during periods of high wind. Keep in-mind that your lawn may naturally go dormant during the hot summer months and it's ok to give your lawn a break from watering. Ensure irrigation systems include a rain gauge so you don't run the system during rainy periods, and always keep the weather in mind when watering your yard or landscape beds.
14. **Using pervious pavers instead of solid surfaces.** Pervious pavers help promote the infiltration of rainwater and capture storm water runoff. Because pervious pavers are uniquely designed to create voids or pockets where the water can soak into the earth, they help conserve water by allowing this infiltration process to happen.

Saving and infiltrating storm water on-site will help protect our lakes, streams, and rivers. We hope these simple tips will help you understand some easy techniques you can take with your children to conserve water in the garden this year.