California Project WET Gazette

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Color Me a Watershed

An otherworldly glow of scattered sunlight and the occasional scent of smoke still linger in the atmosphere of the Central Valley, as fires continue to burn in watersheds throughout the state. As I write, wildfires have burned roughly 547,759 acres or 856 square miles of the state – or an area size of the combined city footprints of Los Angeles, Sacramento, San Jose and Fresno. But the debris and potential for sediments to wash off denuded slopes into the nearest water body is only one of many threats facing our waterways at the end of our long, dry Mediterranean summers. Salmon are responding in record numbers to water temperature and chemical signals triggering the annual fall run. Predators, low water levels, increased sediments, urban storm water runoff and the accumulated litter floating through our neighborhoods and left behind near our shores by the thousands enjoying a California summer all pose threats to our returning salmon. Yes, some of these threats are natural, which salmon are well adapted to surviving after millions of years of evolution, but human activities in our watersheds pose new threats and increase others at a rate far more rapid than many species can respond – and fouls the water we drink and the beaches, streams, trails, campgrounds and parks we like to visit. Thus the reason for so many fall events aimed at cleaning up our shores and watersheds, fixing potential erosion hazards and checking the chemical pulse of our waterways – and Project WET can help students build awareness, conceptual knowledge and skills applicable to these volunteer opportunities, while helping connect this learning to Common Core and the Next Generation of science standards.

In 2010, more than 1.2 million pounds of trash and recyclables were removed from our beaches, lakes, and waterways by the 82,500 plus Californians who participated in Coast Weeks events. However, as noted in their promotion, these events are about much more than picking up trash. It's an opportunity to come together to as citizens to accomplish something vital, while learning about California water sources and good water stewardship from the source to the sea – which is where Project WET activities come into the picture. *'Common Water' (p: 249)* can introduce the concept of water as a shared resource to lower elementary students, while connecting the concept to local history and the need for management in the upper elementary portion of the activity– and the activity tends to generate a fantastic discussion on water quality after all those dirty fingers and whatever that stuff on the sponges gets left in the water! *'Sum of the Parts' (p: 283)* gets the same points across with upper elementary and middle school students, as they also learn about *'point source'* and *'non-point source'* pollutants and some of the methods or Best Management Practices (BMPs) used to reduce or eliminate their impact. *'A-maze-ing Water' (p: 231)*, where students have to guide a drop of water through a maze of city streets to learn how activities in our homes and schoolyards affect water quality, includes directions for use with grades K through 8 and is a wonderful follow-up to either or both activities.

We all have a role to play in water stewardship is highlighted in the above activities, but how do our actions connected to the watershed from source to sea? Teachers can help students 'fill in' their watershed using an adaptation of *'The Incredible Journey' (p: 155)*. Place the names for actual rivers, lakes, coastal zones, groundwater basins and high mountain areas (as a substitute for the 'Glacier' station) within your larger watershed on slips of paper in envelopes at each of the stations in the activity. Students

draw and record the locations they visit as they take their journey through the water cycle – then plot the locations on a map, connect the dots and determine if the journey is feasible and if not, what path a water drop would to include in the story of their journey. This simple adaptation allows students to learn basic geography of a local watershed in addition to the learning and application of the vocabulary of water transitioning from state-to-state and place-to-place in the water cycle and the calculations of ratios or percentages of where water tended to reside in the cycle. The K-2 adaptation of *'Discover the Waters of Our National Parks' (p: 500)* can be used with younger students to learn about a National Park site within your watershed. Trace the route water takes from the park to the nearest river – or from a coastal park back up the river nearest the school. Higher grade level students don't just define the term *'watershed'* in the Project WET activity *'Seeing Watersheds' (p: 187)*; they are also challenged to apply knowledge and skills associated with it to identify and delineate watersheds on a map. A number of mapping programs – including the National Map – make it easy to locate topographic maps, allowing students to apply their new skills to local watersheds and locate for themselves the connections from source to the sea.

National Public Lands Day is the nation's largest, single-day volunteer event for public lands in the United States and focuses on educating Americans about critical environmental and natural resource issues and the need for shared stewardship. Land use is the topic of *'Color Me a Watershed' (p: 239)*, where students learn how to use maps to study changes in land use over time, assess potential impacts within the watershed and calculate potential changes in water runoff due to the changes in land use. The name derives from Option 1 of the activity, where students use different colors to delineate land use areas – i.e., forest, agriculture, residential, wetland, etc. – on maps showing an area over a 100-year period. A series of questions guides students in interpreting the land use changes observed over time. Option 2 of the activity then has students applying their math skills to calculate and compare the scale of changing land use on the maps, then challenging them to calculate volume of rainfall and total percent run-off for each land use area in Option 3. Students use their calculations to revisit the earlier questions to see how math and science can be used to refine estimates for potential impacts on the ground. Land cover maps for a given area at different time periods can be generated from the National Map for students to apply their knowledge to interpreting local land use changes. The activity can also be extended the activity to the fires by having students blacken a portion of one of the maps to represent a fire – *How did the fire change the mix of land use in the watershed? There are no slopes in the activity – How may the runoff estimates change as slope increases? What if the slope was burned?* **NOTE**: Option 1 of *'Color Me a Watershed'* has been used with students down to 3rd grade to introduce the concept of changing land use – often in regards to changes in habitat – and is often paired with *'Just Passing Through' (p: 163)*, where students investigate how vegetation – or the lack thereof – affects the movement of water over land surfaces.

The primary goal of World Water Monitoring Challenge (WWMC) is to educate and engage citizens in the protection of water resources, including awareness of how our own behaviors impact water. *'Sum of the Parts' (p: 283)* raises this awareness and is one of the Project WET lesson plans available on the World Water Monitoring Challenge website. Another is *'A Snapshot in Time' (p: 377)*, where middle and high school students learn to discern differences in value between an individual water quality data set – collected at one time in one place in the watershed – versus a series of data sets collected at various points in a watershed over time. Also available is *'Water Quality? Ask the Bugs!' (p: 421)*, which allows students to practice their skills before every hitting a stream bank in a simulated stream bioassessment of aquatic macroinvertebrates in the classroom. Of course, Elementary students love *'Macroinvertebrate Mayhem' (p: 343)*, which uses a game of tag to simulate the effects of pollutants and other environmental stressors on an aquatic macroinvertebrate population, to learn how organisms can act as indicators of ecosystem health. *'Blue River' (p: 135)* is also becoming a runaway hit and reinforces the concept of *'watershed,'* as students simulate a river system over a year, measure the flow and create a *'hydrograph'* of the data. Actual stream flow data can be pulled from local USGS stream gauges, which can be located and accessed using the USGS Mapper program.

An important aspect of Project WET activities is they don't just raise awareness of the negative aspects of environmental issues, but also challenge students to investigate solutions. Your school doesn't have to be on the banks of a stream to participate in Fall stewardship activities – as students will learn in the above activities, we are *all* part of some watershed and stewardship begins at our door step – or on the schoolyard. Students investigate and map the flow of water and what it is carrying through the school grounds in the activity *'Rainy -Day Hike' (p: 169).* While the K-2 version of the activity has students making boats and raising awareness of litter to track water flow, older students can identify issues and possible solutions. I've used a variety of the free, on-line mapping programs to get satellite and/or planning maps of school grounds for students to use with the activity, which eliminates the time spent on drawing buildings and gives student more time to do their investigation. Consider sampling the water coming out of the downspouts students locate in the activity, preferably within the first 20 minutes of the first fall storm and another sample after. If you don't have access to a test kit, have students observe and record what the water looks like before and after settling overnight – Use gloves when collecting the water! Pair *'Rainy – Day Hike'* with *'Storm Water' (p: 395)* to introduce students to specific BMPs to control storm water runoff, many of which are already being used in school programs to control storm water issues on their schoolyards. Schools adjacent to open land or slopes may also want to include *'Just*

Passing Through' (p: 163) and/or review the list of BMPs listed in *'Sum of the Parts' (p: 286-287)* – a number of which have been implemented by students to mitigate actual post – fire runoff.

It is hoped the suggestions above will help you take students from awareness to action, whether this fall or at some point in the school year. Direct experience and application of knowledge are great at setting conceptual understanding and skills in one's mind and students are going to need every edge we can give them as they prepare for Common Core testing. Please check out the ***'Websites of Interest'*** to find additional information on issues mentioned above and resources to integrate with your Project WET activities. The annual Earth Science Week in October provides a variety of opportunities for students to apply their knowledge and skills in Earth Science and many of the Project WET activities listed in this article will certainly help prepare them for addressing this year's theme of '*Mapping Our World.'* You'll find the student events in '***Grants, Scholarships &Contests***' and more information on the event in general in ***'Autumn Events'*** – including a festival to see the returning salmon! Finally, you can learn strategies for incorporating and experience a plethora of interdisciplinary activities at each of the Fall conferences listed under '***Professional Development Opportunities***' – and find a still growing list of Project WET workshops around the state to get your copy of the ***'Project WET Curriculum Guide 2.0.'***

PROFESSIONAL DEVELOPMENT OPPORTUNITIES

September 21, 2013 **Project WET workshop: *Fresno***

FRESNO EDUCATORS! The Fresno County Office of Education, CREEC Region 7 invites Fresno County educators to join us for this 'hands-on' workshop loaded with real life-based activities designed to supplement existing curriculum, including the use of EEI (Education & the Environment Initiative) curriculum units and provide strong support for STEAM and Service-Learning programs. *To register, please contact Jody Bertolucci at jbertolucci@fcoe.org or (559) 265-4062*

September 24, 2013 **Project WET workshop: *Incline Village***

TAHOE EDUCATORS! Come join us for a combined Project WET and Project Learning Tree workshop – set in the beauty of the Tahoe Basin. A wonderful hands-on training for anyone working with k-12 youth in a variety of settings! All activities are geared toward teaching about water and forest quality issues facing the Lake Tahoe and led by education staff from the Tahoe Center for Environmental Sciences and U. S. Forest Service, Tahoe Basin. *For more information and/or to register, please contact Kylee Wilkins, UC Davis TERC, (775) 881-7560, ext. 7474 or knwilkins@ucdavis.edu.*

September 25 and 26, 2013 **Project WET | Common Core and EEI: *Sacramento***

SACRAMENTO EDUCATORS! This is STEM learning at its best! Engage students in learning about water resources, water conservation and key related science concepts with the interdisciplinary, Common Core correlated water education program. Immerse yourself in fun, hands-on, standards based activities and lessons that can be used in classrooms, afterschool programs or other setting. *For questions, please contact Suzette Bienvenue, Sacramento Municipal Utilities District (SMUD) at 916-732-5175 or sbienve@smud.org. Please register for this FREE workshop at etcmail@smud.org or 916-732-6738.*

September 28, 2013 **Project WET & Wild About Wetlands workshop: *Redding***

NORTHERN CALIFORNIA EDUCATORS! Turtle Bay Exploration Center and the California Waterfowl Association (CWA) invites northern California educators to experience the interdisciplinary activities of Project WET that span all grade levels and subject areas and address real life water issues from local to global scale. You'll also learn about the Wild about Wetlands resource kits that include easy-to-use activities, background information and all the materials needed for teaching about wetlands ecosystems. Enjoy a fun filled day learning about two great curriculums! *To register, please contact Jan at jdehate@turtlebay.org or 530-242-3108*

September 28, 2013 **Project WET workshop: *Palm Desert***

COACHELLA VALLEY EDUCATORS! The Living Desert and Coachella Valley Water District invite you to an interactive day of investigation and hands-on activities that will enhance your ability to provide education about this valley's most precious resource — water. You'll leave with a better understanding of how water is managed and used in the Coachella Valley, as well as the sixty-four, interdisciplinary and Common Core aligned activities in the Project WET Guide 2.0 - plus excellent online resources. *To attend this* **FREE** *workshop, please register today at: www.cvwd.org*

October 8, 2013 **Waves, Wetlands, and Watersheds: *Berkeley***

The Shorebird Park Nature Center invites teachers to attend this FREE workshop, where you'll receive a copy of the Coastal Commission's '*Waves, Wetlands, and Watersheds'* curriculum and get tips for teaching your students about marine debris and plastic pollution and discover opportunities for service learning. *To register, please contact Annie Kohut Frankel at Annie.Frankel@coastal.ca.gov or (415) 597-5888. Please provide your name, phone number, email, and organization/school/grade as applicable.*

October 12, 2013 **Rancho Sonado: *Silverado***

SANTA ANA WATERSHED EDUCATORS! Inside the Outdoors and the Santa Ana Watershed Association invite Orange County educators to join us for this exciting workshop integrating study of the Santa Ana River watershed with the interdisciplinary, 'hands-on' activities of Project WET! The Common Core and California standards aligned activities integrate real-life scenarios designed to supplement your existing curriculum and complement use of EEI (Education & the Environment Initiative) curriculum units, STEAM (Science, Technology, Engineering, Arts & Math) Education and/or Service-Learning in the classroom. *To register, please contact Erin Eberhardt at EEberhardt@ocde.us*

October 19, 2013 **Project WET and the EEI: *Carmichael***

SACRAMENTO REGION EDUCATORS! Celebrate Earth Science Week experiencing fun, hands-on, standards-based activities in the outdoor setting of the Effie Yeaw Nature Center - plus an introduction to water monitoring with the U.S. Geological Survey. Explore the use of Project WET activities and the EEI curriculum to engage your students in the study of water resources, water use history, water conservation and related concepts in the Sacramento region. You'll walk away with the Common Core correlated *Project WET 2.0 guide* and one unit of the new Education & the Environment Initiative (EEI) curriculum. Lunch will be provided. *Please register for this FREE workshop at etcmail@smud.org or 916-732-6738.*

October 22, 2013 **Project WET: *Upland***

INLAND EMPIRE EDUCATORS! The Water Education/Water Awareness Committee invites you to this excellent professional development training promoting the efficient use of water and awareness of the importance of water in Southern California through the interdisciplinary, Common Core correlated, hands-on activities of Project WET. Teachers within the WEWAC agency service area will receive at ***NO COST*** – a personal copy of 'Project WET Guide 2.0', a continental breakfast, lunch and please contact your school's water provider for **teacher substitute reimbursement** information! *For more information and to register visit www.usewaterwisely.com.*

October 24, 2013 **Waves, Wetlands, and Watersheds: *Palm Springs***

The Bureau of Land Management invites teachers to attend this FREE workshop, where you'll receive a copy of the Coastal Commission's '*Waves, Wetlands, and Watersheds'* curriculum and learn about the California Coastal National Monument, practice a data collecting exercise, be eligible for your class to win a guided field trip to conduct an aquatic bird survey, and much more! *To register, please contact Annie Kohut Frankel at Annie.Frankel@coastal.ca.gov or (415) 597-5888. Please provide your name, phone number, email, and organization/school/grade as applicable.*

October 25, 2013 **Santa Clara Valley Water District: *San Jose***

SANTA CLARA VALLEY EDUCATORS! All Santa Clara County educators are invited to participate in this FREE Project WET training, which includes hand-on demonstrations of the lessons and activities in the *Project WET Guide 2.0*. Participants will become "immersed" in the world of water and experience it firsthand and be able to supplement classroom science work with a FREE copy of the *Project WET Guide 2.0* upon completion. Mark your calendar for this workshop! *To register, please contact Kathy Machado at (408) 265-2607, ext. 2331 or KMachado@valleywater.org.*

December 5 and 6, 2013 **Project WET & EEI Teacher Training: *Santa Maria***

SANTA MARIA EDUCATORS! The City of Santa Maria Utilities Department and CREEC Network Region 8 invite you to attend a very 'hands-on' workshop integrating the activities of Project WET and the place-based units of the California Education & the Environment Initiative (EEI). A copy of Project WET Guide 2.0 and EEI materials for each participant are included in this ***FREE*** training! *To register, please contact Myra Ritchie at: (805) 925-0951 Ext. 7235 or www.ci.santa-maria.ca.us.*

WEBSITES OF INTEREST

Aquapedia **http://www.aquapedia.com**

Developed and managed by the Water Education Foundation, Aquapedia provides balanced information on major water issues, topics, and terms. Teacher and students will find easy-to-understand information on water issues from the Sacramento - San Joaquin Delta to the Salton Sea to the potential impacts of climate change with photos, videos, interactive maps, historical timelines and other online tools providing background and context to understand California's complex water issues. The glossary of water terms in Aquapedia can be used to extend the Project WET activity *'River Talk' (p: 175)* for higher grade levels!

California Salmon Educator Guide **http://science.kqed.org/quest/files/imp/307a_CaliforniaSalmon.pdf**

Overall, salmon have disappeared from more than 40 percent of their range in the West. While dams, logging, overfishing and development all pose serious problems to salmon on the West Coast, research shows that climatic and environmental changes in sea-level temperatures, sea-level pressure and wind patterns can also wreak havoc on fish populations. A resource for using QUEST video, audio, blogs and maps in the classroom.

Streamer **http://nationalatlas.gov/streamer/**

Have you ever dropped a stick into a river and wondered where it might go as it floats downstream? Now you can trace its journey using an online map service that lets anyone trace upstream or downstream along America's major rivers and streams simply by picking a point on a stream. Not only will Streamer let you locate U.S. Geological Survey stream flow gaging stations, learn about current or historic stream flow, create concise or detailed reports for your upstream and downstream traces and print maps of your downstream and upstream traces. An excellent resource for use with Project WET activities such as *'Seeing Watersheds' (p: 187), 'Blue River' (p: 135)* or *'Sum of the Parts' (p: 283).*

Fire and Resource Assessment Program

http://frap.cdf.ca.gov

The Fire and Resource Assessment Program (FRAP), a CAL FIRE program, provides a variety of products including fantastic maps on statewide fire threat, fire hazard, watersheds, socio-economic conditions, environmental indicators, and forest-related climate change. Much of this information involves Geographic Information System (GIS) analysis, tables, maps, data and calculation tools that are available on this website. The site is the source of the California precipitation map used in the California version of *'Discover the Waters of Our National Parks' (p: 493).*

The National Map

http://nationalmap.gov

The National Map is a collaborative effort among the USGS and other Federal, State, and local partners to improve and deliver topographic information for the Nation. The geographic information available from *The National Map* includes elevation, aerial photographs, hydrography, geographic names, boundaries, transportation, land cover, current and historical topographic maps. Tools in *The National Map* program allows the user to produce maps of the local area, delineate watersheds, calculate area and view changes in an area over time – All advanced versions of the skills introduced to students in the Project WET activities *'Color Me a Watershed' (p: 239)* and *'Seeing Watersheds' (p: 187)*.

National Water Information System: Mapper

http://maps.waterdata.usgs.gov/mapper

The Mapper allows users to locate and retrieve data from approximately 1.5 million active and inactive stream gauges sites in all 50 States. You can find current and historical data on stream flow (discharge), temperature, specific conductance, pH, nutrients, pesticides, and volatile organic compounds for steams throughout California – information that can be used with *'A Snapshot in Time' (p: 377)* and as a comparison for a World Water Monitoring Challenge event. One can also find links to annual stream reports that date major flow changes to a stream and break the flow data accordingly, allowing students to graph and interpret the changes as a fantastic extension to the *'Blue River' (p: 135)* activity!

Bay Delta Conservation Plan

http://baydeltaconservationplan.com

The Bay Delta Conservation Plan (BDCP) provides a wealth of topics and information on current water issues at the very heart of the California water system that can be integrated into or used to extend many Project WET activities including: *'8-4-1, One for All (p: 299), 'Humpty Dumpty' (p: 335), 'Invaders!' (p: 263), 'Pass the Jug' (p: 447)* and a number of others. This website and the news blog Aquafornia will keep those interested current on the status of the plan. The Summer Gazette featured suggestions on how to use Project WET to integrate study of BDCP elements into your classroom and a Gazette archive can be found at: http://www.watereducation.org/doc.asp?id=1066&parentID=1008

CREEC Network

http://www.creec.org

For the 2013-2014 school year, The California Department of Education is proud to introduce a new and improved way for teachers to connect to exploratory, place-based, and environmental education instruction for students from pre-K through high school! With this site, we can help you easily access local student programs aligned to content standards and quality STEM instruction, as well as professional development opportunities that further support our collaborative educational endeavors.

Work for Water!

http://www.workforwater.org

Welcome to Work for Water! It's the place where students and job seekers can explore green careers, and utilities will find a clearinghouse of resources for recruiting in the wonderful world of water. Developed by the American Water Works Association and Water Environment Federation, this site is packed with resources to find jobs or prepare for rewarding careers in protecting public health and the environment. Use this website with the Project WET activity *'Urban Waters' (p: 413)* and have students learn about what it takes to work for water and get a great job for a great cause!

Flipping 'The Incredible Journey'

http://projectwet.org/flipped-day/water-cycle

As if 'The Incredible Journey' doesn't already have enough variations, now it has been turned into a 'flipped' lesson! Project WET's '*Discover the Incredible Journey of Water in the Water Cycle'* was one of nine lesson plans highlighted on the September 6th National Flipped Learning Day, but you can find the lesson – and a great video overview of the water cycle for kids – at the website listed above.

Project WET Portal

http://portal.projectwet.org

Have you used the code on Project WET Guide 2.0 to access the Portal? The site allows to you download and/or print any of the student copy pages in your guide and includes links to children's literature, media and material resources for use with each activity. The site includes the Common Core alignments for each 2.0 activity and a draft alignment to Next Generation Science Standards. Need more enticement? ***Portal users now have access to the 46 Project WET activities that didn't make it into Guide 2.0!***

AUTUMN EVENTS

September 18 -28, 2013 ***World Water Monitoring Challenge***

Be a Citizen Scientist: Monitor Water at a Public Land Near You! For the fifth consecutive year, National Public Lands Day (NPLD) is partnering with World Water Monitoring Challenge (WWMC) to help you be a citizen scientist. This September, join in! Monitor water quality at a local public land during NPLD. Learn about common indictors of healthy water and water issues that affect public lands. *Find out more at: http://www.worldwatermonitoringday.org*

September 21, 2013 ***California Coastal Cleanup Day***

California Coastal Cleanup Day, an annual beach and inland waterway cleanup, is the state's largest volunteer event. In 2010, over 82,500 volunteers removed more than 1.2 million pounds of trash and recyclables from our beaches, lakes, and waterways. During 2013, we are mobilizing people all along the California coast to clean up debris that was washed away from Japan during the March 2011 tsunami. *For more information on how you can participate on your own or with your students, please visit http://www.coastal.ca.gov/publiced/ccd/ccd.html*

September 21 - October 6, 2013 ***COASTWEEKS 2013***

The California Coastal Commission will feature and publicize a calendar of events in a special section of our website. We encourage events from throughout the state, not just along the coast. This celebration is a great way to expand your outreach and to participate in a nation-wide effort to encourage appreciation and preservation of our coast and inland waterways. *Coastal Cleanup Day cleanup events will be publicized on their own page - http://www.coastal.ca.gov/publiced/ccd/ccd.html.*

September 21, 2013 ***Great Sierra River Cleanup***

The Sierra Nevada Conservancy coordinates this annual, volunteer event focused on removing trash and restoring the health of waterways throughout the Sierra Nevada Region. The Great Sierra River Cleanup is about much more than picking up trash. It's an opportunity to learn about California's primary surface water source and it's a time to come together to accomplish something vital and worthy on behalf of our great Sierra rivers. This effort, in partnership with the California Coastal Cleanup Day, serves to promote good water stewardship from the source to sea. *http://www.sierranevada.ca.gov/our-work/rivercleanup*

September 27-29, 2013 ***Oroville Salmon Festival***

Come See Thousands of Returning Chinook Salmon! Every September, the streets of Oroville between Historic Downtown and the Feather River Fish Hatchery burst with activities during the Annual Salmon Festival. On this special weekend Oroville celebrates the thousands of spawning salmon that annually make their way from the ocean back up the Feather River. Environmental education, music, salmon tasting, tours of the hatchery and fun for kids and adults highlight this free event. *For more information, please visit our website at: http://salmonfestoroville.org*

September 28, 2013 ***National Public Lands Day***

National Public Lands Day (NPLD) is the nation's largest, single-day volunteer event for public lands in the United States. NPLD educates Americans about critical environmental and natural resource issues and the need for shared stewardship of these valued, irreplaceable lands, while building partnerships between the public sector and the local community to enhance and restore America's public lands. *For more information, check out: http://www.publiclandsday.org/*

September 28, 2013 ***Free Entrance Days in the National Parks***

Celebrate National Public Lands Day with free entrance to a local National Park! Fee waiver includes: entrance fees, commercial tour fees, and transportation entrance fees. Other fees such as reservation, camping, tours, concession and fees collected by third parties are not included unless stated otherwise. *Learn about discounts from park partners at: http://www.nps.gov/findapark/feefreeparks.htm*

October 13-19, 2013 ***Earth Science Week 2013***

Take part in Earth Science Week 2013! "Mapping Our World," is the 2013 theme to promote awareness of the many exciting uses of maps and mapping technologies in the geosciences. Earth Science Week encourages people everywhere to explore the natural world and learn about the geosciences. This year's theme engages young people and the public in learning how geoscientists gather and interpret data about the Earth and other planets. *The program is supported by the U.S. Geological Survey, National Park Service, ESRI, and other geoscience groups. http://www.earthsciweek.org*

October 25-27, 2013 ***California Science Education Conference 2013 - Palm Springs***

The conference features the perfect mix of hands-on workshops, engaging lectures from professional scientists and university-level educators, in-depth three- and six-hour courses, one-of-a-kind field course experiences, and quality networking opportunities that are only possible when meeting face-to-face.

Conference sessions are designed to meet the needs of both new and veteran science educators. For more information, please visit: http://www.cascience.org/csta/conf_home13.asp

October 26, 2013 ***National Take-Back Initiative***

Don't flush those old prescriptions down the toilet! The Drug Enforcement Administration (DEA) has scheduled another National Prescription Drug Take-Back Day. When the results of the four previous Take-Back Days to date are combined, the DEA and its state, local, and tribal law-enforcement and community partners have removed over 1.5 million pounds (774 tons) of medication from circulation. The program is anonymous and collection activities will take place at collection sites throughout the country: http://www.deadiversion.usdoj.gov/drug_disposal/takeback/index.html.

November 9-11, 2013 ***National Parks Free Entrance Day***

America's Best Idea - the national parks - gets even better with several fee-free days at more than 100 national parks that usually charge entrance fees. Making the fun even more affordable, many national park concessioners are joining the National Park Service in welcoming visitors with their own special offers. For more information, check out: *http://www.nps.gov/findapark/feefreeparks.htm*.

November 17-23, 2013 ***Geography Awareness Week***

Celebrate Geography and The New Age of Exploration! Celebrated in conjunction with the National Geographic Society's 125th Birthday the week's theme focuses on how geography enables us all to be intrepid explorers in our own way. Check out the newly created archive of past Geography Awareness Week materials, a new suite of resources all about Geography as a field and discipline, and even more tips and tools to plan your own GeoWeek celebrations! Learn more at: www.geographyawarenessweek.org

November 18-19, 2013 ***California STEM Conference 2013***

Attend the first annual California Science, Technology, Engineering, and Mathematics (STEM) Conference. Participants will receive curriculum and instruction, professional learning opportunities, and STEM resources. The registration cost is $280. For more information, or to register, visit www.cde.ca.gov

GRANTS, SCHOLARSHIPS & AWARDS

Captain Planet Foundation ***Deadline: September 30, 2013***

The Captain Planet Foundation primarily makes grants to U.S.-based schools and organizations for activities that promote and support high-quality educational programs that enable children and youth to understand and appreciate our world through learning experiences that engage them in active, hands-on projects to improve the environment in their schools and communities. Preferential consideration is given to requests seeking funding of $500 or less. Captain Planet Foundation will on occasion consider grants up to $2,500. *More information can be found at: http://captainplanetfoundation.org/apply-for-grants*

Literacy for Life Grants ***Deadline: October 1, 2013***

The applications for Literacy for Life Grants are now available! These grants are designed to initiate new projects or expand existing projects that promote agricultural literacy. Funds are provided to California educators to support the integration of agriculture into regular classroom instruction. Up to 25 grants are available, each with a maximum funding of $500. A minimum of two grants will be provided to vocation agriculture educators. *For more information, and to apply, visit www.LearnAboutAg.org/literacyforlife.*

Caring for Our Watersheds Writing Contest ***Deadline: January 31, 2014***

The Caring for our Watersheds (CFW) program empowers students to imagine, develop, and create solutions in their local watersheds. The program promotes watershed awareness and stewardship, values student ideas, and offers support when turning theoretical ideas into action. The program is currently open to all 9th-12th grade students who live in Yolo, Solano, Sacramento, Colusa, Yuba, Sutter, Glenn, El Dorado, Placer, and San Joaquin counties. *An informational Teacher workshop will be held at the Center for Land-Based Learning in Winters on* ***October 18, 2013*** *http://landbasedlearning.org/watersheds.php*

NEA Grants Program ***Deadline: October 15, 2013***

Learning & Leadership Grants provide opportunities for teachers, education support professionals, and higher education faculty and staff to engage in high-quality professional development and lead their colleagues in professional growth. Student Achievement Grants provide $2,000 and $5,000 awards to improve the academic achievement of students by engaging in critical thinking and problem solving that deepen knowledge of standards-based subject matter. *For more details, please visit our website at: http://www.neafoundation.org/pages/grants-to-educators/*

"Mapping My Community"* Photography Contest** ***Deadline: October 18, 2013

We put our world into maps, and we take our maps all over the world. You might be traveling, building a home, irrigating a garden, digging for coal, erecting wind towers, or designing a hurricane shelter — you use maps to do so many things. Earth scientists study natural processes to help make those maps. In a photograph, show how maps are used in your community. *More information on the contest can be found at: http://www.earthsciweek.org/contests/photography/index.html*

"Making Maps Through the Ages"* Visual Arts Contest** ***Deadline: October 18, 2013

Throughout history, Earth scientists — or "geoscientists" — have made maps showing the locations of land, water, air, and living things. Even today they chart the stars, the seas, and their communities in a variety of ways. Imagine that you are a map maker, either now or in the past. How would you make a map? What tools would you use? Use artwork to show yourself as an Earth scientist making a map. http://www.earthsciweek.org/contests/visualarts/index.html

"How Geoscientists Use Maps"* Essay Contest** ***Deadline: October 18, 2013

Land, water, air, and living things have impacts on each other. To understand these effects, Earth scientists chart interactions among the Earth systems — the geosphere, hydrosphere, atmosphere, and biosphere. How do geoscientists use maps to monitor these interactions? How do maps help us meet challenges and maximize opportunities in areas such as energy, agriculture, the environment, natural disasters, and community planning? Write a brief essay explaining how Earth scientists create and use maps to improve our lives. http://www.earthsciweek.org/contests/essay/index.html

WHALE TAIL® Grants ***Deadline: November 1, 2013***

The WHALE TAIL® Grants Program funds projects that fall into any one of the following three categories: 1) Adopt-A-Beach® programs; 2) Youth programs; 3) Programs for the general public. For the 2013/14 and 2014/15 grant cycles, we have added a special subcategory for projects addressing climate change and/or ocean acidification. Applicants may request any amount up to $50,000, and 25-50% of the funding will be allocated in small grants under $10,000. *More information can be found at:* http://www.coastal.ca.gov/publiced/plate/plgrant.html

River of Words Art and Poetry Contest ***Deadline: December 1, 2013***

River of Words was founded to give new life to the teaching of art and poetry through watershed exploration. Our innovative Watershed Explorer Educator's Guide brings together sketching and botany, nature journaling and poetry writing. Students who participate are encouraged to submit their work to our free international art and poetry contest, held annually since 1995 in conjunction with the Center of the Book in the Library of Congress. *For more information, please go to:* http://www.stmarys-ca.edu/center-for-environmental-literacy/art-poetry-contest

Campus RainWorks Challenge ***Deadline: December 13, 2013***

EPA has released the contest rules for its second annual Campus RainWorks Challenge, a prize contest launched in 2012 to encourage innovative approaches to stormwater management. The Challenge engages the next generation of urban planners, designers, and engineers in the development of innovative green infrastructure systems to meet our nation's growing water infrastructure needs. Student teams, working with a faculty advisor, will submit design briefs and a video describing a proposed green infrastructure project for their campus. Winning teams will earn a cash prize of $1,000 - $2,000. *Find more information at:* www.epa.gov/campusrainworks.

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