

# Energy Education news



FALL 2017

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## Building Solar Charging Kits at Washington Elementary

Sacramento teacher, Kim Williams, attended the Solar Schoolhouse Institute through a SMUD scholarship, and came back to school energized to integrate solar technology into her classroom. Collaborating with Sunny Eselekhomhen, who runs Wazobia Arts, Williams had her 5th and 6th grade students at Washington Elementary in Sacramento learn how to harness the power of the sun to help kids in Nigeria.

SMUD donated 25 kits to build individual solar powered charging stations. "It's a great thing for kids to get hands-on experience and build something that impacts the life of another kid around the world," said Kim Williams. "It's amazing how they take ownership of learning."

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The completed charging stations will be tested and shipped to students living without electricity in Ewatto, Edo State, Nigeria. The kits include a reading light, a light bulb and a phone charger. "Some of the families have no electricity and the kids can't study or read at night," said Eselekhomhen. "I talked to the teacher and the kids in Nigeria. They are excited, and I know it will make a positive impact in their lives."

"Our community partnership with SMUD makes this project authentic," said Jose Garcia, learning support services co-ordinator at Washington Elementary. "The kids are learning to help with a real world problem and it engages them and shows them they can do the work of engineers."

February 24, 2018

## Science Bowl puts high school students to the test

With schools focusing on energy independence and sustainability, it's important to promote the benefits of science and math. The Western Area Power Administration supports this vision by hosting the Sacramento Regional High School Science Bowl.

More than 20 regional teams gathered at Cordova High School in Rancho Cordova on March 18 to test their knowledge of science, technology and mathematics. SMUD's Chief Grid Strategy & Operations Officer, Paul Lau, attended the event and gave an inspiring presentation on the opportunities and educational paths that are provided by STEM (Science, Technology, Engineering, and Math) programs.

For the second year in a row, Mira Loma High School won the competition and a free trip to compete in the National Science Bowl.

### 2018 Science Bowl

February 24, 2018  
8 a.m. – 4:30 p.m.

Cordova High School  
2239 Chase Drive  
Rancho Cordova, CA 95670

For more information on competing in the 2018 Science Bowl, please call 916-353-4558 or email [SNRSciencebowl@wapa.gov](mailto:SNRSciencebowl@wapa.gov)

Registration opens October 2, 2017.

For information on the DOE National Science Bowl visit [science.energy.gov/wdts/nsb/about/](http://science.energy.gov/wdts/nsb/about/)



**2017 SACRAMENTO REGIONAL SCIENCE BOWL**

Paul Lau gives a motivational welcome speech to the students competing in the 2017 Science Bowl.

## Going for gold at the Science Olympiad



### 2017 Winners:

#### High Schools

1. Mira Loma
2. Sheldon
3. Bella Vista

#### Middle Schools

1. Churchill
2. Pomalita
3. Pinkerton



Anne Tweedy, a teacher from Bella Vista HS celebrates a good day for her team.



Mira Loma Auditorium, where the award ceremony for the middle school division was held.



Middle school student tests his tower at the Science Olympiad.



### Water Education for Teachers

One of the many exciting workshops that were available for teachers in the spring was Project WET (Water Education for Teachers). Brian Brown, Project WET's regional director and Kathy Shultz from the CA Department of Water Resources gave many lessons on water during an event held at the Effie Yaw Nature Center in Carmichael on April 15. Lessons included water efficiency and tours of the American River flood plains.



Pictured are Brian Brown of Project WET and Kathy Shultz of the CA Department of Water Resources.







## Solar Champions Project

Is your school district in Sacramento County? If so, and you'd be interested in providing solar education for your schools, please contact us for information. Your district would need to provide 35 teachers who are willing to attend a one-day workshop. In exchange, each participating school will receive a solar classroom kit and a solar fountain kit. For more information, please contact [Suzette.Bienvenue@smud.org](mailto:Suzette.Bienvenue@smud.org)

## Sacramento Regional Science and Engineering Fair

The Sacramento Regional STEM Fair is a 12 county competition for students in grades 6-12 that encourages students to investigate science, technology, engineering and math through innovative projects.

Science fair projects are an easy way to help your students meet Next Generation Science Standards (NGSS).

The 17th annual Regional STEM Fair was held on March 25 at American River College.

To learn how your school may compete in next year's STEM Fair, please visit [sacstemfair.org](http://sacstemfair.org)

### Winning the SMUD awards for Best in Energy Research:



#### Middle School

Sutter Middle School  
Sacramento

#### Nathan Smith

Smith researched and developed models for the best design for an urban, residential wind turbine.



#### High School

Vista De Lago High School  
Folsom

#### Nishita Bagaria and Piryanta Venkatesh

Venkatesh and Bagaria compared the effectiveness of sunflower, canola and vegetable oils to be used in energy production.



## Sun-powered boats at SMUD Solar Regatta

Hundreds of junior high, high school and college students from across our region put their skills and solar-powered boats to the test for two days of competition (May 5 & 6) at the 6th annual SMUD Solar Regatta at the Rancho Seco Recreational Area.

The students raced full-sized, solar-powered boats they designed and built themselves. The popular event is designed to help inspire students to pursue educational and career paths in STEM (science, technology, engineering and math) fields.

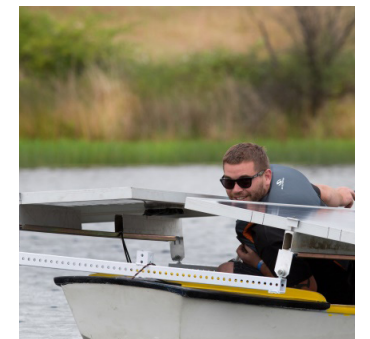
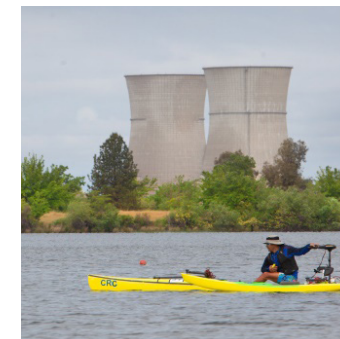
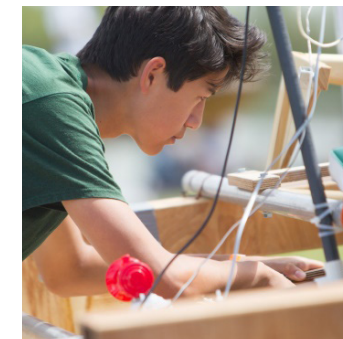
There were 17 teams of local middle school and high school students, as well as 15 teams of college students. In total, there were 32 solar-powered boats entered for the event.



For more information on the 2018 Solar Regatta or to register, please contact [Suzette.Bienvenue@smud.org](mailto:Suzette.Bienvenue@smud.org).

SMUD would like to thank the CA Department of Boating and Waterways for providing assistance with the boating safety course for the students participating. Learn more at [dbw.ca.gov](http://dbw.ca.gov).

For more information or videos, visit [smud.org/solar-regatta](http://smud.org/solar-regatta)







Pictured are teachers Jessica Keller from Alder Creek MS and Stacy Bressler from Rio Linda HS with their fabulous classroom electric education gift baskets from Super SIRC (Science in the River City).

## Science in the River City

The Sacramento Area Science Project provides a variety of high quality and professional development services for K-12 science teachers with services ranging in scope from multi-year grant-funded collaborative programs to district level staff deployment days.

Facilitation for science teacher professional learning communities, including lesson study and classroom based research are offered. Programs and events are staffed by university and education faculty from UC Davis and CSUS. For more information and registration for future workshops, contact Debbie Dennick (Debbie@csus.edu).

## T.A.G. you're I.T.

This is a red carpet Teachers Appreciation Gala for Inspiring Teachers in the Sacramento City Unified School District (SCUSD). Outstanding teachers nominated by students, received awards from SCUSD's student leadership on May 18, 2017 at the Memorial Auditorium in Sacramento.

SMUD was also presented an award at the event for being an outstanding educational partner to SCUSD and the region. Some of the ways in which SMUD has supported

SCUSD as well as other districts, is by providing professional development for teachers, providing SMUD employees as volunteers, engaging students in STEM competitions, investing in energy and green academies, providing intern positions, energy auditing education and providing career education and outreach.



### Project Green

## Color and Light

SMUD Lighting Engineer Connie Samla gave a presentation on lighting technology and lighting efficiency to 20 teachers in the Sacramento region. The teachers received a GEMS (Great Exploration in Math and Science) curriculum and learned interesting ways to integrate light into their current science curriculum.



## Cardboard or Whatever Regatta

The 10th Annual Cardboard or Whatever Regatta was hosted on May 18 with four schools participating and 42 boats competing at Beals Point in Folsom.

Students, teachers and parents watched teams compete for honor and glory in the drag race, slalom course, best sinking (also known as "Titanic Award"), best design/construction, greatest buoyant force and most recyclable/green boat competitions.

Receiving the Best in Show and the Slalom Masters award was the much anticipated Human Hamster Wheel.

For more information on this event, please contact Eric Wright, ewright@fcusd.org or visit their facebook page; <https://www.facebook.com/Folsom-High-School-Science-Department-204013922950431/>



SMUD Board Member Dave Tamayo (center) receives the Resource Efficiency and Community Service Award from CMUA President Michelle Bertolino (left) and CMUA Executive Director Barry Moline.

## SMUD wins big for Tiny House Competition

Thinking "tiny" is earning SMUD some big recognition. SMUD's Tiny House Competition recently received the 2017 Resource Efficiency & Community Service Award by the California Municipal Utilities Association (CMUA) for the Best Community Service Program for a large utility.

SMUD Board Member Dave Tamayo received the Resource Efficiency and Community Service Award from CMUA President Michelle Bertolino and CMUA Executive Director Barry Moline. SMUD's Energy, Education & Technology Center developed the Tiny House Competition, which was the first competition of its kind to introduce students to sustainable construction, green building technology and energy efficiency measures.

"We are excited to be recognized for our work around the Tiny House Competition," said Community, Economic Development and Education Manager Erica Manuel. "Our team worked together to organize and plan the event, which supports our commitment to STEAM (Science, Technology, Engineering, Art Architecture and Math). The competition also offered local students a way to explore college disciplines and future careers in the utility industry."







## Innovation and speed on track at SMUD Solar Car Race

Nearly 300 local high school students put their model solar-powered cars to the test. The 12th annual Solar Car Race was held on Wednesday, April 19 at Cosumnes River College and highlighted the most creative, innovative and fastest models that students designed and built.

All teams use the same solar panels, motors and gear sets, but they chose their own construction materials.

This competition is open to any high school or high school aged organization in Sacramento County. For more information please visit [smud.org/solar-car-race](http://smud.org/solar-car-race).



### 2017 Winners:

Category	Car #	High School
Artistic	10	Jesuit
Engineering	49	El Camino
Sustainability	38	Rancho Cordova
Stock Award	19	Delta
Judges Choice	18	Delta
3rd place speed	3	Folsom
2nd place speed	44	El Camino
1st place speed	59	Foothill

## Captain Planet Foundation

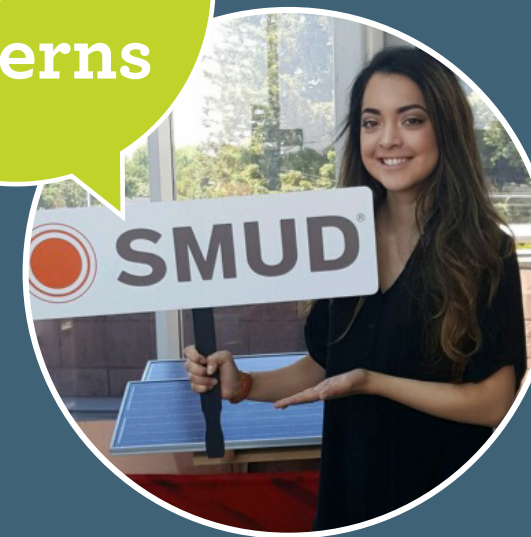
Grants from the Captain Planet Foundation are intended to provide hands-on opportunities for youth and serve as a catalyst to provide environmental education in school while inspiring community service. Teachers may apply for small grants (between \$500 - \$2,000) from the foundation. All of the following criteria must be present to be considered for funding:

- Project-based
- Projects designed and performed by youth
- Projects must have environmental outcomes
- Projects must be based in the United States

To apply, please visit [captainplanetfoundation.org](http://captainplanetfoundation.org)



## Meet the Interns



### Davina Saenz

Davina Saenz is a junior at CSUS and is majoring in business. She is learning how to use her people skills to connect with young people participating in our education programs. Saenz is new to SMUD's Energy Education & Technology Center so come and welcome her at our next event!



### Kyle Kashe

Kyle Kashe is a junior from CSUS. As a high school student, Kashe recalls participating in the Solar Regatta, "Researching, designing, building and racing the solar boat was an experience that opened so many doors and taught me so much about what I could do with my future and what types of disciplines I could study. It was an event full of competition and fun that challenged my peers and I to work together for countless hours to achieve our goal." Kashe's Solar Regatta team experienced the opportunity to race their boat internationally at the Solar1 World Race in Monte-Carlo where they interacted with solar designers and engineers from all over the world.

Kashe has been working for SMUD's Energy Education and Technology Center for a few months.





Fall 2017

# Teacher Workshops

Register for classes at [smud.org/Workshops](http://smud.org/Workshops).

## GEMS® Bubbleology and Hosting a Bubble Festival (Grades 1 - 6)

September 13, 2017  
4:30 – 7:30 p.m.  
Location: Historic Folsom Powerhouse  
9980 Greenback Ln, Folsom, CA



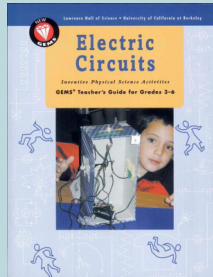
This fun filled workshop will demonstrate how to set up 12 table top, learning stations to experience mathematical and scientific concepts found in bubble shapes and bubble measurements. Davin Bowker from San Juan Unified

School District will review lessons in chemistry and physics using soap bubbles by devising bubble-blowing devices and many other hands on activities. A light dinner will be served. Teachers will receive GEMS guides and materials.

Presented by SMUD and California State Parks

## GEMS® Electric Circuits (Grades 3 - 9)

September 16, 2017  
9 a.m. – 3 p.m.  
Location: Historic Folsom Powerhouse  
9980 Greenback Ln, Folsom, CA



Electric Circuits is highly recommended for 4th grade teachers preparing for Next Generation Science Standards in electricity and electromagnetism. The easy to use hands-on activities support science and language arts as a student introduction to electricity and electric circuits. Davin Bowker from San Juan Unified School District will lead educators through activities in which they will learn how to build and diagram

circuits and understand the presentation strategies necessary to support expository writing. Teachers will be served breakfast and lunch and will receive GEMS guides and classroom materials.

Presented by SMUD and California State Parks

## Project WET (Grades 4 - 12)

September 23, 2017  
8:30 a.m. – 3 p.m.  
Location: Effie Yeaw Nature Center  
2850 San Lorenzo Way, Carmichael, CA

Teachers will experience activities to engage students in learning about watershed processes and human history along the banks of the American River, while learning about concepts and skills at the heart of Common Core and Next Generation Science Standards. Participants will receive the Project WET 2.0 Guide with access to over 110 Common Core and NGSS correlated activities. Teachers will be provided with breakfast and lunch and will receive Project WET guides.

## GEMS® Spooky Science of Energy Transformation (Grades 5 - 12)

October 18, 2017  
4 – 7 p.m.  
Location: Historic Folsom Powerhouse  
9980 Greenback Ln, Folsom, CA



Using a spooky Halloween theme, this workshop will focus on science investigations and help teachers develop the skills to foster inquiry abilities, which research has shown is difficult to teach. Teachers will review energy in sublimation and other energy transformations which will help support student skills in observations, experimentation and inference. Teachers will receive a light dinner,

GEMS guide and classroom materials.

Presented by SMUD and California State Parks

## Electric Art - Paper Crafting and Sewing with Circuits (Grades 4 - 12)

November 30, 2017  
4 – 7 p.m.  
Location: SMUD, Lighting Classroom  
6301 S Street, Sacramento, CA



Join this hands on workshop and learn how to teach the science of circuitry through art by making electronic greeting cards and fabric projects which have sound, motors or LED lights! Attendees will learn the concepts of drawing schematics, parallel and series circuits and basic electronics. A light dinner will be served. Teachers will receive classroom materials.

## SMUD Sponsored CSTA Workshops

### GEMS® Hot Water, Warm Homes from Sunlight (Grades 4 - 8)

October 13, 2017  
Location: California Science Teachers Association  
Sacramento Convention Center  
1400 J Street, Sacramento, CA

Teachers discover the energy in passive construction as they build model homes and hot water heaters to determine the effects of size, color and number of windows on the amount of heat production from sunlight. They also learn an introductory activity about growing plants that defines the concepts of a controlled experiment, variable and outcome. The Green House Effect is also reviewed. Teachers must be registered for CSTA in order to attend and will receive a GEMS teacher guide and classroom materials.

### Solar Cooking (Grades 4 - 8)

October 13, 2017  
Location: California Science Teachers Association  
Sacramento Convention Center  
1400 J Street, Sacramento, CA

Teach science through cooking. Use the physics discovered in solar cooking to review conduction, convection, radiation as well as math and engineering principles to construct solar cookers. Teachers will receive curriculum and a Solar Cook-It! Participants must be registered for CSTA in order to attend.

## SMUD Sponsored CSTA Field Course

# 6th Annual Electricity Fair

September 9, 2017  
10 a.m. – 2 p.m.  
Location: Historic Folsom Powerhouse  
9980 Greenback Ln, Folsom, CA

Join SMUD and the California State Parks at the Historic Folsom Powerhouse for a family fun day of science activities, exhibits, tours and more. If you are a teacher contact us for classroom material which can be used in conjunction with fair attendance.

- Learn about electric circuits
- Create solar art
- Pose as an electrifying superhero
- See what it's like to be a line worker
- Tour the magnificent Powerhouse
- Hike the historic canal
- Check out electric vehicles
- Meet Mr. Electricity
- Have fun with family and friends with music, food and other activities





## SMUD Sponsored CSTA Field Course



### Solar, Wind and Cow Farts – A Renewable Energy Tour

Grades preK - 12

**October 14, 2017**

**8 a.m. – 4:30 p.m.**

**Location:** California Science Teachers Association  
Sacramento Convention Center  
1400 J Street, Sacramento, CA

Climb aboard the bus and learn how to integrate energy into your curriculum. Experts in wind, solar, biogas and electric vehicles provide information to keep your curriculum fresh while meeting NGSS. Tour a wind farm, dairy digester, solar array, electric vehicles and a home efficiency exhibit. Curriculum, materials and lunch are provided. Participants must be registered for CSTA in order to attend.

**Cost:** \$105



California Science  
Education  
Conference

OCTOBER 13-15, 2017  
SACRAMENTO, CA



## REGISTER TODAY!

#### *Where California Science TK-12 Teachers Go for CA NGSS*

The California Science Education Conference is your best source of information on implementing CA NGSS in your classroom.

The California Science Teachers Association (CSTA) hosts this conference to focus on what California science educators need to know to hone their craft, stay updated on standards and apply best practices gleaned from experts throughout the state.

Join more than 1,800 educators who share your passion for science from Friday, October 13 at 8:00 am to Sunday, October 15 at 1:00 pm.

You'll make connections, gain new classroom ideas and grow professionally with over 200 workshops, short classes and field courses to choose from.

Come and visit us at the SMUD booth and learn about the opportunities available to you and your students.

Register at <http://conference.cascience.org/registration/2017-general-information>

[cascience.org](http://cascience.org)



## SMUD®

Sacramento Municipal Utility District  
Energy Education & Technology Center  
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Sacramento, CA 95817-1899