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Solar Regatta

This year was the best Solar Regatta ever! There were 2 surprise winners. Folsom High School's Bulldogs won the cup on Friday and were eligible to compete against the college teams on Saturday. San Joaquin Delta College took the title during Saturday's regatta for college teams.



We're proud to sponsor this fun and educational event. SMUD's Energy Education & Technology Center runs the event and helps organize the teams. SMUD's Community Solar[®] program loans the solar panels to the participating teams. Students can build their boats from scratch or retrofit an existing boat. The solar-powered boats are judged for speed, distance, maneuverability and more. See the Solar Regatta Reference Manual at smud.org/solar-regatta for more details and the 2017 application.

Next year's dates

The 2017 Solar Regatta will be held on May 5 and 6. Applications forms are available online and can be sent to Suzette Bienvenue at Suzette.Bienvenue@smud.org. Space is limited, so get your application in early. Please be sure that your team is willing to commit 100% to all the benchmarks outlined in the Reference Manual and race dates before submitting an application.

2016 Northern California Solar Regatta winners and participants

High school and middle schools

Regatta Cup Winner:	Folsom High School
Best Video:	Pasteur Middle School
Best Presentation:	Folsom High School
Best Design (Artistic):	Laguna Creek High School
Best Design (Technical):	School of Engineering and Sciences
Best Boat Design:	Ceres High School
Best Drive Train:	Ceres High School
Best Middle School:	Evergreen Middle School
Spirit Award:	Pasteur Middle School
Sustainability:	Boy Scouts of America 99
Endurance Course:	Evergreen Middle School
Slalom Course:	San Luis Obispo Classical Academy
Sprint Course:	Laguna Creek High School

2016 Regatta *continued on page 2*



2016 Regatta *continued from page 1*

Judges' Award: Da Vinci Middle School
 Student Choice Award: Pasteur Middle School

Other participating schools and organizations:

Encina Preparatory High School
 San Juan High School
 San Ramon Valley High School
 Will Rogers Middle School
 San Joaquin Office of Education
 Foothill High School
 Boy Scouts of America 139

Colleges and universities

Regatta Cup Winner: San Joaquin Delta College
 Best Video: California State University, Sacramento
 Best Presentation: Ohlone College
 Best Design (Artistic): Chabot College
 Best Design (Technical): San Joaquin Delta College
 Best Boat Design: Chabot College
 Spirit Award: Sierra College
 Sustainability: Sacramento City College, Team #1
 Endurance Course: San Joaquin Delta College
 Slalom Course: Consumnes River College, Construction
 Sprint Course: Consumnes River College, Construction
 Judges' Award: Sacramento City College, Team #1
 Student Choice Award: Cosumnes River College

Other participating colleges and universities

California Maritime Academy Keema
 California State University, Chico
 UC Davis
 West Valley College
 Sacramento City College MECHS
 City College of San Francisco
 California State University, Humboldt
 Bakersfield College
 California Maritime Academy Keelhauleder •



Street Sign Challenge

SMUD's Community Solar program held a street sign challenge for local college students to design street signs for the Tiny House Village. **Noah Holt**, a mechanical engineering student at CSUS, submitted the most aesthetically pleasing and complete design. For his submission and selection, Noah received a bag filled with tools. •

Solar Car Race



The steady rain didn't stop racers at the 11th Annual Solar Car Race held at American River College (ARC). An impressive 150 students brought their own sunshine to the Solar Car Race. The Automotive and PV Technology Department at ARC and the Sacramento Electric Vehicle Association exhibited their electric vehicles to help educate students and showcase future career paths in solar energy.

The Solar Car Race is open to all high schools in SMUD's service area. For information on participating in the 2017 Solar Car Race, please contact Suzette Bienvenue at Suzette.Bienvenue@smud.org.

Winners of the 2016 Solar Car Race

Recycle Award:	Cordova High School
Stock Award:	School of Engineering and Sciences
Technical Award:	Cordova High School
Artistic Award:	Foothill High School
Judges' Award:	Rosemont High School
Third Place Speed:	Rosemont High School
Second Place Speed:	Grant High School
First Place Speed:	School of Engineering and Sciences •



Mira Loma Team in Washington D.C.

Science Olympiad

Regional

The 2016 Regional Science Olympiad, sponsored by SMUD, was held on March 5. Twenty-one middle school teams and 26 high school teams competed in topics ranging from robotics to geology. The results are as follows:

Middle School Division C

First:	Winston Churchill
Second:	Pomolita
Third:	Smedburg
Fourth:	Andrew Carnegie

High School Division B

First:	Mira Loma
Second:	Pleasant Grove
Third:	Sheldon
Fourth:	Bella Vista

National

SMUD area students from Mira Loma High School took first place in Division C and Winston Churchill took second in Division C at the 32nd Annual Science Olympiad National Tournament held at the University of Wisconsin-Stout, on Saturday, May 21. "These winning teams exemplify the best America has to offer in science, technology, engineering and math," says Gerard Putz, Science Olympiad president and co-founder. "We are proud of their achievements and know their schools and communities will welcome them home like champions." •



Solar Schoolhouse

Every summer SMUD's Energy Education & Technology Center sponsors teachers to attend the Raus Institute's Solar Schoolhouse weeklong camp in Sebastopol California. Teachers learn about renewable energy and sustainable issues and how to integrate these into their everyday curriculum. Teachers made solar powered emergency preparedness kits, solar cookers and homemade solar panels.

To apply for the 2017 program, you must be a teacher in any school in Sacramento County. Please send a one-page essay of your intent on using this knowledge in your classroom to Suzette.Bienvenue@smud.org. •

Science Bowl



SMUD supported the Regional Science Bowl on Feb. 27, 2016 at Folsom High School. This science and math competition is sponsored by the Western Area Power Administration. Mira Loma High School advanced to the national competition. For information on how your school can participate in the 2017 competition contact Chris Peers at Peers@wapa.gov.

“The National Science Bowl continues to be one of the premier academic competitions across the country and prepares America’s students for future successes in some of the world’s fastest growing fields in research and engineering,” said U.S. Energy Secretary Ernest Moniz. “I am honored to congratulate all of the competitors who are advancing to the national finals where they will continue to showcase their talents as top students in math and science.” The NSB brings together thousands of middle and high school students from across the country to compete in a fast-paced question-and-answer format where they solve technical problems and answer questions on a range of science disciplines, including biology, chemistry, earth and space science, physics and math. •

Regional Winners in the 2016 Science Bowl are:

Mira Loma 1	Folsom 1
Mira Loma 2	Vista Del Lago 1

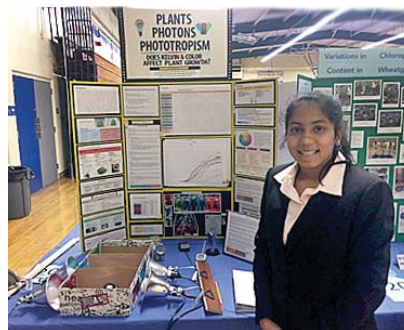


The Sacramento Regional Science & Engineering Fair Foundation’s (dba NorCal STEM Education Foundation) mission is to inspire and engage students to become interested in pursuing scientific, technological, engineering and mathematical (STEM) degrees and careers. This mission is fulfilled through the programs and resources offered to the Northern California community. Through the Synopsys Sacramento Regional STEM Fair to the Regional STEM Mentoring Program, to Professional Development workshops, the Foundation has educational opportunities and resources for all.

SMUD handed out Best in Energy trophies to Priyanka Venkatesh and Nishita Bagaria.

To find out which renewable energy source is the most cost-effective for a house (solar, wind or hydroelectric), students from Vista Del Lago High School made a national map for wind, hydro and solar power using the data to find out which renewable energy source, including construction and installation, is the most cost-effective.

Rhithish Yuva Raju, a Winston Churchill Middle School student, used natural and artificial lights to compare colors in the light spectrum as well as CLP and LED lighting. •





Solar Champion Program

Through a partnership between our Community Solar program and Energy Education & Technology Center, SMUD provides free classroom solar kits to teachers. The goal of Community Solar is to have at least one solar classroom kit available at each elementary school in SMUD's service area.

To request a solar workshop for your school district, have your district science or professional development director contact us to set up a class. This offer is available to private and public schools, for Pre-Kindergarten to 6th grade. You must have a minimum of 30 teachers attending the workshop, which will be held at no cost. Teachers will receive a solar classroom kit and solar powered fountain kit (1 per school), curriculum, materials, professional hours, breakfast, lunch and much more.

To be eligible for a solar classroom kit, a teacher must:

- Teach in a classroom in Sacramento County
- Teach in grades Pre-Kindergarten to 6th grade
- Attend one of the following:
 - Rarus Summer Institute,
 - Solar Schoolhouse solar primer workshop, or
 - District-sponsored Solar Schoolhouse workshop. •



Cardboard Regatta

SMUD's Energy Education & Technology Center staff helped with the 9th Annual Cardboard, Plywood, Whatever Regatta held at Negro Bar, California State Park on May 20. Over 30 middle and high school teams from Folsom, Cordova and neighboring districts competed in this engineering and physics challenge. It was a wet and windy day, but that didn't stop students from having lots of fun while they learned. Pictured are an aircraft carrier and a boat which looks like a bed. •

Dwell

SMUD's Energy Education & Technology Center staff attended one of the largest architecture and interior design conventions in the nation, Dwell in Los Angeles, to promote the upcoming Tiny House Competition. Clearly tiny houses are a hit because people stood in line 20 deep every day for a chance to see a tiny house and learn more about the competition.

A tiny house represents so much of modern design and the desire to make the most of small spaces. To follow the progress of the Tiny House Competition and to learn more about designing with small spaces, visit Dwell at dwell.com/homes/small-spaces. •



Tiny House Competition

Join us in October to applaud innovative and energy efficient, off-grid tiny houses on wheels. Ten colleges and university teams will be vying for the best design/build awards.

The Tiny House movement – where people downsize the spaces in which they live – is sweeping the nation. This competition is modeled after the Department of Energy’s Solar Decathlon.

Tiny living is defined as any house smaller than 1,000 square feet. The Tiny House Competition requires Tiny Houses on Wheels (THOW) be between 100 and 400 square feet. Participants design and construct the houses to conform with the standards of Recreational Vehicle Codes. The judging criteria for the competition has been reduced to 4 categories - architecture, energy, home life and communications.

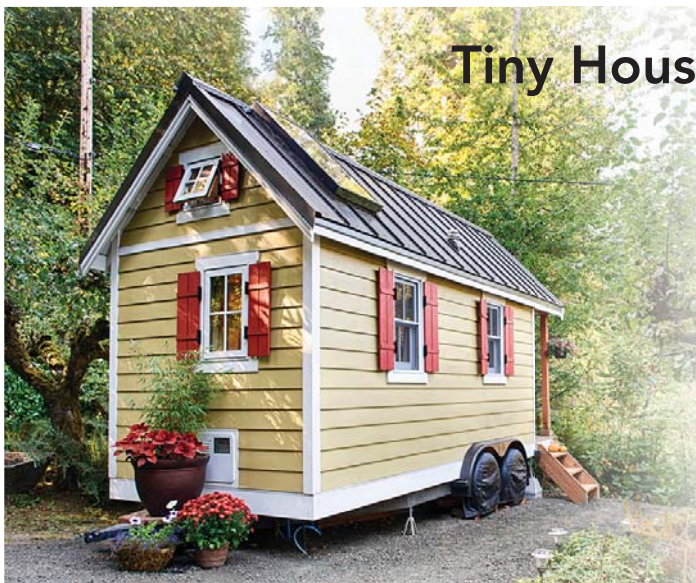


Photo courtesy of Tumbleweed Tiny House Company

People have many reasons for simplified living in smaller spaces.

- **Financial:** Young people starting out in life can more likely afford a tiny house, even without much credit history or cash down payment.
- **Sudden life changes:** A tiny house can be the additional space needed for older or younger generations moving back in.
- **Sustainable living in urban areas:** A tiny house has a smaller carbon footprint and low to zero energy consumption. Its greatest economic impact is in dense urban areas targeted for urban infill.
- **Recreational:** Many choose a tiny house as an affordable second home.

The college teams will provide inspiration for large living in small spaces. Come and see the creative and innovative designs.

The competing colleges are:

California State University, Sacramento	Cabrillo College
University of California Berkeley	Laney College
Cosumnes River College	College of the Sequoias
Santa Clara University	California State University, Fresno
California State University, Chico	San Jose City College
University of California, Santa Cruz	

If your students are interested in green building technology or sustainable living, this would be a great field trip!

Also available at the competition site will be a Home and Garden Show, presentations on home remodeling and energy efficiency, a children’s activity area, food trucks, college recruitment booths, electric vehicle displays and much more. •

Oct. 15, 2016 | 10 a.m. to 4 p.m.
 Cosumnes River College
 8401 Center Parkway, Parking Lot #E
 Sacramento, CA 95823

Energy Education & Technology Center Teacher Workshops

These workshops are open to any public or private teacher in appropriate grades. Teachers must register at smud.org/Workshops. Check with your district to see if you are required to submit anything for professional development credits. Free parking, classroom materials, curriculum and meals are provided.

Sept. 24, 2016 — GEMS® Electric Circuits (Grades 3-9)

Historic Folsom Powerhouse
9980 Greenback Lane, Folsom, CA 95630
9 a.m. to 3 p.m.

Presented by SMUD and California State Parks

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 of the San Juan Unified School District will lead educators through activities in which they will learn how to build and diagram circuits and the presentation strategies to support expository writing.

Oct. 19, 2016 — GEMS® Spooky Science of Energy Transformation (Grades 5-12)

Historic Folsom Powerhouse
9980 Greenback Lane, Folsom, CA 95630
4 to 7 p.m.

Presented by SMUD and California State Parks

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

Nov. 2, 2016 — Making a Solar Powered Emergency Preparedness Kit (Grades 8 -12+)

Historic Folsom Powerhouse
9980 Greenback Lane, Folsom, CA 95630
4 to 7 p.m.

Solar Schoolhouse participants will teach educators to design and build a solar notebook charger, modify an LED battery powered flashlight/work light and incorporate a lithium battery power bank to store solar energy for cell phones or other loads. Participants will consider waterproofing outdoor components, learn how to predict and measure charge and discharge rates on the light and power bank and craft a user manual explaining how the emergency kit works. Lesson extensions will be included on how to design your own LED light fixture and a communal (school-based) solar powered cell phone station. Must have prior knowledge of solar-electric systems.

Solar Schoolhouse Summer Institute

SMUD offers 5 teacher scholarships to attend the annual, week-long, Summer Solar Camp at the Rarus Institute in Sebastopol. This opportunity is only open to educators who teach in Sacramento County or in SMUD's service territory. •



Tiny Home Project Wins STRONG 2016 Scholarship

Our Energy Education & Technology Center intern, Kaelin Sherrel, won a STRONG scholarship in May. The project was to imagine effecting a positive change in your field by addressing a local problem and offering a solution. Kaelin, an undergraduate business major at California State University, Sacramento, used her research with tiny houses to develop a strategy to provide an inexpensive first time home buying experience to newly graduated students using tiny houses.

Kaelin beat out 39 graduate and undergraduate students and won \$1,000. She was presented the award by local Sacramento Mixed Martial Arts fighter, Urijah Christopher Faber. In addition, Kaelin caught the eye of several prominent local businesses. Congratulations Kaelin! •





Sacramento Municipal Utility District
Energy Education & Technology Center
6301 S Street
Sacramento, CA 95817-1899



Electricity Fair

On Sept. 10, SMUD will present the Electricity Fair along with the California State Parks at the Historic Folsom Powerhouse, 9980 Greenback Lane in Folsom.

California State Park personnel will give tours of the powerhouse, museum and hiking trails. SMUD will sponsor many activities such as making pinwheels, discovering the magic of hydropower, and using the power of the sun to make art prints, clay jewelry and solar bead bracelets.

Come and join us for many educational activities, face painting, a super hero-themed photo booth and electric vehicle exhibits by the Sacramento Electric Vehicle Association.

The Electricity Fair is a perfect science field trip for students in the 4th grade, and many historical aspects help make this a fit for Common Core and Next Generation Standards. If you would like to make a visit to the Electricity Fair an extra credit project for your students, contact Suzette at Suzette.Bienvenue@smud.org for classroom copies of the flier/scavenger hunt.

If you are interested in organizing a classroom field trip to the Historic Folsom Powerhouse, email terri.lopez@parks.ca.gov to schedule a visit. •