

Energy Education

Supporting educators in our community and nurturing student interest in science, energy, and environmentalism
vol. 5, no. 2 • Summer 2014



Laguna Creek HS

attended the two day event.

The mission of the Regatta is to teach students about solar electricity by designing a solar-powered boat and then experiencing the fun of competing in the Solar Boat Regatta. So, why build a boat?

- Physics and practical electricity: Wiring, motors, force and motion, and fluid dynamics
- Renewable energy: Evaluating applicability, resources and sustainability using solar power
- Solar energy: PV knowledge, load management, battery and sizing
- Engineering: Design, materials, schematics and circuit design
- Science: Investigation and experimentation
- Communication: Presentation to a panel of judges

Participating can be as simple or complex. Teams may retrofit an existing boat or build one. SMUD will loan (4) MSX64 modules

2014 Northern California Solar Regatta

The 3rd Annual Northern California Regatta welcomed a new collegiate competition division. The weather was perfect and over 300 people

CSUS team



which will be disseminated at a kick-off meeting to be held sometime in September 2014.

We hope that your school will consider participating in the 4th Annual NCSR on May 8 and 9, 2015. For an overview of the program or visit smud.org/solar-regatta. •

Sierra College Team #1



Winners *continued on next page*



Youth Energy
Summit Awards
3



Electricity
Fair in Sept.
4



Building
Doctors
5

Solar Regatta Winners *continued from page 1*

The winners from the Prep Class:

Best Video MS	Evergreen #4
Best Video HS	Laguna Creek #7
Artistic	Folsom #14
Drive Train	Ceres #16
Best Design Technical	School of Engineering and Sciences #9
Best Middle School	Evergreen #4
Judges Award	Boy Scouts of America
Boat Design	Leonardo DaVinci #8
Sustainability	Folsom #12
Presentation	Folsom HS #15
Endurance	Laguna Creek #7
Slalom	Laguna Creek #6
Sprint	Laguna Creek #6

REGATTA CUP

Laguna Creek #6

The winners from the Collegiate class:

Best Video HS	Sierra College #1
Artistic	CSUS #9
Drive Train	Not given
Best Design Technical	Sierra College #1
Judges Award	Skyline #8
Sustainability	Santa Rosa #6
Boat Design	Laguna Creek #3
Presentation	Sierra College #1
Endurance	Sierra College Team #2
Slalom	CSUS #9
Sprint	Delta College #7

REGATTA CUP

Sierra College #1

Solar Car Races at American River College

On May 2, ten high schools and over 200 students participated in the 10th annual Solar Car Race at American River College. Students designed a built solar powered cars. ARC auto body and repair shop was on hand to discuss technical careers. SacEV had eight plug in vehicles on display helping to make the connection between solar and cutting edge vehicle technology.

If your students are interested in participating next year, contact Suzette.bienvenue@smud.org for access to kits.

The 2014 race was a sweep by Franklin High School:

Technical engineering award:	car 42 Rosemont HS
Recycle award:	car 44 Rosemont HS
Stock parts award:	car 37 Pleasant Grove HS
Artistic award:	car 3 School of Engineering and Sciences
Judges award:	car 28 Franklin HS
Third place speed:	car 25 Franklin HS
Second place speed:	car 29 Franklin HS
First place speed:	car 26 Franklin HS



Youth Energy Summit Scholarship Awards

Ninety-six students presented their Art of Being Green projects to the public and judges at the 6th Annual YES Scholarship awards. The scholarship awards were presented by assembly member Roger Dickenson. The winners are as follows:

THIRD PLACE – Grant HS – Luz's Lunch Box which teaches children about the importance of conservation and sustainable practices. Each student received \$500.

SECOND PLACE – Ceres HS – This project encouraged community members to turn in their incandescent bulbs replacing them with LEDs. Each student received \$800.

FIRST PLACE – Sacramento New Technology HS – “Take One Leave One” was a project encouraging the community to use recyclable shopping bags. Each student received \$1,000.

If your students are interested in participating in the 2015 program please have them contact Terra Townsend at LegiSchool, terra.townsend@csus.edu

Are you interested in food? Next year’s theme will be how energy is related to food and agriculture. The deadline to apply will be November 15 or when the program reaches capacity. •



Sacramento Regional Engineering and Science Fair



After interviewing Connie Samla, SMUD’s Lighting Specialist, Rhitishah learned about color tempera-

ture, different lighting technologies and light reflectance values (LRV). She then visited her local Sherwin Williams to learn more about LRVs. This young girl was fascinated to learn about the eye and titled her project “Light up Study.” She set out to determine the best color tempera-

ture, wall paint and type of lighting to stimulate learning.

During the Science Fair, Rhitishah had fun explaining to the judges what her project was all about. It was different than all the other projects and the judges thought so, too. To her surprise, she won first place! Rhitishah became eligible to participate in the California State Science Fair in Los Angeles where she won 4th place. For more information on how you can participate in the Sacramento Regional Engineering and Science Fair, contact Michele Hastie at mhastie@sacstemfair.org •



Solar Cooking for FUN

Solar cooking is the simplest, safest, most convenient way to cook food without consuming fuels or heating up the kitchen. Save some energy this summer and learn to cook your food with just the power of the sun.

This is a great summer project for children and fun for the whole family. A solar cooker can be used to keep your kitchen cool or can be taken along for a camping trip.

What is cool about solar cooking?

At moderate solar cooking temperatures food doesn't need to be stirred and won't burn — food can simply be placed in a solar cooker and left to cook; it is possible to put a solar cooker out in the morning and return home in the late afternoon to a hot meal ready to eat.

- Food cooked by the sun retains its moisture and retains its nutrients
- Pots used for solar cooking are easy to clean
- Solar cooking is convenient for outdoor activities like picnics, trekking or camping.



- For teachers, many science standards can be targeted with the science of solar cooking.

For more information on how to use solar cooking in your summer activities contact:
suzette.bienvenue@smud.org or visit the Solar Cookers International website: www.solarcookers.org

Electricity Fair

Folsom Powerhouse Museum • Saturday, September 6, 2014 • 10 a.m. – 2 p.m.



More fun.....
 Food vendors
 Face painting • Raffle
 Radio Disney • Electric cars

Are you a teacher looking for new ways to introduce electromagnetism and electricity to your fourth grade classroom?

We will help you start off the school year right with classroom materials and activities. If you haven't already received a packet from the Energy & Technology Center, request a classroom set of the Electricity Fair scavenger hunt. You can use this as an extra credit incentive to have your students and their families go to the Electricity Fair where they can visit the historic powerhouse and spend a day in a beautiful setting by the American River.

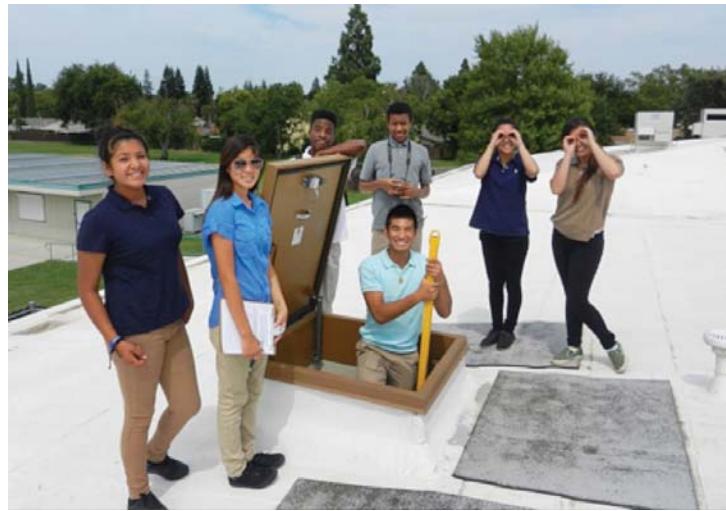
Here is what your students can experience:

- Tour the historic Power House
- Explore the Folsom Powerhouse Museum
- Take and Build It! with Mr. Electricity
- Experiment with static electricity
- Build electric circuits
- Play with solar electric toys
- Power generation experiments
- Many more hands-on activities



To get more information about the Electricity Fair, or inquire about classroom resources to help you teach electricity, contact suzette.bienvenue@smud.org

Students and Teachers Learn How to be "Building Doctors"



California schools spend more than \$700 million per year on energy, about the same as they spend on books and supplies! The California Energy Commission estimates that by implementing energy efficiency measures, schools can cut their energy expenses by up to 40%. Can you think of good uses for the \$280 million schools are currently wasting on energy every year?

SMUD can, and this is why we are always working with local school districts to help them save on their electricity costs. Plus, reducing costs helps keep all of SMUD's customer's rates among the lowest in California. But with the start of Proposition 39, California voter's commitment to spend an estimated 500 million per year on energy efficiency for Schools and Colleges, SMUD is bringing a whole new set of tools to the table.

We Need Solar Champions



Solar Schoolhouse
Education Energized by the Sun

Interested in promoting solar energy technology at your school? Apply to become a SMUD Solar Champion! We'll set you up with classroom instruction, free giveaways, a Solar Schoolhouse classroom kit, and a Solar Schoolhouse fountain kit.

Get started by attending a Solar Schoolhouse Primer workshop, August 23. This six-hour workshop will demonstrate solar technology and provide curriculum ideas including solar activities for your classroom. Parking is free, and breakfast and lunch will be provided. Sign up today by emailing SMUD's Energy & Technology Center at ETCmail@smud.org. Seating is limited.

Solar Schoolhouse Classroom kits

To receive a Solar Schoolhouse Classroom kit, write a lesson involving how you'll use the kit. Please use the format provided by SMUD's Energy & Technology Center. Once we approve the lesson plan, you can pick up your kit. To receive a Solar Schoolhouse Solar Fountain kit, please design and implement a 45-minute in-service instruction for teachers at your school. The lesson plan will become public domain. •

One of those tools is our Auditing, Conservation, and Training program, which offers high school students the opportunity to learn about energy auditing and conservation, all while gaining valuable workforce skills and experience. This year, almost 80 students and 6 teachers will spend a week during their summer break training with professional auditing tools and learning how to be "building doctors". After their training is over, they will perform an audit of their own school, producing a bill of health in the form of an audit report and making recommendations on how their schools can stop wasting energy, reduce greenhouse gas emissions, and save money. They will also lead a local middle school through a classroom energy audit. Participants receive a stipend for their time after they present their overall findings to their school board.

The program is a win-win-win for students, school districts, and the community. Best of all, students are engaged in making a meaningful, lasting positive impact for their schools and will take the lessons they learn into whatever profession they end up in. For some of them, that may even be the energy field! For more information contact Jacobe.Caditz@smud.org •



Save The Date

Save these dates for Free teacher and education workshops sponsored by the Energy & Technology Center.
Materials and food are provided. Please register ETCmail@smud.org

Solar Schoolhouse Primer:



Workshop for Educators (Grades 4-12+)
Saturday, August 23, 2014 • 8:30 a.m. – 3:30 p.m.
Rubicon Room, SMUD

In this workshop, Tor Allen, from Solar Schoolhouse, will show you how to easily integrate solar energy education into your existing curriculum while teaching students the value of using renewable energy sources. You will receive hands-on classroom activities correlated to the California content standards, a teacher guide, solar science supplies, as well as first-hand experience building solar powered devices for your classroom. Learn how you, too, can become a Solar Champion.

GEMS® Electric Circuits (Grades 4-8)
Saturday, Sept. 20, 2014 • 8:30 a.m. – 3 p.m.
Folsom Powerhouse Museum

Electric Circuits is highly recommended for Grade 4 teachers 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 presentation strategies; explore, build and compare simple, closed, series, and parallel circuits; learn about short circuits; investigate the role of batteries, resistance, conductors, and insulators; create their own electrical inventions; and learn how to draw schematic diagrams. Teachers will tour the museum and the historic Folsom Powerhouse.

Project WET
Common Core and EEI (Grades K-12)
Saturday, October 11, 2014 • 9 a.m. – 4 p.m.

Effie Yeaw Nature Center

Experience interdisciplinary activities to engage students in learning about water resources, water conservation, and key related science concepts. Engage in fun, hands-on, standards based outdoor activities including an introduction to water quality monitoring with U.S. Geological Survey staff. This is STEM learning at its best. Participants will receive the new, Common Core Correlated Project WET 2.0 Guide. Lunch will be provided.



GEMS® Dry Ice Investigations and Chemical Investigations (Grades 5–12)
October 16, 2014 • 4 p.m. – 7 p.m.
Folsom Powerhouse Museum



This workshop will focus on science investigations and will help teachers develop the skill to foster inquiry abilities, which research has shown is very difficult to teach. Students will learn that science is about wondering why, asking questions, observing, and coming up with possible explanations before designing investigations to test the explanations. In the morning, teachers will work with dry ice to investigate the particulate theory of matter, phase change, and chemistry. In the afternoon, an ordinary zip-lock bag becomes a safe and spectacular laboratory as teachers learn how to mix chemicals that bubble, change color, get hot and produce gas, heat, and color. This section will review chemical changes, endothermic and exothermic reactions, and will help support skills in observations, experimentation, and inference.

Other Great Workshops
(Not sponsored by SMUD)

Project Learning Tree And Us Fish & Wildlife
June 26, 2014 • 9 a.m. – 3 p.m. • \$30

Stone Lakes National Wildlife Refuge/ Alice Birney Schoolyard habitat

To register, contact Sandy Derby; sderby@ucanr.edu
Participants will receive PLT K-8 curriculum with over 100 activities. Receive certification as a PLT educator.

RESTORE Institute – Schoolyard Restoration Training
July 28 – August 1, 2014 • 8:30 a.m. – 4 p.m.

To register contact Karleen Volherbst at karleen.volherbst@fws.gov

Fee \$50 – register by July 10

Learn the steps to create a restoration project on your school grounds through: Field trips to local schoolyard habitat projects; Meeting a network of educators and habitat specialists; Learning about funding and partnership opportunities; Hands on lessons designed to be tools for teaching common core.



2015 Youth Energy Summit

Powering Our Plate: Agriculture, Food and Energy

Juniors and Seniors - if you care about the environment, our energy future, and want to make a difference, then check out the Youth Energy Summit on January 23-24.

Participants compete for scholarships by attending workshops and completing a community service project.

For applications and information visit
[**Deadline to Register is Nov. 15, 2014**](http://www.smud.org>YouthEnergySummit</p></div><div data-bbox=)

or until we are at capacity



Roseville Electric



SACRAMENTO STATE
The LegiSchool Project