

# Energy Education news



Fall 2020

## inside this issue...

Teacher Workshops  
Page 2

Solar@Home  
STEM Summer Camp  
Page 3

Virtual Learning  
Resources  
Page 4

Charge Up Change!  
Video Competition  
Page 5

Square Root Academy  
Goes Digital  
Page 5

Pollinators  
Page 6

Virtual Electricity Fair  
Page 7

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## Science Olympiad



The 2020 Sacramento Regional Science Olympiad was held on Saturday, March 7, 2020 at Mira Loma High School. Nineteen B Division (middle school) teams competed along with 31 C Division (high school) teams. Congratulations to everyone who participated! Unfortunately, due to COVID-19, the winning teams could not advance to the Statewide and National competitions.

### B Division:

- |            |  |
|------------|--|
| 1st place: | Winston Churchill MS-A (Sacramento County) |
| 2nd place: | Arden MS-A (Sacramento County)             |
| 3rd place: | Pomolita MS-A                              |
| 4th place: | Golden Hills Academy                       |
| 5th place: | Smedberg MS                                |

### C Division:

- |            |   |
|------------|---|
| 1st place: | Mira Loma HS-A (Sacramento County)      |
| 2nd place: | Pleasant Grove HS-A (Sacramento County) |
| 3rd place: | Sheldon HS (Sacramento County)          |
| 4th place: | Ukiah HS                                |
| 5th place: | Laguna Creek HS-B (Sacramento County)   |

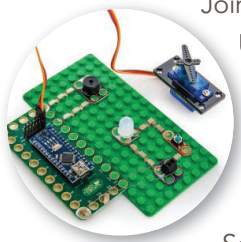
# Free professional development workshops for educators

Our priority is the safety of our customers, employees and our teachers. Due to restrictions from the COVID-19 pandemic, we will be holding education workshops virtually. You must register for each workshop at [smud.org/Education](https://smud.org/Education). All workshops will be held from 4 - 5 p.m. Class materials will be sent to attendees in advance.

## Crazy Electric Circuits with Legos (Grades 3-9)

**Tuesday, September 8, 2020**

Instructor: Davin Bowker



Join Davin Bowker of the San Juan Unified School District as he leads educators in learning how to build and diagram circuits. This course is highly recommended for fourth grade teachers preparing for Next Generation Science Standards in electricity and

electromagnetism. The easy to use crafting make-and-take projects support science and language arts while introducing students to electricity and electric circuits. Teachers will receive a classroom Crazy Circuits Maker Space set and vehicle Legos.

## Exploring Watershed Science & Interrelationships with Project WET (Grades 4-12)

**Wednesday, November 4, 2020**

Instructor: Bryan Brown

How does one begin to manage a watershed? Join Bryan Brown with Project WET for an evening exploring activities to engage students in the study of watersheds, including techniques for delineating water features on maps, calculating the effects of changing land use patterns and understanding relationships in data used to monitor potential impacts to water quality. This interdisciplinary workshop experience will feature Project WET activities that integrate concepts and skills at the heart of Common Core and Next Generation Science Standards. Participants will receive a copy of each activity and a starter kit of materials for each activity we explore.



## Exploring Water Systems, Technology and Career Opportunities with Project WET - (Grades K-12)

**Wednesday, November 5, 2020**

Instructor: Bryan Brown

Do your students know what they want to do for a living? Join us for an evening exploring activities to engage students in the study of potential future careers in the water sector from the urban water cycle to learning basic skills to interpreting streamflow relationships. We'll also look at water use technology through time and how the study of the past can inform engineering of the future. This interdisciplinary workshop experience will feature Project WET activities that integrate concepts and skills at the heart of Common Core and Next Generation Science Standards. All participants will receive a starter kit of materials and copy of each activity we explore. Participants who have attended a previous SMUD Project WET workshop this school year will also receive a copy of Project WET Guide 2.0.



## Exploring the Language & Science of Water with Project WET (Grades 3-8)

**Wednesday, November 18, 2020**

Instructor: Bryan Brown

Water has shaped human language and culture since the dawn of time. Join us for an evening exploring how language can provide clues about the climate of the cultural zones where the language originated, the use of language and math in describing weather phenomena and how the character of water has shaped literature, art and poetry to this day. This interdisciplinary workshop experience will feature Project WET activities that integrate concepts and skills at the heart of Common Core and Next Generation Science Standards. Participants will receive a copy of each activity and a starter kit of materials for each activity we explore.



## Holiday Sewing with Circuits (Grades 4-12)

**Tuesday, December 1, 2020**

Instructor: Suzette Bienvenue

Join in this hands-on workshop and learn how to teach the science of circuitry through art by making fabric projects which are decorated with festive LED lights! Attendees will learn the concepts of drawing schematics, parallel and series circuits and basic electronics. Teachers will receive classroom materials.



## Solar@Home Summer STEM Camp

Did you know that photons from the Sun travel at the speed of light and take 8 minutes to reach the earth providing us with energy? It's just one of the fun facts that nearly 300 area students in underserved communities learned as part of free solar classes offered by SMUD.

The five-week hands-on, experiment-based distance learning Solar Energy Summer STEM Camp for 5 – 8 grades taught families all about solar energy, where it comes from and how we use it. The camp included free materials which were mailed to participants each week, self-guided lessons and a weekly online meeting for more exploration. SMUD's Energy Education & Technology Center (EE&TC) created the online classes for kids and families including educational videos and interactive lessons. "The camp supports families and students that have been negatively impacted by reductions or closures to summer camps and programs due to COVID-19," says Jacobe Caditz, EE&TC Supervisor. "It took a lot of teamwork to get these classes going but we're going to be able to reuse them in the Fall for virtual classroom lessons since our curriculum aligns with what is being taught in the classroom."

The summer program has been very positive. "I just met with some families and they are all raving about their science experience with SMUD," said Faith Galati, Executive Director for Breakthrough Sacramento. "Thank you for your support on this project and for making hands-on science accessible to students. It has them engaged, learning and wanting more. That's the best kind of learning!"

Learn more about the solar classes and see what else we offer at [smud.org/Education](https://smud.org/Education).



# Virtual Learning Resources



## Khan Academy

If you want to learn about math, art, computer programming, economics, physics, chemistry, biology, medicine, finance, history and more. This is a free service. You can also get help with prepping for college entrance exams.

## Alison

Alison is a free education site offering certification in some areas. Alison offers courses mainly in business, technology and health but also includes language learning courses. This site is for high school and above.

## ItunesU

For Apple users only. This is a great place for free online education on all types of classes and integrates seamlessly with any Apple device. Users can search by topic. But please take care because the free programs are mixed in with paid content.

## Code Academy

Where other coding sites follow an example/practice session workflow, Code Academy includes a live practice window. This means you can practice coding while still viewing the lesson material.

## Code

Yet another coding and app writing website feature learning options for students of all ages. In addition to kid friendly material, Code offers free online education classes on a wide variety of technology topics. These classes include app writing, robotics and Javascript.

## TedEd

From the same people that brought you the all-encompassing, motivational web series, is a site full of educational videos. Most include impressive animation, and all are 10 minutes long or less. It also includes supplemental materials and quizzes on the videos. This makes the site extremely useful in supplementing your in-class presentations.

## Memrise

Available for desktop and app, this is a powerful free program for studying languages through the integration of games and entertainment.

## National Geographic – Kids

This site makes fun and educational online education for younger kids. There are a large variety of videos, games and puzzles making for a more casual learning environment.

## Fun Brain

This website focuses on math, reading games and puzzles for grades K-8.

## Whyville

This site is a specific destination for preteen online learning. The site includes a variety of social features, with a focus on learning materials geared for young teens using educational games.

## Scholastic

Has free online content for elementary age students developed more for at home learning than in class.

## Major Universities

Universities like Harvard, Yale, MIT, Stanford and etc. all have free learning and course sites available to the public.

## Long Distance Learning

Learn how the staff at the Energy Education & Technology Center can help you teach your students with online learning resources and virtual visits.

Learn more at [smud.org/Education](http://smud.org/Education).





# Charge Up Change! Video Contest



SMUD is hosting our 2nd annual Charge Up Change! video competition. This is a perfect activity for distance learning, getting your students excited about technologies that battle climate change and giving them a chance to win some really cool prizes!

To enter, all they need to do is some research about electric vehicles and make a short video or animation to promote or educate the public about electric transportation. Don't have animation or video experience? Don't worry. They just need to do the research and pick up a phone and start recording. This competition is open to middle school students in Sacramento County. Grade 6 is acceptable, if you are part of a middle school.

Learn more or fill out an application by Friday, October 2, at [smud.org/ChargeUpChange](https://smud.org/ChargeUpChange).

The top prize is \$1,500. Please email an application and completed video link on YouTube to [Suzette.Bienvenue@smud.org](mailto:Suzette.Bienvenue@smud.org).

Check out last year's winners at [smud.org/ChargeUpChange](https://smud.org/ChargeUpChange).

## Square Root Academy Goes Digital



The Square Root Academy, a STEM based nonprofit organization providing underrepresented youth education on engineering and entrepreneurship, held a cyber camp this summer. During the "NorCal Cyber Stories" camp, students spent four hours a day learning scratch coding, writing music, practicing the

art of storytelling and even building their soccer skills – all from the safety of their homes.

Through a partnership with the Sacramento Public Library, they were even able to provide participants with refurbished computers which students were able to keep after the camp. Guest instructors and content were also provided by 916 Ink and Sacramento Area Youth Speaks (SAYS).



The Square Root Academy has other great programs for families and educators. To learn more about how you can get your students involved contact: [admin@squarerootacademy.com](mailto:admin@squarerootacademy.com)





# Pollinators

Pollinators which include bees, birds, bats and butterflies among other creatures, are responsible for bringing us one out of every three bites of food. They do this by transferring pollen during their foraging, enabling fertilization and growth of seeds and fruits. Almonds and many other types of nuts, berries, cherries, avocados, melons and squash are among the popular crops that are highly dependent on the work of pollinators, especially here in California's Central Valley.

Pollinator populations are in serious decline and many are at risk due to sprawling development, habitat loss, climate change and pesticide use. SMUD and other energy utilities, which manage extensive transmission and distribution right of ways and influence land resources at wind and solar farms are mobilizing to help support pollinator populations.

SMUD is a member of the Electric Power Research Institute (EPRI) Power-in-Pollinators initiative, which exists to accelerate pollinator conservation among electric utilities. The partnership shares the latest scientific findings, case studies and tools to assist with the integration of pollinator-friendly practices into utility vegetation, facilities and land management.

## Research Projects from SMUD

Funding and technical support for a pollinator habitat demonstration with educational signage adjacent to the bike trail on the American River Parkway near Cal Expo. This is a joint project with the Pollinator Partnership, The American River Parkway Foundation, Sacramento County Regional Parks and Pacific Gas & Electric Company. After three years of study and comparison to conveniently managed sites, the demonstration was found to have twice as many pollinator species, three times the number of bees and 30% higher bee nesting rates.

A Collaborative effort with the Utility Arborist Association, The United States Forest Service, PG&E and scientists at the Sonoma State Center for Environmental Inquiry to evaluate the impact of integrated vegetation management on plant communities and wildlife diversity.

The study is taking place in an El Dorado County transmission corridor that was burned in the 2014 King Fire. Research on multiple test plots, including vegetation management cost and revegetation success is ongoing.

SMUD developed a conceptual plan for the integration of pollinator-friendly native grasses and wildflowers, grazing management and soil carbon storage for a utility-scale solar project. We also created a proposal to test the impact of solar panel shading and soil moisture on milkweed establishment success. We are currently searching for funding partners and evaluating design specifications and methods to enable these practices in future solar projects.



## More SMUD Programs

- Our Shade Tree program gives away multiple species of flowering trees which provide nectar and shelter for a variety of pollinators. Learn more at [smud.org/ShadeTrees](https://smud.org/ShadeTrees)
- Expanding the use of goats and sheep to graze dry





grass and brush in our transmission corridors and other land holdings, reducing the use of herbicides.

- Evaluating participation in the United States Fish & Wildlife Service's Candidate Conservation Agreement with assurances to protect the Monarch Butterfly and its habitat in utility right of way.
- Employing local and nonprofit extraction services instead of insecticides when bee colonies need to be relocated to safer locations.
- Eliminated the use of herbicides containing glyphosphate, known to be harmful to honeybees, in the landscaping at SMUD's Sacramento County facilities. SMUD regularly evaluates available weed control alternatives in our Integrated Vegetation Management program and we work to minimize the use of herbicides throughout our system.

### How can you help?

Create color in your garden. Different pollinators are attracted to varying colors. Here are some common plants which attract pollinators:

Butterfly bush	Bee balm	Borage
Lavender	Coneflower	Milkweed
Black-eyed Susan		

Don't use pesticides. Plant native species. Plant flowers in clumps making it easier for pollinators to visit.

To attract and maintain honeybees ...

Make a bee house:

<https://www.foxleas.com/make-a-bee-hotel.asp>

## Electricity Fair

SMUD, in partnership with the California State Parks, will be celebrating the 125th Anniversary of the Historic Folsom Powerhouse with a virtual Electricity Fair.

You don't need to preregister or download anything – just follow the link below to investigate the interesting history of the powerhouse, learn what electricity is, how hydropower works and be entertained with photos, interviews, quizzes, games and family activities. The link will be active from September 12 – October 12 and you can visit it as many times as you like. This is a great self-paced activity for your students.

Access the virtual Electricity Fair at  
[smud.org/ElectricityFair](https://smud.org/ElectricityFair)

If you are interested in accessing the Historic Folsom Powerhouse as a virtual field trip for your class, we can also provide a teacher guide and student worksheets. Please email [Suzette.Bienvenue@smud.org](mailto:Suzette.Bienvenue@smud.org) for information.



# Free online tools



## Let's power student learning

Take advantage of free lesson plans, teacher guides, student worksheets and videos available online at [smud.org/Education](https://smud.org/Education).

Topics include energy auditing in your home and classroom, BristleBots, electronic greeting cards and exploring wind energy.

Check out our latest engaging, hands-on STEM lessons at [smud.org/TeachingTools](https://smud.org/TeachingTools).



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