

Energy Education news



Spring 2021

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& Technology Center

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Virtual Electricity Fair attracts more than 1,400 visitors



For the first time, SMUD held a favorite event virtually. The Electricity Fair, which takes place annually in partnership with the California State Parks, went online throughout September and attracted over 1,400 visitors.

This celebration was extra special as it was the 125th anniversary of the first long distance transmission of power from Folsom to Sacramento.



Over 1,400 visitors to the Electricity Fair learned about the history of the Historic Folsom Powerhouse, how hydropower works and took virtual tours of the site with a State Park guide. Families engaged in arts and crafts, learned about how electricity works from Mr. Electricity and even practiced dancing the Electric Slide.

The favorite activity was the Make a Robotic State Park Animal which was given out to almost 1,000 kids. If you teach in Sacramento County and would like to do this activity with your students (grades 6-8) email your request to ETCmail@smud.org.

"If you missed the virtual 2020 Electricity Fair, don't worry," says Education Specialist Suzette Bienvenue. "We plan on re-purposing most of the material to make a school field trip virtual tour of the Powerhouse." The tour should be available online in 2021 and will have a teacher guide and student worksheets.



Free virtual workshops for educators

Are you looking for ways to engage your students with STEM activities? SMUD offers free teacher workshops and many of those classes provide materials. Any educator may register and attend the workshops, but only teachers who live or work in Sacramento county may receive classroom materials. Register and learn more at smud.org/Education.

Moving and Shaking with Paper Circuits (Grades 4 – 12)

Wednesday, Mar. 3, 2021 | 4 – 5 p.m.

Presented by Joshua Zimmerman, Brown Dog Gadgets



Create thematic, moving projects and activities using vibrating motors and paper circuits! Use paper robots to teach circuitry to any lesson from the Gold Rush to literature.

Teachers will learn how to implement a variety of lessons and activities that use paper craft projects and vibrating movement while discovering basic physics concepts.



Engineer a Smart Light in TinkerCAD Using MicroBit

(Grades 6 – 10)

Wednesday, Mar. 10, 2021 | 4 – 5:30 p.m.

Presented by:

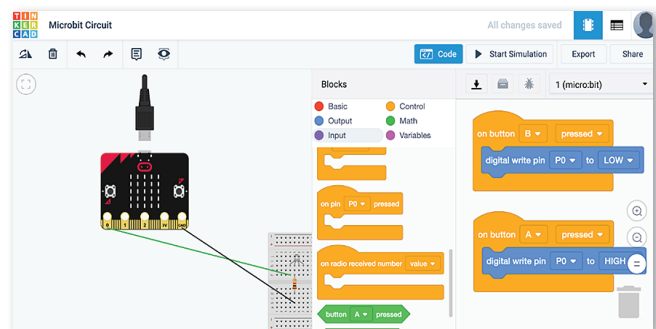


Stephen Callahan
Fab Lab – San Joaquin Office of Education

Phil Romig
Science Curriculum Specialist –
Sacramento County Office of Education



Lighting can be a fun and engaging engineering challenge. We're going to take it high tech with computer modeling and LEDs. Teachers will use TinkerCAD to both design a 3D structure to house a light and engineer a smart responsive light using TinkerCAD circuits.



Solar Energy – Solar Cooking Challenge (Grades 1 – 12)

Thursday, Mar. 11, 2021 | 4 – 5 p.m.

Presented by NEED

Engage your students with a solar cooking design challenge. Even if you already use solar cooking as a classroom teaching tool, you'll be glad you joined this workshop. You'll learn about the history of solar electric and how we've harnessed the power of the sun. Experts from the National Energy Education Development project (NEED) will show us innovative solar cooker designs and strategies for getting your students excited about harnessing the power of a star to cook delicious smores.



Engineering Green Structures in a Minecraft Environment (Grades 3 – 8)

Wednesday, Mar. 24, 2021 | 4 – 5:30 p.m.

Presented by:

Jared Amalong

Director of Computer Science and Distance Learning – Sacramento County Office of Education



Stephen Callahan

Fab Lab – San Joaquin Office of Education



Your students can learn about energy efficiency by making virtual buildings in Minecraft. You'll learn useful tools for engaging students in science and engineering, both in

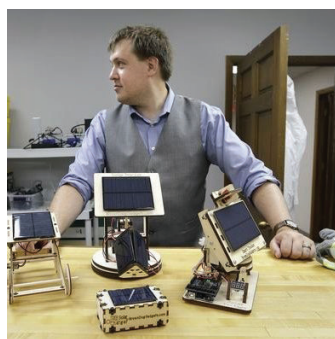
a virtual world and with physical computing. By the end of the class you will have the tools and knowledge to create a fun representation of data by programming your model to respond to changing input.

Advanced Paper Circuits with Sensors (Grades 7 – 12)

Wednesday, April 7, 2021 | 4 – 5 p.m.

Presented by Joshua Zimmerman, Brown Dog Gadgets

You have mastered LED greeting cards or other paper circuit projects. It's time to take Paper Circuits to the next level! In this workshop we'll learn how to create sensors and integrate programming into our Paper Circuits creations.



IlluminART - Paint and Wire the Sacramento Cityscape (Grades 4 – 9)

Wednesday, April 14, 2021 | 4 – 5:30 p.m.

Presented by:

Jared Amalong

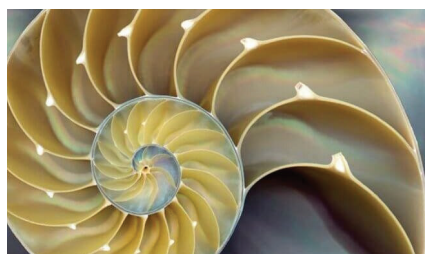
Director of Computer Science and Distance Learning – Sacramento County Office of Education



Jackie White, Director of Arts –

Sacramento County Office of Education

Participants will learn how to integrate elements and principles of art and technology to create emphasis in a special piece of art. Teachers will understand how to teach one point perspective as part of a cityscape as they use LED light to influence their piece of art.



Exploring the Fibonacci Sequence through SCRATCH (Grades 4 – 10)

(Grades 4 – 10)

Wednesday, May 12, 2021

4 p.m. – 5:30 p.m.

Presented by:

David Chun

Director of Math Programs – Sacramento County Office of Education



Not just for math teachers! The Fibonacci Sequence is a series of numbers where the next number is found by adding up the two numbers before it. Learn how to help students bring this math concept to life using computer programming. In this workshop, you will use SCRATCH to explore instructional strategies to teach and create a graphical representation of the Fibonacci Sequence.



The importance of education in creating clean energy

SMUD is on the fast track to meet a 2030 Zero Carbon Plan and we're already well on our way. Why? Because there's no time to waste in developing a plan that will lead us to reach zero carbon emissions in our power supply by 2030 – the most ambitious goal of any utility in the nation. This goal will put the Sacramento region on the map as an example to follow, a region where

innovative, climate-friendly businesses want to be, and a place where our customers and communities have clean, safe and reliable energy.

SMUD knows we can't meet this ambitious goal alone. How can you help our community get there? First, through education and learning how to inspire your students become interested in their environment, not only in your schools but

the community as well.

Second, by questioning the status quo by asking why, how and what can be done differently.

SMUD has had a long history as a utility leading the way in clean energy and carbon reduction with many notable firsts in national accomplishments when it comes to innovation in energy. We can't do it alone. We need the brilliant and creative minds of the



students in your classrooms to help lead the way! Learn more about SMUD's Zero Carbon goal at smud.org/ZeroCarbon.

So, attend workshops, get your students involved in STEM activities and spread the word. Learn more at smud.org/Education.

New – Virtual classroom visits



SMUD is now offering free virtual classroom visits, including hands-on materials, so your students can build, discover and learn at a distance. There are multiple lessons to choose from:

- Each lesson includes a fun, interactive self-paced online activity which can be assigned as class time or homework.
- Our staff will join your class to lead your students through an engaging live exploration of your energy and/or sustainability topic.
- Project materials will be provided for your students to reinforce learning objectives.
- Student worksheets will accompany each lesson.
- Lessons available for all grade levels and target NGSS standards.

You can view all our available lessons at smud.org/TeachingTools. To sign up for a free lesson, email ETCmail@smud.org.

2021 California Solar Regatta is canceled

The health and safety of our community is important to SMUD, so this year we've decided to cancel the 2021 California Solar Regatta. For information and updates on this event, please visit smud.org/Solar-Regatta.

See you in 2022!





Charge Up Change! competition

Charge Up Change! is a middle school video competition, designed to encourage young people to research and learn about electric transportation. The challenge is to create a short video that is less than 2 minutes to demonstrate why electric vehicles are cool.

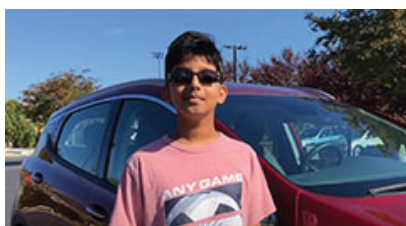
2020 was the second year of this competition and was open to middle school students in SMUD's service area.

Visit smud.org/ChargeUpChange to read the rules and have your students participate in the 2021 competition.

Last year, there were 32 applicants and 18 videos submitted. Some students participated in teams. Schools that participated:

Folsom	Kit Carson	Sutter
Folsom Charter	Mills	Toby Johnson
Gold River Discovery	Natomas Charter	Will Rogers
John Barrett	Robert L. McCaffrey	Winston Churchill

Thanks to all the students that participated in this competition last year. We're so proud of you. **Congratulations to all!**

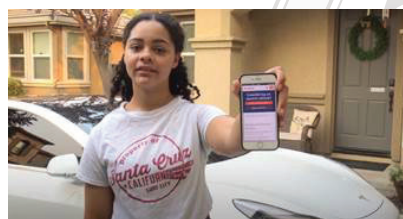


First place: Joel Phillip

Winston Churchill Middle School

San Juan Unified School District

https://youtu.be/bgbPqVu_3Xo



Second place: Quinn Gordon

Natomas Charter School

Natomas Unified School District

<https://youtu.be/kCjq0DUgBh8>



Third place: Garrott Roddy

Kit Carson International Academy

Sacramento City Unified School District

<https://youtu.be/FF53luT3zpk>



Fourth place: Jacob Wollwerth, James Msechu and Rohan Chivukula

Sutter Middle School

Folsom Cordova Unified School District

<https://youtu.be/KdUvOu3VfL0>



Fifth place: Grace Timmons

Folsom Charter School

Folsom Cordova Unified School District

<https://youtu.be/xRnlzpqqK9Cs>



Virtual Youth Energy Summit

Global warming is one of the major issues youth around the world are struggling with. After all, it's today's youth that are going to bear the brunt of all future climate change and help SMUD reach its Zero Carbon 2030 goals. That's why SMUD hosted the Youth Energy Summit (YES), to help give a voice to today's youth for tomorrow's future.



YES is a three-day climate and sustainability summit for junior and senior students at high schools in Sacramento county. This year, the theme of the summit was green and sustainable transportation.

130 participants from area high schools attended three days of learning, sharing and gathering ideas from Jan. 21 to 23. During their three-day exploration youth participants made friends, compared strategies and learned alternate and sustainable transportation concepts from experts.

After the summit, students could design and implement a community service learning project for their school or community to improve transportation. Teams of 2 to 6 students will present their community service project in April to compete for up to \$5,000 in scholarships.

For more information visit smud.org/YES or email ETCmail@smud.org with any questions.

High Schools participating:

- Antelope High School
- Bella Vista High School
- Cordova High School
- Cosumnes Oaks High School
- El Camino Fundamental High School
- Encina Preparatory High School
- Grant Union High School
- Jesuit High School
- Kit Carson International Academy
- Laguna Creek High School
- Liberty Ranch High School
- Mira Loma High School
- Monterey Trail High School
- Natomas Pacific Pathways Prep High School
- Pleasant Grove High School
- River City High School
- Vista Del Lago High School
- West Campus High School

Science Fair – Open to Elk Grove students

Elk Grove students: Are you ready for an exciting virtual science fair experience unlike any other? The Virtual STEM Fair is a competitive science fair experience open to any 1st-12th graders residing within Elk Grove. Students will showcase their inventiveness, creativity and determination to win up to a \$300 cash prize, and to be featured on the Virtual STEM Fair website.

In order to enter, you must create a well-written research report that recaps your project. This must all be original work. Then, you will be responsible for generating a diagram that visually dictates a representation of the physical model of the experiment. Finally, you will need to provide a two-to-five-minute video of you presenting your work.

There are two different grade categories with varying prizes available:

High School level (Grades 9-12)

- 1st place - \$300
- 2nd place - \$200
- 3rd place - \$100

Elementary School prizes (Grades 1-3)

- 1st place - \$75
- 2nd place - \$50
- 3rd place - \$25

Middle School level (Grades 7-8)

- 1st place - \$150
- 2nd place - \$100
- 3rd place - \$50

Elementary School Prizes (Grades 4-6)

- 1st place - \$75
- 2nd place - \$50
- 3rd place - \$25

This fair is not affiliated with the Elk Grove Regional STEM Fair, the California State Science and Engineering Fair, the Broadcom MASTERS Competition, or the Regeneron International Science and Engineering Fair (ISEF).

If you have questions, please visit <https://sites.google.com/view/virtualstemfair/home>.



Recycle markers at your school

Don't toss those dead and empty markers in the trash! Crayola has a program called ColorCycle which will accept all brands of dried-up markers so they don't end up in a landfill. The list includes dry erase, highlighter and color markers.

If your school collects markers, Crayola will send you a free shipping label and you can ship them back to get recycled. For more information visit crayola.com/colorcycle Get started now and help reduce plastic pollution!

American River Parkway Foundation video lessons

Tired of being stuck indoors and can't take your students on a field trip to experience nature? The American River Parkway Foundation, in partnership with the Sacramento County Office of Education, has developed a library of nature content for the virtual learning experience using STEM video lessons.

River Bend virtual field trips

- Nature Hike at River Bend Park (8:49)
- Exploring the Banks of the American River (7:41)
- Observing Nature Up Close (5:31)

Effie Yeaw nature lessons

- Sharing Wild Spaces: How Close Is Too Close? (2:20)
- Plant Adaptations: Reaching for the Sky (1:04)
- Building Materials: Using What Nature Provides (3:29)
- Animal Habitat: Why Live Here (1:29)
- What Are Those: Growing on Oaks (1:56)
- To Cut or Not: Managing Natural Spaces (1:57)
- Choosing Wisely: How Big Is Too Big? (2:00)

Related online resources

- River Bend Outdoor Education Website
- Visiting the American River Parkway
- American River Parkway Foundation Programs
- American River Parkway Junior Parkway Ranger Activity Book

Big picture learning



With support from Harbor Freight Tools for School, this program is designed for apprentice youth who show a potential in trades and crafts. The Harbor Freight Fellow Initiative provides students with customized programs and work that include pathways to post-secondary learning.

Each student accepted into the program will have a highly personalized learning program guided by a learning plan developed with help from teachers, mentors and others. The program follows graduates as they enter work, post-secondary learning, communities of practice and business ventures to understand how these new forms of apprenticeships contribute to personal and professional fulfillment while making contributions to our society and economy.

To learn more about this program, visit bigpicture.org or contact Charlie Plant, Program Director at cplant@bigpicturelearning.org.

Learn online with the California State Parks



Looking for a meaningful and engaging way to connect students to science and history while incorporating technology? The California State Parks offers an opportunity to engage K-12

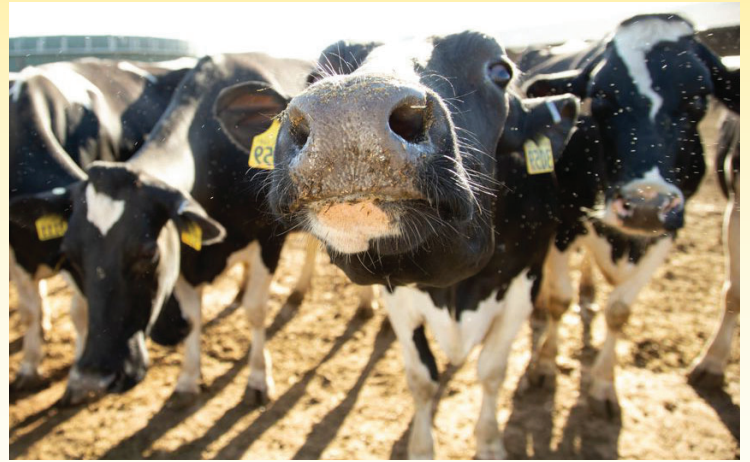
students with park resources and professionals with free video conferencing through the Parks Online Resources for Teachers and Students (PORTS) program.

PORTS can help your students experience and learn from State Park Interpreters on topics ranging from life in the forest to the experience of the Gold Rush. To connect your students with PORTS, visit ports.parks.ca.gov.



From cow waste to renewable energy

Did you know, some of the electricity you use at home is generated from cow manure? With almost 40 dairies and nearly 15,000 cows in Sacramento County, there's a lot of cow manure to go around. It makes great fertilizer and can be used to grow crops. But there is a downside – as it breaks down it emits methane, a greenhouse gas that is 20 times more powerful than carbon dioxide. In fact, about half of California's methane emissions come from the dairy industry. The good news is that we can capture and use that methane to make electricity, supporting local dairy farms and helping SMUD meet our ambitious new 2030 zero carbon goal.



Every year SMUD brings busloads of students to tour our dairy digesters and learn about SMUD's commitment to sustainability. But because of the pandemic, tours weren't possible last year. Even when tours begin again, there isn't enough time or money to organize them for every school that might want one. That's why SMUD's Community Education & Technology Center team created a self-paced virtual tour of our dairy digester at New Hope Dairy farm. Now you can explore the dairy from the comfort of your own home or school and see how SMUD is turning cow waste into electricity.

By using a combination of video and interactive web pages, the tour melds the history and culture of New Hope Dairy farm with the technical expertise of our own R&D team to help our community understand how we're investing in the local economy, protecting the environment and supporting small dairies and the families that operate them.

Want to learn more? Visit smud.org/DairyDigester to take a self-paced virtual tour of New Hope Dairy farm and see how we turn cow waste into electricity. Teacher guides and student worksheets are available for the class virtual field trips.

2021 SMUD Solar Car Race is canceled



The health and safety of our customers and community are a top priority for SMUD, so we've decided to cancel the SMUD Solar Car Race for 2021. For information on this event, please visit smud.org/Solar-Car-Race.

If your high school is located in Sacramento County and would like to hold a mini-race at your school, please send a request to ETCmail@smud.org.
See you back at Cosumnes River College in 2022!





Earth Day Competition

Stay tuned for an upcoming Earth Day Competition. Students 18 and under will be asked to submit photos of their original artwork celebrating how they are honoring the Earth and how those changes are helping SMUD reach Zero Carbon by 2030.

For more information, contact ETCmail@smud.org.

Please, be safe and stay well

To all our teachers, students and families – please, be safe and stay well.

As we navigate through these challenging times, we're taking actions to make sure we continue to deliver reliable and uninterrupted power and that our customers remain safe.

As an essential service provider, we're committed to taking proactive measures to limit the risk of exposure of coronavirus (COVID-19) for our employees and the public.

Learn more about how we're helping you and how you can help, by exploring smud.org/HeretoHelp.



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**Community Education
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