



# The Beaker

NEWS FROM THE NORCAL STEM EDUCATION FOUNDATION

Issue 40, June 1, 2017

## SACRAMENTO WINNERS SCORE AT ISEF 2017

All three grand-prize winners from the 2017 Sacramento Regional STEM Fair placed in their respective categories at this year's Intel ISEF!



Teevyah Yuva Raju, of Mira Loma High School, took home fourth place at ISEF in her category of Plant Sciences for her project "The Reversal of Harms Done by Drought: how carbon and nitrogen levels affect *Fusarium oxysporum f. sp. lycopersici* race 3 in soils effect *Solanum Lycopersicum* (tomato) plant growth." Her project researched the best way for farmers worldwide to amend their soils for the least amount of money to ensure healthy, fruitful crops. She was able to attend ISEF because she placed first overall in the grand prize awards at the Sacramento Regional STEM Fair.

Arya Goutam, of the Nueva School, took home third place in his category, Embedded Systems, for his project "ResQ: A low-cost wearable device that alerts family members worldwide in the event of a fall." His elderly fall sensor (called "ResQ") will send a family member a call if a senior falls. Goutam placed second overall at the Regional Fair, allowing him to move on to ISEF.

Finally, Guadalupe Bernal, of Folsom High School, took home third place at ISEF in her category of Robotics and Intelligent Machines for her project entitled: "Autonomous Off-Road Vehicle Using Computer Vision for Surveillance Applications." She built her project from scratch (including 3D printing the parts) an autonomous (self-driving) vehicle! She moved on because she placed third overall at the Regional STEM Fair. Click here to see all the fun they had at ISEF: [2017 Intel ISEF Photos](#).

The 2017 Intel ISEF saw over 1,700 student competitors from 78 countries this year. Congratulations to our winners!

## STATE SCIENTIST DAY 2017

Thousands of third through sixth grade students converged on the State Capitol to experience the fascinating world of science through hands-on exhibits and experiments at the 29th Annual State Scientist Day on Wednesday, May 10 on the West Steps of the State Capitol.

do to protect public health, the environment and California's natural resources.

During the event, students from dozens of elementary schools learned how state scientists protect the environment, prepare for and respond to natural disasters, and protect the

Rocks!" where students got a close-up look at what causes earthquakes, volcanoes and tsunamis and could jump on board the Make-A-Quake Machine. Or they could visit "Live Insects" where students got hands on with some creepy crawly creatures!

## CALENDAR OF EVENTS

**June 5** - Student Project Registration OPENS

**June 23** - Mentoring Program with MSLI

**September 9** - Folsom Electricity Fair

**August - November** - Foundation Presentations to interested Schools, Teachers, Organizations

### Modified Registration - OPEN EARLY

We've modified the registration based on **grade** to help middle school students warm up to the rigors of the high school registration. (Sorry high-schoolers, it's necessary if you want to qualify to compete in the International Fair.) Registration will open **June 5** this year to ensure that your project gets SRC Approvals PRIOR to experimentation.

[Register now!](#)

### Donate to the Foundation While Grocery Shopping!

Do you shop at Raley's, Bel-Air, or Nob Hill? If so, please join the **Extra Credit program** for the Sacramento Regional Science and Engineering Fair Foundation (dba NorCal STEM Education Foundation). It's all online and just takes a few simple clicks to support the Foundation! [See instructions on how to sign up here.](#)

### Are YOU a State Worker Who Donates Through "Our Promise" (formerly CSECC)?

The Sacramento Regional Science & Engineering Fair Foundation (dba NorCal STEM Education Foundation) hopes you will elect to donate to our organization during the Fall 2017 Campaign as a certified non-profit with Our Promise. As information is released on HOW to donate, the Foundation will share it with you!

### Sponsor STEM Education Today!

Does your organization support STEM Education? Would you like to be more involved? Then consider becoming a sponsor of the NorCal STEM



Assembly member Bill Quirk (D - Hayward) was recognized as an Honorary State Scientist for authoring Assembly Concurrent Resolution 18 (ACR 18), which designated May 10, 2017 as State Scientist Day and highlights the important work state scientists

public from food borne illness and other diseases.



Among the fun and visual activities were: "Comical Chemistry" where students could learn how to make a polymer out of typical kitchen supplies. "California



The California Association of Professional Scientists (CAPS) sponsors State Scientist Day each spring to promote science education and encourage students to explore careers in science. For a recap of this year's exhibits, please visit [www.capsscientists.org](http://www.capsscientists.org).

## NEW CATEGORIES FOR SAC STEM FAIR 2018

The Sacramento Regional STEM Fair will still have seven categories, but they've been modified to better encompass the projects that we've seen in recent years, and here they are:

**Behavioral & Social Sciences:** The science or study of the thought processes and behavior of humans and other animals in their interactions with the environment studied through observational and experimental methods.

**Biology & Health Sciences:** Focuses on human or animal body systems or overall health. Includes Animal, Cellular and Molecular Biology, Microbiology, Plant Sciences, and Transitional Medical Sciences.

**Chemistry:** Studies that explore the identification of the substances of which matter is composed; the investigation of their properties and the ways in which they interact, combine and change; and the use of these process to form new substances. Includes Biochemistry, Chemistry, Chemical Energy, and Pharmacology.

**Physical Sciences & Math:** Focuses on the science of matter, energy, mathematical functions and applied mathematics. Includes Earth and Environmental Sciences, Mathematics, and Physics and Astronomy.

**Applied Engineering:** Studies that focus on engineering that involves movement or

structure. The movement can be by the apparatus or the movement can affect the apparatus. Includes Engineering Mechanics, Materials Science, Robotics and Intelligent Machines.

**Sustainable Technology:** Focuses on sustainable or green materials or products. Includes Biomedical Engineering, Physical Energy, Environmental Engineering, and Green Chemistry.

**Computer Software & Technology:** The practical approach to computation and its applications. Includes Computational Biology and Bioinformatics, Embedded Systems and Systems Software.

Many projects could easily fit into more than one category. We highly recommend that you review the entire listing of the categories before choosing a category that most accurately describes your project.

**REMEMBER:** Students are responsible for choosing their own categories - Foundation Staff will not decide for you OR move you even if we feel that your project is better suited to another category.

These categories are judged based on either a Scientific Process or Engineering Design Process rubric. Take a closer look here: [#categories](#). All category selections are final two (2) weeks PRIOR to the Fair - this means no category changes may be made on-site, or within the two weeks leading up to the Fair; however, changes prior to that will be accepted.

Education Foundation, today! All sponsors receive benefits such as being featured on our website and marketing materials. **All** the money goes toward increasing student interest in STEM! It's a win-win!

If you or someone you know is interested in sponsoring the Foundation, either monetarily or with in-kind goods or services, please visit our [sponsorship page on the website](#) to learn more.

## 2017-2018 Watershed Stewardship and Education Grant

Does your school or organization have a project that could help improve our waterways and keep them clean? The Sacramento County Department of Water Resources could help you make that project come to life! The window has opened for submissions to the Watershed Stewardship and Education Grant Program. DWR will award up to \$2,500 for each project chosen. The final date to apply is July 1, 2017.

[Find out more here!](#)



The Regional STEM Mentoring Program @ Sacramento State

The NorCal STEM Education Foundation has been busy working out details with the Migrant Student Leadership Institute at Sacramento State for a one-day version of our mentoring program with over 150 middle and high-school students who come from a

background of migrant farm work. The Regional STEM Mentoring (RSM) program provides a foundation for students to build hands-on skills, receive advice, and grow into independent individuals ready to jump-start their careers. Please visit our website for more information and to sign up for this amazing experience:

**[Learn about the Mentoring Program!](#)**

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## WHAT'S NEW?!

### TELL US ABOUT YOUR SUMMER

It's almost Summer Vacation, hooray! We want to know what YOU plan to do in STEM this summer! Will you go to a science summer camp? Will you start experimentation (make sure to shoot us a quick email so we can put your experiment through SRC if you intend to use it for next year's Fair!)? Don't be shy - we will accept stories from students, teachers, even parents! Submit your stories to [sacSTEMfair@sacSTEMfair.org](mailto:sacSTEMfair@sacSTEMfair.org) and we will publish them in the next Beaker!

### FOLLOW US ON TWITTER

We're doing our best to ramp up our presence on Social Media - that includes posting to twitter more often! Do YOU have a twitter account? If so, follow us. We'll be using it to communicate more often regarding important Fair information, and to announce our upcoming year-long fundraising program, set to kick off in July!

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Get Social with us!

