



California Science Education Conference

OCTOBER 13-15, 2017 • SACRAMENTO, CA



REGISTRATION BROCHURE

California Science Education Conference

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Our education system is facing rapid, dramatic changes at local, state, and federal levels. With CA-NGSS field test assessments scheduled for Spring of 2018, pressure to implement the California Next Generation Science Standards makes your participation in this year's conference more important than ever.

The new science assessment will be operational in 2019, making this year's 4th and 7th graders 2019's test takers. With the flexibility of administration of the high school science assessment, this year's 9th, 10th, and 11th graders are all potential 2019 test takers. Do not wait for operational assessments – use this time with no test scores to start transitioning to CA-NGSS.

Get what you need to know about 3-dimensional learning, engineering, what is next in accountability and assessment for science, along with great programming for all science subject areas for all grade levels, from presentations by this year's keynote speakers, focus speakers, and short course and workshop presenters.

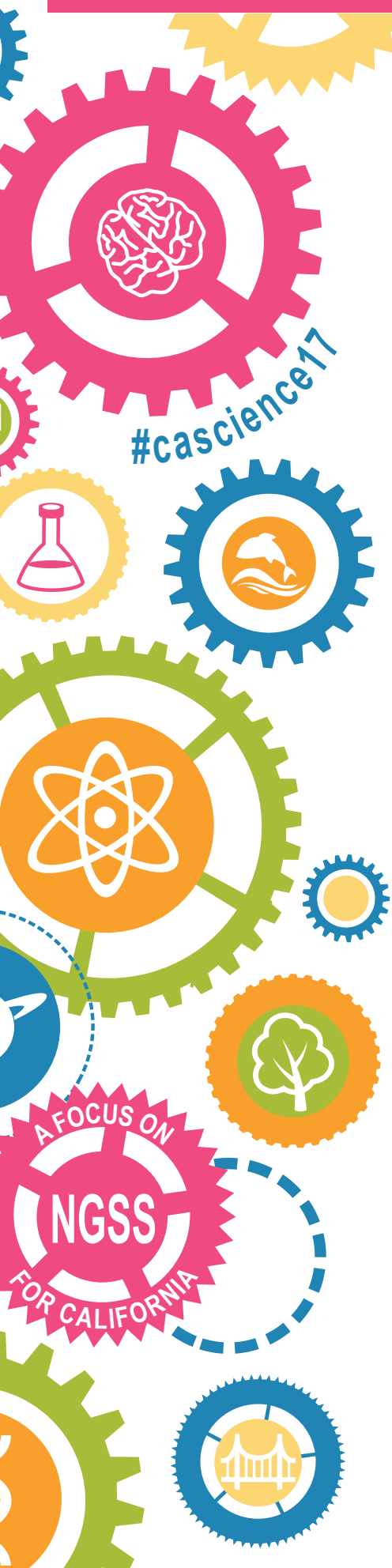
Join us in Sacramento for three days of networking, education, and rejuvenation.

The California Science Education Conference features professional learning workshops for:

- California Next Generation Science Standards (CA-NGSS)
- STEM/STEAM/Maker
- Technology
- 3-Dimensional Learning
- Classroom Engagement
- and much more

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Schedule-at-a-Glance

THURSDAY, OCTOBER 12, 2017

8:00 am – 5:00 pm Pre-Conference Event for District-Level Science Coaches and TOSAs

4:00 pm – 7:00 pm Registration Desk Open

FRIDAY, OCTOBER 13, 2017

7:00 am – 6:00 pm Registration Desk Open

8:00 am – 9:30 am Concurrent Workshops and Commercial Workshops

9:00 am – 12:00 pm Field Course #1: Learn and Create at the Hacker Lab!

9:00 am – 3:30 pm Field Course #2: Tour the Nuclear Reactor Facility – McClellan Nuclear Research Center & the Aerospace Museum of California

9:00 am – 3:00 pm Field Course #3: Nimbus Hatchery/ Folsom Power Plant Museum

9:00 am – 4:00 pm Field Course #4: Exploring the Cosumnes River by Canoe

9:30 am – 4:30 pm Exhibit Hall Open!

9:40 am – 11:10 am Opening General Session and Keynote Address: TERRY TAMMINEN (*Sponsored by Cheveron*)

11:10 am – 12:30 pm Exclusive Exhibit Hall Time (Lunch Concessions Open in the Exhibit Hall: 11:10 am – 2:30 pm)

12:30 pm – 2:00 pm Concurrent Workshops, Commercial Workshops and Focus Speaker: ROBERT DEGROOT

1:00 pm – 5:00 pm Primary Pathway, Upper Elementary Pathway

2:00 pm – 2:30 pm Transition

2:30 pm – 4:00 pm Concurrent Workshops, Commercial Workshops and Focus Speaker: CINDY PASSMORE

2:30 pm – 5:30 pm Short Courses

4:00 pm – 4:20 pm Transition

4:20 pm – 5:50 pm Concurrent Workshops, Commercial Workshops and Focus Speaker: CORAL CLARK

6:45 pm – 9:30 pm Evening Event of Your Choice!

SATURDAY, OCTOBER 14, 2017

7:00 am – 5:45 pm Registration Desk Open

7:30 am – 11:30 am Primary Pathway, Upper Elementary Pathway

8:00 am – 9:30 am Concurrent Workshops, Commercial Workshops and Focus Speaker: LISA WHITE

8:00 am – 5:00 pm Field Course #5: Sun, Wind and Cow Farts – Renewable Energy Bus Tour

8:00 am – 1:00 pm Field Course #6: California Raptor Center, UC Davis

8:00 am – 3:00 pm Exhibit Hall Open – Enjoy the last day of exhibits

8:30 am – 11:30 am Short Courses

9:30 am – 10:00 am Transition

10:00 am – 11:30 am Concurrent Workshops, Commercial Workshops and Focus Speaker: JONATHAN OSBORNE

11:30 am – 12:00 pm Transition

12:00 pm – 1:30 pm Awards Luncheon and Speaker: PAGE KEELEY

12:00 pm – 1:30 pm Concurrent Workshops, Commercial Workshops and Focus Speaker: TRICIA SHELTON

1:30 pm – 3:00 pm Exclusive Exhibit Hall Time – Last Opportunity to Visit the Exhibit Hall

3:00 pm – 4:30 pm Concurrent Workshops, Commercial Workshops

3:00 pm – 6:00 pm Short Courses

4:30 pm – 4:45 pm Transition

4:45 pm – 6:15 pm Concurrent Workshops, Commercial Workshops

6:30 pm – 9:00 pm Evening Event of Your Choice!

SUNDAY, OCTOBER 15, 2017

7:30 am – 1:00 pm Registration Desk Open

8:00 am – 9:30 am Closing General Session and Keynote Address: DEBORAH BEREICHEZ

9:30 am – 9:45 am Transition

9:45 am – 11:15 am Concurrent Workshops

11:15 am – 11:30 am Transition

11:30 am – 1:00 pm Concurrent Workshops

CSTA reserves the right to modify or cancel any of the events listed here or to modify the schedule.

For the most current program of events, please visit conference.casience.org.

Where California TK-12 Science Teachers Go for CA-NGSS

The California Science Education Conference is your best source of information on implementing CA-NGSS in your classroom.

You are invited to join us for the only conference dedicated to meeting the unique needs of California TK-12 Science teachers. Expect to gain practical skills to incorporate California Next Generation Science Standards (CA-NGSS) into your curriculum.

The California Science Teachers Association (CSTA) hosts this conference to focus on what California science educators need to know to hone their craft, stay updated on standards, and apply best practices gleaned from experts throughout the state.

Join more than 1,800 educators who share your passion for science from Friday, October 13 at 8:00 am to Sunday, October 15 at 1:00 pm. You'll make connections, gain new classroom ideas, and grow professionally.

Attention Preservice Teachers

Many in a multiple subject teacher credential programs only have one, 1 to 2- unit science methods class (10-20 hours total) in their entire teacher preparation program. If this is the case, attending the California Science Education Conference can provide almost as many hours of science methods instruction as you get in an entire quarter! And the best part is that you get to choose the topics that will help you the most from a menu of dozens of workshops, short courses, focus speakers, and field courses.

It gets even better! CSTA offers preservice teachers the opportunity to volunteer four hours of your time to the conference in exchange for a **free** conference registration! The only catch? You must be a preservice member of CSTA. CSTA offers a discounted membership fee of only \$25 for preservice teachers and credential students. This means that for a mere \$25 and four hours of your time, you can attend the entire three days of the conference and have the benefit of being a member of CSTA for an entire year. For more information about the volunteer program, contact Zi Stair at zi@cascience.org.

Who Should Attend?

Classroom science teachers (TK-12), science specialist and coaches, district and county science coordinators, home school educators, preservice science teachers, university and college science teacher educators, and informal science educators.

Sacramento, California – America's Farm-To-Fork Capital

Conference sessions will be held at the Sacramento Convention Center; 1400 J Street, Hyatt Regency Sacramento; 1209 L Street, and Sheraton Grand Sacramento; 1230 J Street.

Fly into the Sacramento International Airport, just 15 minutes away.

For complete travel details, visit: conference.cascience.org.

Your Full Conference Registration Includes:

- 200+ workshop sessions (Friday-Sunday)
- Two general sessions (Friday and Sunday morning)
- Admittance to the exhibit hall and six focus speakers (Friday and Saturday)

Weekend only registration includes admittance to the events listed above that take place on Saturday and Sunday.

Workshops by the Best PD Providers in the State

The 2017 Conference features 90-minute workshops, giving participants and presenters the time needed to really "dig-in." CSTA has partnered with some of the best PD providers in the state to present workshops, including: the Exploratorium, Monterey Bay Aquarium, Cal Academy, the NGSS K-8 Early Implementation Initiative, and many more. See page 6 for a sample listing of workshops by these organizations.

Network and Learn at Ticketed Events

For an additional fee, registrants may purchase tickets for field and short courses as well as the awards luncheon. Connect with teachers Friday and Saturday evenings for various events (separate ticket purchases required) or take part in the Dine About. Weekend registrants may only purchase Saturday and Sunday event tickets.

EXHIBIT HALL

One of the highlights of the California Science Education Conference is the extensive array of science products in the Exhibit Hall. The Exhibit Hall features companies and organizations which offer products and services for every aspect of science education. From publishers to non-profits, from projectors to microscopes, the California Science Education Conference Exhibit Hall is your one-stop venue for all things science education. Be sure to visit the Exhibit Hall early and often, and bring a bag to hold all the goodies you'll buy and freebies you'll collect!

Door prize drawings will be held during the last hour and a half of the exhibit hall—be sure to attend!

Exhibit Hall Schedule:

Friday, October 13 • 9:30 am – 4:30 pm (exclusive time*: 11:10 am – 12:30 pm)

Saturday, October 14 • 8:00 am – 3:00 pm (exclusive time*: 1:30 pm – 3:00 pm)

Door Prize Drawings will be held on Saturday, October 14, 1:30 pm – 3:00 pm

**Exclusive times are hours during which no workshops are scheduled.*

Workshops

The California Science Education Conference offers the most comprehensive science education workshop program in the state. Workshops are 90-minute educational sessions. Many workshops are hands-on and led by other classroom teachers along with other science education professionals. Workshops are open to all conference registrants on a first-come, first-served basis. Workshops will be held at the Sacramento Convention Center, Sheraton Grand Hotel and Hyatt Regency Hotel. All workshops presented are aligned to/support one or more California State Adopted Standards. This includes the California Next Generation Science Standards (CA-NGSS), California Common Core State Standards (CCSS) in English Language Arts (ELA) and Math, and the English Language Development (ELD) Standards.

Workshops are highly interactive and often involve hands-on investigations, group work, and fascinating demonstrations. You're likely to receive free classroom materials, lesson plans, units, handouts, and other valuable resources. **Access to all workshops is included with your conference registration.**

Workshops are categorized by several variables including grade level and type of science (including STEM and Engineering). As well as the following emphases:

- Assessment
- Beef Up on Core Ideas
- Classroom Management/Engagement
- Common Core-ELA
- Common Core-Math
- Computer Science in Science
- Crosscutting Concepts (CCCs)
- Disciplinary Core Ideas (DCIs)
- English Learners/English Language Development
- Informal Science Education
- Leadership (coaching, site leadership, administrator, professional development)
- NGSS 3-Dimensional Learning
- Pedagogy
- Preservice Teacher Education/TPAs
- Science & Engineering Practices (SEPs)
- STEM/STEAM/Maker
- Workshop Schedule

WORKSHOP SCHEDULE

Friday, October 13

8:00 am – 9:30 am
12:30 pm – 2:00 pm
2:30 pm – 4:00 pm
4:20 pm – 5:50 pm

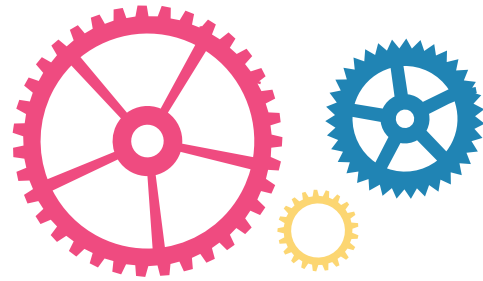
Saturday, October 14

8:00 am – 9:30 am
10:00 am – 11:30 am
12:00 pm – 1:30 pm
3:00 pm – 4:30 pm
4:45 pm – 6:15 pm

Sunday, October 15

9:45 am – 11:15 am
11:30 am – 1:00 pm

Visit conference.casience.org/workshops for a complete listing.



	All Sciences	Physical (incl. Physics & Chemistry)	Earth/Space	Environmental	Integrated	Life/Bio	Engineering	STEM/STEAM
TK-2	9	8	3	5		8	8	5
3-5	9	14	7	10	4	8	7	6
6-8	25	15	18	14	19	18	10	6
9-12	9	19	14	11	8	16	4	6
Not Grade Specific	28	1	1	6	1	2	1	3

This table shows an approximate count of workshops, by grade level, that will be presented during the conference that address the subject matter indicated. Many workshops cross more than one grade span and workshops are categorized by many other factors. For a complete listing of workshops filterable by various criteria, please download the conference program book app (access it online at casience.conference.org).

Featured Conference Partner Strands

CSTA is proud to partner with several organizations to provide you with quality and exclusive content. Conference Partners and a sampling of their sessions are listed below:

California Academy of Sciences:

- Ping-Pong Photosynthesis: A Hands-on Approach to Moving Molecules
- Teachers Supporting Teachers: Professional Learning Communities and the NGSS
- Kinesthetic Astronomy: Making a 'Whole Classroom' Model
- Sky in a Bucket: Investigating and Critiquing a Model



California Environmental Education Interagency Network (CEEIN):

- Using EEI Curriculum Resources to Support Environment-based 3-D Learning
- Communicating Climate Change in the Classroom
- Exploring Science and Engineering Practices with a Schoolyard Cleanup
- Projects and Practices: Remote Sensing of the California Coast



California NGSS K-8 Early Implementation Initiative:

- From Phenomena to Lesson Sequence
- Collaborating with Community Partners to Design Phenomenon-based Units
- K-2 3D Science + Engineering Early Implementers: Biomimicry through Helmet Designs
- Data Analysis, Rain Shadow, and Earth's Systems
- Principles of Effective Advocacy to Build Community Support for NGSS
- STEM in K-2 Classrooms: Instilling a Lifelong Love of Science
- 3D 5E Learning Sequence: Stream Tables
- Biological and Geological Changes in Earth's History



California Science Project:

- Building Capacity for Local Implementation of the NGSS through Coherent CSP-District Partnerships
- Professional Learning Strategies for Environmental Literacy with NGSS for K-12
- Supporting School and District Leaders with Implementation of NGSS
- Mystery of the Oasis in the Desert
- Analyzing the Past, Present and Future of Marine Mammal Evolution
- All Standards, All Students: NGSS Course Models for High School



Exploratorium:

- Inquiry and 3D NGSS Instruction in Linguistically Diverse Classrooms
- Discourse and 3D NGSS Instruction in Linguistically Diverse Classrooms
- Getting Attracted to Magnetism: Using Hands-on Activities to Build Mental Models
- Slow Your Roll: Building Intuition About Motion
- Retrain Your Brain: Modeling Motor Learning
- Seeing Is Believing, or Is It?: Human Perception and NGSS Investigations from the Exploratorium
- Using Atmospheric NOAA Data as an Anchoring Phenomenon to Explore the Carbon Cycle



Monterey Bay Aquarium:

- Biomagnification in Ocean Food Webs: You are What You Eat
- Fishing for the Future – How Data Drives Conservation Decisions
- Ocean Acidification – Developing and Using a Model to Deepen Understanding of the Ocean-Atmosphere System
- Coding is Elementary
- Age-Appropriate Conservation Science
- Otters in Action



Monterey Bay Aquarium®

San Francisco Unified School District:

- Development of NGSS Aligned Common Learning Experiences in High School Science
- Implementing NGSS Aligned High School Science Core Curriculum
- NGSS Chemistry and Climate Change
- Implementing NGSS in Grades 6-8
- Using Literacy Strategies to Build Conceptual Understanding of Climate Change
- Evaluating and Piloting NGSS aligned Instructional Materials for Adoption
- Aligning K-5 Report Cards to the NGSS
- Toolkit for Science Pedagogy: Supporting SFUSD Teachers with NGSS Shifts
- Utilizing Existing Materials to Teach the NGSS and Develop Environmental Literacy



SAN FRANCISCO PUBLIC SCHOOLS

Onward: A Pre-Conference Event for District-Level Science Coaches, Science Leaders, and TOSAs - Year 1 and 2 Tracks

THURSDAY, OCTOBER 12, 2017 • 8:00 AM - 5:00 PM

Are you...

- ...coaching science teachers?
- ...a TOSA stepping into new roles?
- ...at a small school and serving as a leader in NGSS informally?

Then you need to join us at the CSTA Pre-Conference for Coaches, Science Leaders and TOSAs as we focus on supporting you in leading change and building your leadership skills to help teachers align their practice with NGSS shifts, building leadership skills for supporting teachers and the integration of CCSS and NGSS, advice for making district decisions, techniques for leading K-12 professional learning, and networking opportunities with colleagues from across the state. This event is also recommended for those who may be serving small schools, in an informal role doing the same work.

The \$135 fee includes breakfast, lunch and supplies. Registration is limited to county office of education, district, school, charter, and private school employees. This event is likely to sell out. Registration for the Year 2 track is limited to those who participated in the 2016 Pre-Conference and those that attended will receive an invitation email to register.

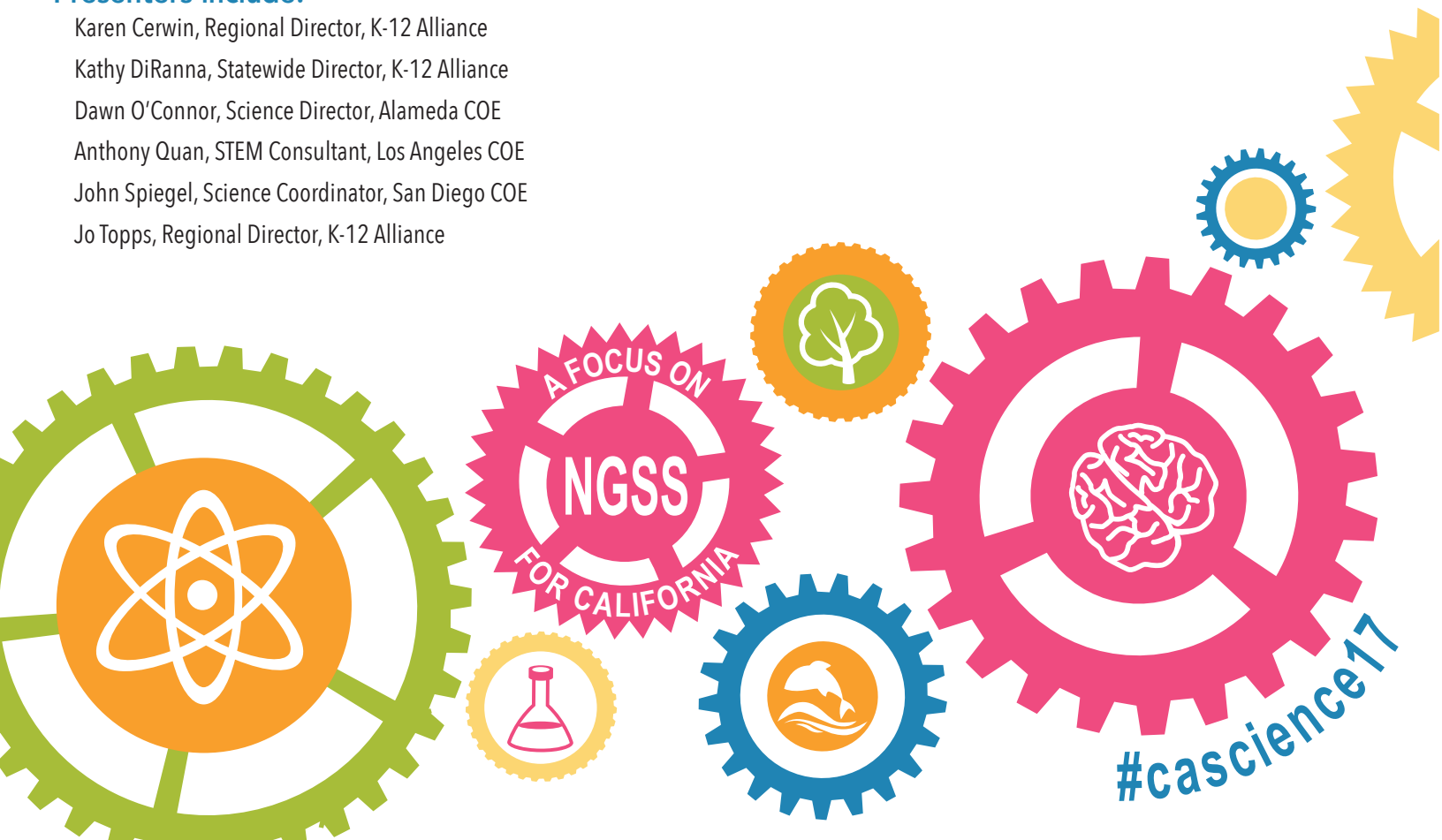
Schedule (subject to change)

This is a full day event and your complete participation is encouraged in order to fully benefit from the learning.

8:00 am – 8:30 am	Check-in and Breakfast
8:30 am – 9:15 am	Morning Speaker: TBA
9:30 am – 12:00 pm	Year 1 Cohort: Leading Change: Building Leadership Skills to Help Teachers Align Practice with CA-NGSS Shifts
	Year 2 Cohort (invitation only)
	Extending Your Learning and Leadership
12:00 pm – 1:15 pm	Lunch and Luncheon Panel
1:15 pm – 2:45 pm	Resume Morning Year 1 and Year 2
3:00 pm – 4:00 pm	Panel Discussion
4:00 pm – 5:00 pm	Networking

Presenters include:

- Karen Cerwin, Regional Director, K-12 Alliance
- Kathy DiRanna, Statewide Director, K-12 Alliance
- Dawn O'Connor, Science Director, Alameda COE
- Anthony Quan, STEM Consultant, Los Angeles COE
- John Spiegel, Science Coordinator, San Diego COE
- Jo Topps, Regional Director, K-12 Alliance



PROFESSIONAL DEVELOPMENT

Upper division university credit from CSU Long Beach or a certificate of completion from CSTA are available to conference attendees participating in educational events.

University Credit from CSU Long Beach:

Participants may apply for one unit of credit for Professional Development for any 12 hours of conference workshops, short courses, or focus speaker events. There is an additional tuition fee of \$130 and written assignment requirement for the unit of credit. Assignment information will be available on the web in September. Participants must submit their signed professional development passport, course registration, fees, and their written assignment by December 1, 2017. Assignment and registration details will be available online at www.scienceteaching.org. The course will appear on your transcript as SCED490: Special Topics in Science Education.

Certificate of Completion from CSTA:

CSTA will provide a certificate of attendance/completion listing the complete contact hours to any registrant completing and submitting the necessary paperwork. Details are available online.

Focus Speakers

Focus speakers are highly regarded scientists and education experts who present 90-minute, in-depth lectures on subjects relevant to science teaching. The focus speaker series allows you to expand your understanding in a wide range of critical topics. **Focus speaker sessions are included with your conference registration.**

FRIDAY, OCTOBER 13

12:30 pm – 2:00 pm

Building ShakeAlert - An Earthquake Early Warning System for the West Coast of the United States

Presented by: Dr. Robert M. de Groot, Staff Scientist - USGS ShakeAlert Earthquake Early Warning Program



Earthquake early warning systems use earthquake science and the technology of monitoring systems to alert devices and people when shaking waves generated by an earthquake are expected to arrive at their location. The seconds to minutes of advance warning can allow people and systems to take actions to protect life and property from destructive shaking. The U.S. Geological Survey (USGS), in collaboration with several partners, has been working to develop an early warning system for the United States. ShakeAlert, a system currently under development, is designed to cover the West Coast States of California, Oregon, and Washington. Learn about how ShakeAlert works and how it will be implemented.

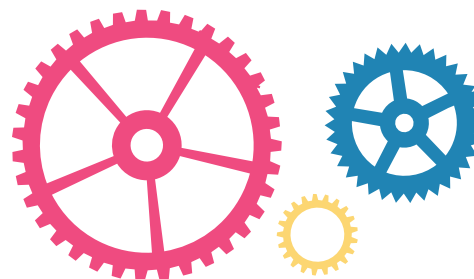
2:30 pm – 4:00 pm

Let's Figure This Out Together: Sensemaking in the NGSS Classroom

Presented by: Cindy Passmore



What are we trying to figure out? Come hear about some approaches to teaching science that foreground wonder and curiosity about the world around us. The 8 practices defined in the Framework for K12 Science Education and NGSS provide a roadmap for rich sense making and deep learning.



4:20 pm – 5:50 pm

From the Stratosphere to the Classroom: NASA, Flying Telescopes, and NGSS

Presented by: Coral Clark, NASA SMD SciEd Airborne Astronomy Ambassadors Co-Manager

NASA's Airborne Astronomy Ambassadors (AAA) is the essence of 3-dimensional instruction and learning, flying teachers aboard SOFIA (the Stratospheric Observatory for Infrared Astronomy) to experience cutting edge science in action! The SETI Institute manages this unique professional development experience, rich in real world phenomena. During our current research cycle, the Program aims to demonstrate student gains in standards-based student learning and measure changes in student attitudes towards STEM.



SATURDAY, OCTOBER 14

8:00 am – 9:30 am

Increasing the Understanding of Evolution, Nature and Process of Science, and Global Climate Change at the University of California Museum of Paleontology*Presented by: Dr. Lisa White, Director of Education and Outreach, University of California Museum of Paleontology*

The University of California Museum of Paleontology (UCMP), a museum uniquely situated on the campus of UC Berkeley, has extensive fossil holdings and significant online resources. These include educational websites, specimen photographs, and digital archival materials supporting the needs of both the research and teaching communities. Two award-winning UCMP websites, Understanding Evolution (www.understandingevo.org) and Understanding Science (www.understandingscience.org), receive more than 20 million page views annually and provide novel ways to engage the K-16 education community in scientifically valid, real-life portrayals of how evolution and science works. Robust teaching resources and a searchable database containing learning materials aligned with core ideas and cross-cutting concepts within the Next Generation Science Standards and the Common Core enhance these and other UCMP web resources. The next planned UCMP web resource, Understanding Global Change, will fill a unique and sorely-needed niche by providing the content, teaching resources, and strategies that will enable K-16 teachers to effectively incorporate global change science into their existing curricula. The central conceptual framework for the site is embodied in a series of visualizations and draws users to explore the multiple connections among the drivers of global change, the Earth system, and the measurable effects of change.



10:00 am – 11:30 am

Assessing Next Generation Science: The Stanford Next Generation Science Assessment Project (SNAP) perspective*Presented by: Jonathan Osborne, Kamalachari Professor of Science Education*

Assessing the Next Generation Science is a significant change for science teachers and their students. From asking what students know and can recall, the new California science curriculum is asking what students can do with such knowledge. This means that the assessment items have to assess not only knowledge but also their ability to engage in one of 8 scientific practices and their understanding of a set of 7 cross-cutting themes. The Stanford Next Generation Science Assessment Project (SNAP) has been funded by the Bechtel Foundation to work on developing prototypical assessments that might be used. In this talk, I will outline what we have learnt and point to some of the challenges for assessment and teaching.



12:00 pm – 1:30 pm

Instructionally Productive Phenomena*Presented by: Tricia Shelton, NSTA Standards Implementation Specialist*

This session focuses on the questions "What are phenomena and how are they used to drive instruction to meet the Next Generation Science Standards?". Participants will explore various phenomena as a purposeful means of driving science instruction in the classroom. This activity will serve 3 distinct purposes: (1) help participants to identify what phenomena are/are not (2) help participants build a list of criteria to assist them in selecting phenomena that are instructionally productive (3) Help participants determine how selecting phenomena will guide their work in both instruction and assessment.

**JOIN CSTA AND SAVE!**

Add membership to your registration and save more than \$70 on full registration!

Membership is not just about discounts on registration. Enjoy benefits year round, including:

- Network with other teachers who share your interests
- Stay up-to-date with email alerts and CSTA websites
- Participate in association leadership and become involved at a state-wide level
- Be an advocate for high quality science education for all students in the State of California
- Enjoy discounts at OfficeMax, Monterey Bay Aquarium, and more

Join online today at cascience.org or when you register!

Short Courses

Short Courses are three- and six-hour programs that are California NGSS and/or Common Core-aligned and include a considerable amount of hands-on activity, interactive instruction, group work, and discussion. They are optional, additional-fee events that are open to registered conference participants on a first-come, first-served basis. Many short courses sell out early, CSTA strongly encourages you to purchase your tickets in advance. Short courses will be held at the Hyatt Regency and Sheraton Grand Hotel.

FRIDAY, OCTOBER 13 • 2:30 pm – 5:30 pm

Short Course	Presenter(s)	Grade Level • Science • Emphasis	Ticket
SC1: Lesson Learned: The Cutting Edge of NGSS Implementation Are you a teacher leader, administrator, or professional development provider leading the implementation of the NGSS? This session is for you! Hear real stories about the successes and challenges of implementation and learn about tools and processes to help you.	<i>Kathy DiRanna, Statewide Director, K-12 Alliance and David Tupper, CalMSP Project Director/TOSA, Lakeside Union School District</i>	Grades: All (Not Grade Level Specific) Science & Emphasis: All Sciences; Leadership	\$20
SC2: Mindful Grouping to Provide Access: All Standards, All Students Critical examination of student work leads to planning next instructional steps. Participants will use protocols for examining the three dimensions of the NGSS elicited from student work; leaving with an NGSS-aligned lesson and a solid process to analyze student work.	<i>Anna Newman, Science Coordinator, Alameda COE IMSS and Dawn O'Connor, Director of Science, Alameda COE</i>	Grade Level: All (Not Grade Level Specific) Science & Emphasis: Physical Sciences; Assessment; Leadership; 3-Dimensional Learning	\$10
SC3: Engineering for Earthquakes Experience a 3-dimensional NGSS lesson sequence to explore the science content behind an Earthquake engineering task in solving the problem of building to withstanding a 7.0 Richter scale earthquake.	<i>Robert Sherriff, Science Teacher, Churchill Middle School</i>	Grade Level: Middle School (6 - 8) Science & Emphasis: Earth/Space Sciences and Engineering; Beef Up on Content and 3-Dimensional Learning	\$15
SC4: Developing a Conceptual Model Developing a model is a fascinating process! Teachers participate in a three-dimensional modeling lesson about sound. Then teachers learn the techniques for creating a modeling lesson on a topic of their choice with the time and support to do so.	<i>Nathan Fairchild, Shasta County office of Education Science/STEM</i>	Grade Level: Upper Elementary, Middle School (integrated and domain specific) (Grades 3-8) Science & Emphasis: Physical Science; 3-Dimensional Learning; Pedagogy; SEPs	\$25
SC5: Three-Dimensional Culture: Creating Agency and Efficacy in NGSS Classrooms Class culture trumps everything! Creating culture is more than growth mindset slogans. Participants will engage in activities to create, maintain and solidify positive classroom culture. Everyone will leave with activities designed to assist in all three phases of classroom culture.	<i>Jim Clark, District Science Coordinator, San Lorenzo USD and Samantha Johnson, Science Teacher, Arroyo High School</i>	Grade Level: Middle and High School (all course models) (Grades 6-12) Science & Emphasis: All Sciences; 3-Dimensional Learning; Pedagogy; SEP	\$50
SC17: Transforming Preservice Methods Courses to Prepare Candidates for the NGSS Classroom If you teach science methods courses (MSCP or SSCP) you need to attend this session! We'll share ideas that ALL future California teachers should know about NGSS. Lessons and activities that model the 3 dimensions of NGSS will be provided to help you help prospective teachers better understand what NGSS-aligned lessons look and feel like and model facilitation of what this would look like in a methods course. The goal would be for our pre-service teachers to become more comfortable and confident with NGSS and the California Curriculum Framework. Additionally, you'll find out the latest NGSS news in California and learn ways to be more connected and informed. (We'll include material for both MSCP and SSCP methods courses.) When you sign-up, please indicate if you teach elementary methods, secondary methods or both.	<i>Brian Foley's, Professor of Secondary Science Education, CSU Northridge, Susan Gomez-Zwiep, Professor, Science Education, CSU Long Beach, Laura Henriques, Professor, Science Education, CSU Long Beach, Virginia Oberholzer Vandergon, Professor, Department of Biology, CSU Northridge</i>	Grade Level: All (Not Grade Level Specific) Science & Emphasis: All Sciences; NGSS 3-Dimensional; Leadership	\$20

SATURDAY, OCTOBER 14 • PART 1: 8:30 am - 11:30 am; PART 2: 3:00 pm - 6:00 pm

Short Course	Presenter(s)	Grade Level • Science • Emphasis	Ticket
SC6: Computational Thinking and Modeling in Physics with NetLogo Simulations Come find out how to integrate computer simulations into your high school science course by having students USE, MODIFY, and CREATE NetLogo models. This workshop focuses on Physics, but this strategy can be used in all high school science disciplines.	<i>Dean Reese, Tracy High School and Stephan Unterholzner, Teacher, Sierra High School</i>	Grade Level: High School (3- and 4-course models) Science & Emphasis: Physics; Computer Science in Science; Technology Integration; SEPs	\$10
SC7: Integrating Science Learning with English Language and Literacy Development This course will guide teachers in developing a coherent series of science lessons that simultaneously integrate NGSS aligned core science ideas with English language and literacy Development. Teachers will both experience lessons and analyze authentic science texts to plan instruction.	<i>Edward Lyon, Assistant professor, Science Education Curriculum Studies and Secondary Education</i>	Grade Level: High School (4-course model) Science & Emphasis: Biology; English Learner/English Language Development	\$10
SC8: Next Generation Science Notebooks as a Tool for Sense-Making Explore how to use science notebooks to support student meaning-making. Participate in an engaging learning sequence and leave with strategies for how to set up science notebooks and use them to support three-dimensional learning.	<i>Kathryn Danielson, Senior Associate Teacher Prof. Dev. California Academy of Sciences and Shumit DasGupta, Teacher Educator and Instructional Coach, California Academy of Sciences</i>	Grade Level: Primary and Upper Elementary (Grades K-5) Science & Emphasis: All Sciences; Common Core-Literacy; Pedagogy; SEPs	\$10

SATURDAY, OCTOBER 14 • 8:30 am - 11:30 am

Short Course	Presenter(s)	Grade Level • Science • Emphasis	Ticket
SC9: Equity & Science Education This course will address some of the assumptions, values, and practices that hinder equal access to science for students of color. Participants will experience proven strategies that will enhance their cultural competency, heighten their diversity awareness, and expand their perspectives on racism and racial bias.	<i>Gary Nakagiri, Science Consultant and Jerry Valadez, Director, Central Valley Science Project California State University, Fresno</i>	Grade Level: All (Not Grade Level Specific) Science & Emphasis: All Sciences; Leadership; English Learner/English Language Development; Informal Science Education	\$35
SC10: Teaching CA NGSS Through Environmental Literacy Teams of teachers and administrators will examine classroom examples and how California's Science Framework interconnects implementation of CA NGSS, California's Environmental Principles and Concepts, and environmental literacy. They will discuss instructional opportunities and implementation strategies, and learn about available resources.	<i>Gerald Lieberman, Director, State Education & Environment Roundtable and Craig Strang, Associate Director, UC Berkeley Lawrence Hall of Science</i>	Grade Level: All (Not Grade Level Specific) Science & Emphasis: Environmental Literacy; 3-Dimensional Learning; Pedagogy; Informal Science Education	\$20
SC11: Where Did the Apple Go? Unearthing the Design of an NGSS Decomposition Unit Come experience and expose the framework of an NGSS unit. You'll think like a student, engaging in science practices to answer a question. You'll also think like a teacher, learning to design a unit with an anchoring phenomenon and question.	<i>Amelia Rosenman, Senior Associate Teacher Prof. Dev. California Academy of Sciences Teacher Professional Development and Clea Matson, Teacher Educator and Coach, California Academy of Sciences</i>	Grade Level: Primary and Upper Elementary (Grades K-5) Science & Emphasis: Life Science; 3-Dimensional Learning; Pedagogy; SEPs	\$10

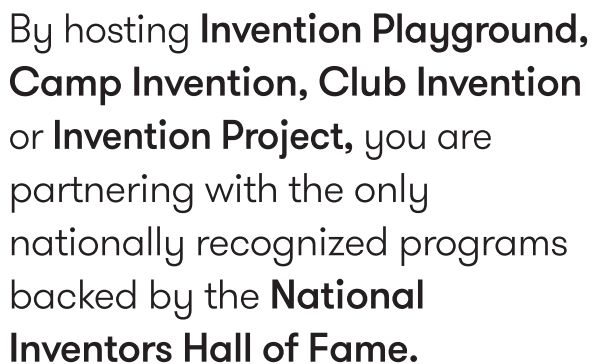
SATURDAY, OCTOBER 14 • 3:00 PM – 6:00 PM

Short Course	Presenter(s)	Grade Level • Science • Emphasis	Ticket
SC12: Make Every Minute Count: A Winning Solution to Integrating Life Science 3D NGSS and Literacy CCSS/ELA in K-2 Classrooms This primary "Early Implementer" team will share Life Science learning sequences designed to deepen understanding for K (plants, animal needs), 1 (external parts, functions) and 2 (pollination, seed dispersal) linked to CCSS ELA using note booking and scaffolding strategies. [CA NGSS K-8 Early Implementer - Conference Partner Presentation]	<i>Dana Nielsen, Teacher, Doyle Elementary and Debbie Gordon, Teacher, Vista Del Monte Elementary</i>	Grade Level: Primary (Grades TK-2) Science & Emphasis: Life Science; Common Core-Literacy; 3-Dimensional Learning	\$10
SC13: Chemistry Experiments and Experiences (ChemEx2) Experience multi-use experiments to foster student learning and re-engineer experiments for deeper understanding. Incorporate argumentation into your chemistry curriculum. These experiments, designed and vetted by Stanford University Department of Chemistry, are aligned with NGSS and CCSS.	<i>Katrina Rotter, Science Teacher, Lowell High School and Sally Seebode, Educator, San Mateo High School</i>	Grade Level: High School (all course models) and Post-Secondary (Grades 9-13+) Science & Emphasis: Chemistry and Physical Science; Classroom Management/Engagement; DCIs; SEPs	\$30
SC14: Moving Towards 3-Dimensional Assessment: Hands-on Performance Tasks in Grades 6-8 Explore hands-on performance assessment and its relationship to students' mastering Common Core and Next Generation Science Standards. Engage in a hands-on task, use this protocol to develop tasks of your own, and take home a sample student set-up.	<i>Deborah Tucker, Science Education Consultant and Grant Gardner, President, Assessment Services, Inc.</i>	Grade Level: Middle School (all models) (Grades 6-8) Science & Emphasis: Earth/Space Sciences; Assessment; 3-Dimensional Learning; SEPs	\$30
SC15: Introduction to Citizen Science in the Elementary Classroom In citizen science, students contribute to science by collecting data that scientists use to generate new knowledge. Participants will learn what citizen science is, what it looks like in the elementary classroom, and our research based framework for designing projects.	<i>Erin Bird, Doctoral Student, UC Davis School of Education and Peggy Harte, Elementary Science Specialist, Dixon Unified School District</i>	Grade Level: Primary and Upper Elementary (Grades K-5) Science & Emphasis: EP&Cs/Environmental Literacy; Life Science; SEPs	\$10
SC16: Effective ELD Strategies for Science & Language Learning for All Students Join us for a 3-dimensional experience in science learning and language development as we explore guiding principles and strategies for integrated and designated ELD in science. Receive a toolkit for developing science/ELD lessons and supporting student engagement in the practices.	<i>Diana Velez, K-5 Specialist, UC Berkeley Lawrence Hall of Science and Claudio Vargas, Coordinator, Elementary Science Oakland Unified School District</i>	Grade Level: Upper Elementary and Middle School (all models) (Grades 3-8); Science & Emphasis: Physical Science; English Learner/English Language Development; 3-Dimensional Learning; SEPs	\$15



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General Sessions

Friday, October 13, 2017 • 9:30 am – 10:10 am

CSTA Annual Meeting and Opening Session

Join us for the CSTA Annual Meeting of members presided by the 2017-2018 president Jill Grace. Learn about how CSTA has taken a leadership role in all aspects of the implementation of CA-NGSS at the state level.

Friday, October 13, 2017 • 10:10 am – 11:10 am

Keynote Presentation – California's Champions

Terry Tamminen

As Terry Tamminen, CEO of the Leonardo DiCaprio Foundation and former Secretary of the California Environmental Protection Agency knows, California is a global environmental protection leader. Now, with California's Next Generation Science Standards and its Blueprint for Environmental Literacy, science teachers can become the champions of that legacy.



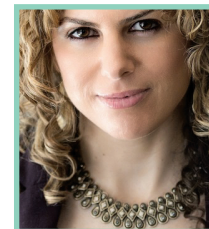
Sunday, October 15, 2017 • 8:30 am – 9:30 am

Changing the World One Equation at a Time

Deborah Berebichez

Debbie grew up in a conservative community in Mexico City that discouraged girls from pursuing a career in science, technology or engineering. From an early age she showed a deep interest in astronomy, which led to her love of physics.

While this interest was endearing in elementary school, by the time she reached high school, it was viewed as inappropriate. She was told that if she were too smart, she would never be liked and that it would be better for her to pursue a feminine career. But she wanted to understand how the world works, so she defied her parents and friends and studied physics becoming the first Mexican woman to graduate with a PhD in physics from Stanford. In this presentation, she shares the ups and downs of her path, which led her to becoming a physicist, a TV host of science programs and a mentor to young women who want to become scientists, and shows how all of us all can remove barriers and help young people do science today.



Elementary Pathways for TK-2 and 3-5 Educators Towards CA NGSS Implementation

Join the Primary (TK-2) Pathway or Upper Elementary (3-5) Pathway for the wonderful opportunity to learn how to plan and implement the CA NGSS for authentic phenomena-based 3-dimensional teaching and learning. Key to the success of CA NGSS implementation are strategies for language development and students' sense-making. Primary Pathway is specifically designed to meet the needs and challenges of students in grade TK-2 and the Upper Elementary Pathway will focus on students in grades 3-5. Space is limited so register today!

These compact and powerful six-hour professional development courses are specially designed for teachers of TK-2 and 3-5 to help them integrate CA NGSS, CCSS, and ELD standards into their daily curriculum. These courses will provide a thorough grounding in NGSS science instruction and fortify teachers with an understanding of the phenomena-based three-dimensional learning associated with CA NGSS as outlined in the new California Science Framework.

The cost of participation for this event is **conference registration fees + \$40** to cover materials fees. Participants will also have access to 2017 California Science Education Conference events included with their registration.

Additional costs may include related travel and lodging costs and meals. Capacity: 30 participants for each science pathway.

Learning Outcomes

Teachers will gain an understanding of the vision and architecture of NGSS and feel better prepared to implement the three-dimensions into their science teaching. The workshop will actively engage participants in a model lesson that integrates language arts components and English language development strategies as a way to deepen students' understanding of scientific concepts.

Administrators will become more familiar with the instructional shifts required when moving science instruction to align with NGSS. The workshop will offer ideas on how they might support teachers as they begin to integrate the NGSS into their daily lessons.

Primary Pathway (K-2) Presenters

Sabine Jeske, UCSF Science Project and Science & Health Education Partnership and Carolyn Gencarella, Elementary School Science Content Specialist San Francisco USD,

Upper Elementary Pathway (3-5) Presenters

Kathryn Schultz, UCSD San Diego Science Project and Maria C. Simani, UCR California Science Project

Apply at conference.cascience.org/pathways

**Friday, October 13 • 2:30 pm – 5:30 pm:
Primary and Upper Elementary Pathways (Part I)**

Saturday, October 14 • 8:00 am – 8:30 am: Coffee Service

**Saturday, October 14 • 8:30 am – 11:30 am:
Primary and Upper Elementary Pathways (Part II)**

Awards Luncheon

Saturday, October 14 • 12:00 pm – 1:30 pm • Fee: \$46

Join your fellow science education colleagues for this special event designed to celebrate achievement in science education. The CSTA Awards Luncheon is held in honor of the recipients of the Margaret Nicholson Distinguished Service Award, the Future Science Teacher Award, the Distinguished Contributions Award, and the California winner and state finalists in the science teacher category for the Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST). In addition to a plated lunch and presentation of awards, attendees will enjoy a presentation by Page Keeley.

Awards Luncheon Speaker

Page Keeley, Author, Speaker, and Science Education Consultant

What Are Students Really Thinking? Building an NGSS Bridge Between Initial Ideas and Scientific Explanations

Page Keeley is an internationally known leader in science education. She is the developer and primary author of the *Uncovering Student Ideas Series in Science* and the *Formative Assessment – 75 Practical Strategies Linking Assessment, Instruction, and Learning Series* (the "FACTs books"). Her interest in conceptual change and formative assessment began in 1992 after reading the seminal article, *Teaching for Conceptual Change – Confronting Children's Experience* by Bruce Watson and Dick Konicek. Her assessment probes and FACTs (formative assessment classroom techniques) are widely used by K-12 teachers, university professors, and professional development and science specialists throughout the U.S. and internationally.

Page recently "retired" from the Maine Mathematics and Science Alliance (MMSA) where she had been the Senior Science Program Director since 1996. Today she works as an independent consultant, speaker, and author providing professional development to school districts and organizations in the areas of science and STEM formative assessment, understanding student thinking, teaching science for conceptual understanding, and designing effective instruction.

Prior to joining the Maine Mathematics and Science Alliance, Page taught middle and high school science for 15 years. She received the Presidential Award for Excellence in Secondary Science Teaching in 1992, the Milken National Distinguished Educator Award in 1993, and the AT&T Maine Governor's Fellow in 1994.



CONGRATULATIONS AWARD WINNERS!

CSTA is pleased to honor the following award recipients at the 2017 conference. Your dedication to and proven excellence in science education are an inspiration to us all.

The following awards will be presented at the Awards Lunch on Saturday, October 14:

Dennis Mitchell
*Margaret Nicholson,
Distinguished Service Award*

National Center for Science Education & Achieve
Distinguished Contributions Award

Ayah Qutob
Future Science Teacher Award

*Presidential Awards for
Excellence in Mathematics
and Science Teaching (PAEMST) –
2017 California State Finalists
will be announced this Fall*

*Tickets to this special event
are available for purchase
on the registration form.*

ABOUT SACRAMENTO

Sacramento is the star on the map of California – where you will find cultural attractions to inspire you, cutting-edge cuisine to impress you, history to enrich you and surprises to put a smile on your face. Venture out in any direction and you'll see why we're so fond of saying, "California begins here."

Your visit to Sacramento, California, can begin with food because you will be in America's Farm-to-Fork Capital; it can begin with history because the Gold Rush and California beginnings started here; or it can begin with nature because rivers, trails and park wind through the city for your recreation and admiration. Sacramento begins with you. Whether it's your first time, a weekend whim aboard the train, or your 10th time on a trip to see friends and family, you'll find plenty of things to do on your visit to Sacramento.





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Science Placement
Associate, at
todd.gochman@
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Evening Events

Friday, October 13 – Three Options to Choose From!

Night at the IMAX Movie Theater • 7:00 pm – 10:00 pm

Go deeper into the world's most innovative movie-going experience. Movies are watched. But seeing a movie in an IMAX theatre is so much more. That's what we call The IMAX Experience. Every element in the theatres is planned, designed, and positioned with exacting standards to create the most intense experience. This science is the theatre geometry, and it ensures movie magic every time the lights go down. Tickets are \$15/per person – includes movie, small popcorn and drink.



Paint and Wine • 7:00 pm – 9:00 pm

Paint and Wine with Your Fellow Science Educators! Come join us for an evening event where we will paint, enjoy a beverage and each others company! All painting materials are provided, and you get to take the painting home. Guests are allowed to bring in any wine, beer, beverages, and food to enjoy throughout the class. Painted Cork supply's complimentary paper plates, cups, napkins, plastic cutlery, plastic wine glasses, bottle openers, designated food tables and a refrigerator for your use. Please note there is a BevMo located two doors down from the studio at 1700 J Street. This event is limited to guests age 21 and over. Tickets are \$35/per person



Dine About Sacramento • 7:00 pm

Enjoy dinner out in America's Farm to Fork Capital! CSTA is pleased to offer conference attendees an opportunity to meet and network with fellow science teachers over dinner at some of Sacramento's well-known restaurants. We have made reservations at several area restaurants for Friday, October 13 at 7:00 pm. Each reservation is for a table of six, and the restaurants have all agreed to issue separate checks.

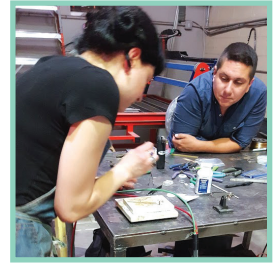
Here is how the program works: Visit the Dine-About Sacramento sign-up board in the CSTA booth on Friday until 5:00 pm. There you will find the list of restaurants, sample menus, and a sign-up sheet. If you would like to eat at that restaurant, add your name to the list. Once the sign-up list is full, no more names can be added. At 7:00 pm, arrive at your restaurant of choice and check in for the reservation being held under the name of CSTA. Then enjoy an evening shared with your fellow science teachers, making new friends, and enjoying a night out on the town.



Saturday, October 14 – Three Options to Choose From!

Hacker Lab Meet and Greet • 7:00 pm – 9:00 pm

Join us for an evening panel discussion with four teachers from the Sacramento area who are passionate about Maker Ed in the classroom. We have Robert Calvert from the Sac Maker Academy, a private 7th–12th grade Maker school, Faith Caplan who runs an engineering & maker program at nearby Cordova High School, Marcie Grill from local Pacific Charter Schools, and Zachary Dowell from Folsom Lake College, part of the Los Rios Junior College system. Each of these educators has implemented Maker programs in their schools using unique resources and a variety of solutions. Learn from the pros, who are your colleagues in the field of education. (This program will be moderated by Nile Mittow, our engineering and technology lead at Hacker Lab.)



Pub Crawl • 7:00 pm – 11:00 pm

Enjoy sampling the variety of food and drink that Sacramento has to offer on this pub crawl. Visit five different pubs and restaurants, all within blocks of the Convention Center. The total distance for the pub crawl is just over a mile!



- de Vere's Irish Pub is just two blocks from the convention center and offers a great selection of beer on tap and specialty whiskeys.
- LowBrau is a modern take on the traditional German Bierhalle with a wide selection of German and craft beers. Enjoy your beer and house-made sausages and bratwurst at their farmhouse tables inside or on their large patio.
- Streets Pub and Grub where you can relax, enjoy one of their 18 beers on tap, traditional pub fare, and a spacious back patio.
- Republic Bar & Grill is all about having a great time. With vintage video games, 4 pool tables, skee ball, and a location right across from the convention center, this is the perfect place to finish off your pub crawl.

This event is restricted to conference attendees age 21 and over. Tickets are \$10/per person – includes 1 drink ticket at first stop.

Dine About Sacramento • 7:00 pm

See information to the left.

Field courses offer hands-on learning experiences at exciting destinations throughout the Sacramento area. They are optional, require advance ticket purchase, and are open to adult, registered conference participants on a first-come, first-served basis. Ticket prices include round trip bus service between the Sacramento Convention Center and the field course site.

All CSTA Field Courses will depart by bus from the Sacramento Convention Center located at 1400 J Street, Sacramento, CA. Times listed include travel time, which may vary depending upon road and traffic conditions. Please arrive at the bus departure site in front of the Sacramento Convention Center 15 minutes prior to the scheduled departure time to ensure an on-time departure. For outdoor activities, participants are encouraged to wear walking shoes, layered clothing, and carry a backpack containing sunscreen, sunglasses, a hat, binoculars, camera, a notepad, and a pen. Lunch will be provided only where noted. CSTA recommends that you bring your own snacks as needed.

FIELD COURSE PARTNERS

CSTA Thanks the following individuals and organizations for partnering with California Science Education Conference to provide the unique field course experiences:

Makerspace Sacramento

**McClellan Nuclear Research Center
& The Aerospace Museum
of California**

**Nimbus Hatchery &
Folsom Power Plant Museum**

Cosumnes River Preserve

SMUD

California Raptor Center, UC Davis

Field Courses

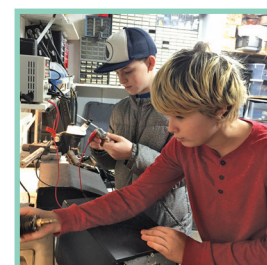
Friday, October 13, 2017 • 8:30 am – 12:00 pm

FC01: Learn and Create at the Hacker Lab!

Are your students interested in STEM (STEAM – Science, Technology, Electronics, Art and Mathematics) in the classroom? This hands-on new field brings the traditional teaching of learning by doing into the most innovative areas of education. Learn about Laser Cutters, 3D printers, CAD and industrial design using the latest in technology. Do it the old-fashioned way, learning by doing. Hacker Lab will offer a field-trip opportunity to up to 30 educators, to see a maker space in action. We will be hosting Laser Cutting demos by the students of the onsite Sac Maker Academy, a private 7th-12th Maker School that is located within Hacker Lab. 3D printer demos, opportunities to work with design software, and a chance to engage with robotics. All within a 3-hour tour/hands-on training program.

30 maximum attendees

Fee: \$15



Friday, October 13, 2017 • 8:00 am – 4:00 pm

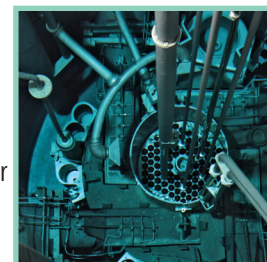
FC02: Tour the Nuclear Reactor Facility - McClellan Nuclear Research Center & the Aerospace Museum of California

McClellan Nuclear Research Center (MNRC) is operated by UC Davis. The facility was originally built for the primary purpose of detecting low-level corrosion & hidden defects in aircraft structures using non-destructive testing techniques such as neutron radiography & tomography. The nuclear research reactor at the MNRC was commissioned under the United States Air Force in 1990, making it one of the newest research reactors in the US. It is the highest power TRIGA™ (Training, Research, Isotope Production General Atomics) reactor in the United States, rated at 2mil watts in steady state with the capability to pulse to approximately 400mil watts for 30msec. Unlike large power reactors & naval reactors, you can watch this reactor operate safely through 23' of water and see the characteristic "blue glow" of a nuclear reactor.

More details: Participants must complete online briefing before visit. Fee includes boxed lunch.

30 maximum attendees

Fee: \$75



Friday, October 13, 2017 • 8:00 am – 4:00 pm

FC03: Nimbus Hatchery/Folsom Power Plant Museum

Nimbus Hatchery raises Chinook salmon and steelhead for release to the American River. The Nimbus Hatchery Visitor Center offers fun and educational activities. Enjoy the on-site nature trail along the American River to view wildlife, as well as the American River Parkway trail directly adjacent to the Nimbus Hatchery.

Folsom Power Plant Museum is part of a colorful chapter of Sacramento history and is also an example of the tremendous advance in the commercial application of electricity. H.P. Livermore realized that the water of the American River could turn generators for electricity in Sacramento, 22 miles downstream. With his partners, Livermore built the powerhouse, which still looks much as it did in 1895.

More details: Fee includes lunch.

25 maximum attendees

Fee: \$85



Friday, October 13, 2017 • 8:00 am – 5:00 pm

FC04: Exploring the Cosumnes River by Canoe

Join Cosumnes River Preserve staff and scientists on a behind the scenes tour of the Preserve. Visit a large scale floodplain restoration project coordinated by The Nature Conservancy in collaboration with UC Davis scientists and researchers. Learn how local elementary school students engage in habitat improvement projects that are academically rich and lead to long term environmental stewardship. After lunch you will embark on a leisurely canoe trip exploring rivers and sloughs. Watch for a variety of wildlife including ospreys, herons, egrets, turtles and otters.

The 50,000 acre Cosumnes River Preserve is a sanctuary of global significance just 30 minutes south of Sacramento. Located on the Cosumnes River Preserve are the largest remaining examples of Valley Oak forests which once dominated the Central Valley landscape. The Preserve also protects spectacular examples of seasonal and fresh water wetlands. The Cosumnes River is the only unregulated river freely flowing from the western slopes of the Sierra Nevada to the rich Sacramento San Joaquin Delta. The Cosumnes River Preserve is also home to more than 300 species of resident and migratory birds.

More details: Fee Includes lunch.

20 maximum attendees

Fee: \$85



Saturday, October 14, 2017 • 8:00 am – 5:00 pm

**FC05: Sun, Wind and Cow Farts - Renewable Energy Bus Tour
Enhance Your Curriculum with Renewable Energy**

Board the bus and learn how to integrate energy in your classroom. Experts will keep your curriculum fresh while meeting NGSS.

Tour: Wind farm, dairy digester, solar array, electric vehicles and a home efficiency exhibit. Some schools are already leading the way and encouraging students to be green. Such schools place considerable emphasis on sustainable development through good teaching, stimulating lessons, and by encouraging students to take an active part in improving the sustainability of their schools and their communities. Teaching about renewable energy, sustainability and energy efficiency can help to bring the significance of air quality, pollution and climate change to life while meeting the three dimensions of science learning.

On this tour, teachers will view in person the energy technologies of solar, wind, biogas and electric transportation and learn how to integrate the related science into their curriculum. They will also tour a LEED certified office building and an exhibit of an energy efficient home. Subject matter experts in these fields will provide background information and science teachers will present relative lesson plans and activities.

More details: Fee Includes lunch.

50 maximum attendees

Fee: \$105



Saturday, October 14, 2017 • 8:00 am – 1:00 pm

FC06 California Raptor Center, UC Davis

The first half consists of an interactive informational presentation on local raptors. The students are exposed to rehabilitation and what we see and do here at the CRC. Many aspects of raptor biology are covered, including adaptations, conservation and species identification.

Next, the students have the opportunity to handle the numerous educational talons, bones, feathers and study skins used in the presentation. These are clean, taxidermied birds which are used as visual and tactile aids. They present an unsurpassed experience of touching a real hawk or owl.

The students are then taken on a tour of our non-releasable birds. (The rehabilitation section is off-limits to the public.) They are introduced to each individual bird species and their individual personal stories. The tour ends with a visit to the Museum, a hands-on experience both children and adults enjoy. They may dissect an owl pellet, examine raptor radiographs or handle the wing of a real barn owl.

30 maximum attendees

Fee: \$65



Conference Information

Location

The 2017 California Science Education Conference will be held at:

Sacramento Convention Center
1400 J Street, Sacramento, CA 95814

Hyatt Sacramento
1209 L Street, Sacramento, CA 95814

Sheraton Grand Sacramento
1230 J Street, Sacramento, CA 95814

General Registration Information

To register at the CSTA member rate, your membership must be current through November 1, 2017. If your membership expires before this date, you must renew your membership online or on the conference registration form. You may also join as a new member and register at the discounted member rate.

Registration fees will be determined by the date forms and payment are received in the CSTA office, not by postmark. Registration forms not accompanied by payment in full will not be processed. Checks and purchase orders may be made payable to CSTA. One purchase order may be used for multiple registrants; please reference the purchase order number on each registration form.

Your registration fee includes more than 200+ 90-minute workshops, the General Sessions, Focus Speaker sessions, and access to the exhibit hall.

Funding Your Conference Participation

There are several ways to fund your participation in the CSTA conference. Below are just a few strategies that teachers have employed this year and in years past:

- Use of Title I federal funding targeted to support instructional strategies and methods to improve overall instructional programs for all children in a school.
- Use of Title II funds to support professional learning for teachers.
- Sponsorship or support from your school's PTA/PTO or similar organization
- Flexible/discretionary funding in the 2016-17 California State Budget
- Your LEA's LCAP – priorities 2, 4, 7, and 8
- SB-77 Educator Effectiveness Grant Funding

For more information on the 2016-17 California State budget, LCAP funding, and SB-77, please visit http://www.cascience.org/csta/ngss_pd.asp.

Ticketed Events – Available June 2017

Ticketed events (Awards Luncheon, Short Courses, Field Courses, and Evening Events) are not included in your registration fee. If you wish to purchase a ticket for a ticketed event, you must register for the conference. Please make your ticketed event selections carefully. **CSTA is not responsible for schedule conflicts resulting from a registrant's selections and will not refund fees in such cases.** If you select a ticketed event that is sold-out or unavailable, you will be given the option of applying the funds to another available event or receiving a refund. If you choose to receive a refund and you paid by credit card or purchase order, your credit card charge or invoice will be adjusted accordingly. If you paid by check, a check refund will be issued. From time to time, a ticketed event may be cancelled due to low enrollment; in such cases refunds for that event will be provided as indicated above.

University Credit

Information and forms for university credit will be located in the conference program book. University credit will be offered through CSU Long Beach. \$130 additional fee required. See page 8.

Pre-Registration

CSTA strongly encourages pre-registration. Pre-registration saves you money and ensures space in ticketed events. If you are paying by credit card, register online at conference.cascience.org. Online registration by credit card is fast and easy. If you will be paying by check or purchase order, mail or fax (P.O. only) your registration form and payment. Payment must be received in the CSTA office by September 25, 2017 to receive pre-registration rates. Pre-registered attendees may report directly to the Pre-Registration counter at **3rd floor lobby of the Sacramento Convention Center to pick up conference materials.**

Confirmation of Pre-Registration

Once your registration form and fees are processed, a confirmation e-mail will be sent to the e-mail address on your registration form. Attendees registering online will receive an e-mail confirmation upon successful completion of their registration. Please visit www.cascience.org to confirm your registration by logging into your member profile.

Payment Options/ Registration Methods

Credit Card Payments: online, fax, or mail
Purchase Order Payments: email, fax, or mail
Check Payments: mail only

Checks and purchase orders for conference fees must be made payable to CSTA. We accept VISA, MasterCard, American Express, and Discover. CSTA's federal tax ID number is 94-2926545. CSTA is a non-profit 501(c)(3) corporation. Housing payments should be made per the instructions provided on the housing form available at conference.cascience.org

Group Rates

Groups of 20 or more qualify for this special rate regardless of the membership status of each registrant. All forms (one for each registrant) must be accompanied by a single check or purchase order and received by September 25, 2017. **Group registrations will not be accepted at on-site registration.**

Guest Rates

Registration for an accompanying guest allows admission to the exhibit hall, focus speakers, and general sessions only. Evening events are ticketed and must be purchased separately.

On-Site Registration

You may register on-site at the conference in the **3rd floor lobby of the Sacramento Convention Center**. Registration will be open during the following hours:

Thursday, October 12	4:00 pm – 6:30 pm
Friday, October 13	7:00 am – 6:00 pm
Saturday, October 14	7:00 am – 6:15 pm
Sunday, October 15	7:30 am – 1:00 pm

On-Site Ticket Sales

You may purchase any unsold tickets for field courses, short courses, and evening events at Onsite Registration. However, since tickets are sold on a first-come, first-served basis, tickets for these events may not be available. **Advance purchase is strongly recommended.**

REGISTER ONLINE TODAY!
conference.cascience.org

Overnight Accommodations

CSTA has negotiated significantly reduced group rates at several Sacramento hotels. Please see the housing form in this brochure for hotel details and rates. CSTA strongly recommends that you make your hotel reservations as early as possible. Hotels may not honor the reduced room rate after the deadline, and some hotels may sell out early. You can avoid this by reserving online or filling out and faxing your housing form to Conference Housing today. Please note: Housing reservations are handled by Conference Housing, Inc. **Please do not send your housing reservation form to CSTA as it will not be processed.** Visit <http://www.conferencehousing.com/CSTA/Sacramento/> for details and online reservations.

Presenters

Workshop and short course presenters must register for the conference according to the procedures described in their acceptance packets. Presenters may pick up registration materials in the **3rd floor lobby of the Sacramento Convention Center.**

Cancellations and Transfer of Registration

If you need to cancel your registration, you must notify CSTA **in writing** prior to September 25, 2017 (received date). Cancellations should be directed to the Executive Director and mailed (950 Glenn Drive, Suite 150, Folsom, CA 95630), faxed (916-979-7023), or e-mailed (registration@cascience.org) to CSTA. Cancellations are subject to a \$25 administrative fee. **Registration fees are fully transferable;** if you need to cancel, you are strongly encouraged to send a colleague in your place. To transfer your registration to another person, send a request in writing stating to whom you wish to transfer your registration fee. There is no fee for transferring a registration.

Refunds

A full refund of the registration fee, less a \$25 administrative fee, will be granted for all written cancellation requests received by CSTA by September 25, 2017. No refunds will be made for cancellations received after this date. Refunds will be issued based on the manner of payment by December 5, 2017. Refunds will not be processed at the conference, and there are no refunds for no-shows. Meal purchases cannot be refunded, and no refunds will be issued for amounts under \$25.

Photograph and Video Policy

Registration and attendance at, or participation in, CSTA meetings and other activities constitutes an agreement by the registrant to CSTA's use and distribution (both now and in the future) of the registrant or attendee's image or voice in photographs, videotapes, electronic reproductions, and audiotapes of such events and activities.

Special Needs Requests

Attendees requiring special accommodations, including dietary, nursing moms, and ADA accommodations must register by September 25 and contact CSTA via email: registration@cascience.org with their requests.

Children

The CSTA conference is intended for the benefit of adults. While we recognize that some events may be of some interest to children, our primary concern is for the enjoyment and benefit of our adult attendees. It is not our intention to prohibit attendance by children; however CSTA assumes no liability for the actions, supervision, care taking, or well-being of children. Any children brought to a CSTA event must be accompanied at all times by their parent or adult guardian. Children are subject to a reduced registration fee which provides admission only to the same activities as the guest registration.

Disclaimer

CSTA, its employees, officers, and agents claim no liability for the acts of any suppliers to this meeting, nor for the safety of any attendee while attending or in transit to or from the conference. The total amount of any liability during the precise hours of the conference will be limited to a refund of the registration fees paid by the attendee. The attendee acknowledges acceptance of this provision by registering for the conference.



Sacramento Convention Center (Photo Credit: Tom Myers)

Registration Form: 2017 California Science Education Conference, Sacramento

To check the status of your membership, the availability of additional fee events, visit conference.cascience.org. Incomplete forms not accompanied by payment will not be processed. One registrant per form, please. Forms must be received by September 25, 2017 to guarantee pre-registration. Please type or print neatly.



1) REGISTRANT INFORMATION

NAME _____

ADDRESS ☐ Home ☐ Business _____

CITY, STATE ZIP _____

☐ Please do not include my name on mailing lists other than CSTA's.

EMAIL* _____ TWITTER _____

**By providing your email address, you are consenting to be communicated with electronically by CSTA. Your consent may be revoked by notifying CSTA.*

HOME PHONE _____ WORK PHONE _____

SCHOOL DISTRICT _____ SCHOOL _____ GRADE _____

EMERGENCY CONTACT NAME & PHONE _____

☐ Special need request. Must register by September 25. (Includes dietary, ADA, nursing mom, etc.) _____

Opt Out - Help CSTA reduce waste on-site: ☐ I do NOT need a printed Program Book. I will use the Conference App. ☐ I do need a printed Program Book.

2) MEMBERSHIP ☐ 1 Year (\$50) ☐ New Teacher-2 Years (\$50) ☐ 3 Years (\$120) ☐ Lifetime (\$500) ☐ Preservice (\$25) \$ _____

3) REGISTRATION Includes access to workshops, exhibit hall, general sessions, and focus speakers on the days you are registered.

Registration Type	Advanced Rate By 9/25	On-site After 9/25	
CSTA Members (paid through 11/1/17 or later)			
<input type="checkbox"/> Full Registration (Fri.-Sun.)	\$175	\$195	\$ _____
<input type="checkbox"/> Weekend Only (Sat. & Sun.)	\$150	\$165	\$ _____
<input type="checkbox"/> Preservice Full Registration (Fri.-Sun.)	\$95	\$105	\$ _____
<input type="checkbox"/> Preservice Weekend Only (Sat. & Sun.)	\$50	\$55	\$ _____
Nonmembers			
<input type="checkbox"/> Full Registration (Fri.-Sun.)	\$249	\$270	\$ _____
<input type="checkbox"/> Weekend Only Registration (Sat. & Sun.)	\$220	\$235	\$ _____
Guests & Groups			
<input type="checkbox"/> Group (20 or more, single payment, regardless of membership) (Fri.-Sun.)	\$155/person	n/a	\$ _____
<input type="checkbox"/> Guest (Fri.-Sun.)	\$88	\$98	\$ _____
			TOTAL \$ _____

4) TICKETED EVENTS

Pre-conference TOSA Event - Thursday: ☐ Conference Registrant \$135 ☐ Pre-conference Event Only \$270 \$ _____

Short Courses: Course # _____ Fee _____ Course # _____ Fee _____ Course # _____ Fee _____ Total \$ _____

Field Courses: Course # _____ Fee _____ Course # _____ Fee _____ Course # _____ Fee _____ Total \$ _____

Awards Lunch - Page Keeley: #Attending _____ \$46 per person Total \$ _____

Friday - Paint & Wine: #Attending _____ \$35 per person **IMAX Movie:** #Attending _____ \$15 per person Total \$ _____

Saturday - Pub Crawl: #Attending _____ \$10 per person **Hacker Lab:** #Attending _____ \$10 per person Total \$ _____

TOTAL \$ _____

5) PAYMENT INFORMATION

Payment may be made by check, purchase order, Visa, MasterCard, American Express or Discover.

☐ Check/P.O. enclosed (payable to CSTA) Check/P.O. # _____ (purchase order must accompany this form)

☐ Charge My ☐ Visa ☐ MasterCard ☐ AMEX ☐ Discover Account #

Name on Card _____

Billing Address (if different than above) _____

City/State/Zip _____

Signature _____ Security Code _____ Exp. Date _____

Mail or fax registration with payment to CSTA at: 950 Glenn Drive, Suite 150, Folsom, CA 95630 or Fax (916) 932-1954

By registering for the 2017 California Science Education Conference, you agree to the Registration Terms and Conditions provided on the back of this form.

Housing Reservation Form

2017 California Science Education Conference
Sacramento, CA October 13 – 15, 2017

**Reserve Early to Guarantee
your 1st Hotel Choice**

Reserve Online:

For immediate confirmation of your hotel and dates
reserve online at **www.cascience.org**

Reserve by Fax:

1-877-385-9595

Reserve by Mail:

Conference Housing
11956 Bernardo Plaza Dr. No. 337
San Diego, CA 92128

Conference Housing Toll Free 1-877-385-9595

1. PARTICIPANT INFORMATION:

First Name:		Last Name:	
Address: (We recommend your home address)		City:	State:
Postal Code:	Phone:	Fax:	Email:
School or Organization:		School District:	

2. HOTEL REQUESTS:

Arrival Date	Departure Date	Room Type	Special Requests	Roommate(s) Name(s)												
<div> <div>10 / / 17</div> <div>10 / / 17</div> </div> <div> <div>2017 Calendar</div> <table> <tr> <td>TU</td> <td>W</td> <td>TH</td> <td>FRI</td> <td>SAT</td> <td>SUN</td> </tr> <tr> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> </tr> </table> </div>		TU	W	TH	FRI	SAT	SUN	10	11	12	13	14	15	<input type="checkbox"/> Single 1 Bed / 1 Person <input type="checkbox"/> Double 1 Bed / 2Persons <input type="checkbox"/> Double/Double 2 Beds / 2 Persons <input type="checkbox"/> Triple 2 Beds / 3 Persons <input type="checkbox"/> Quad 2 Beds / 4 Persons <input type="checkbox"/> Suite – Please call for rates	<input type="checkbox"/> Smoking <input type="checkbox"/> Non-Smoking <input type="checkbox"/> Handicap Accessible <input type="checkbox"/> _____	<div>2.</div> <div>3.</div> <div>4.</div>
TU	W	TH	FRI	SAT	SUN											
10	11	12	13	14	15											

3. HOTEL PREFERENCE:

Rates do not include State and Local taxes, currently 15.25% per night.

Please Note your 1 st & 2 nd choice		Hotel	Address	Room Rate (Single/Double)	Room Rate (Triple/Quad)	Distance to Convention Center	Notes *Parking Rates Subject to Change
		Sheraton Grand	1230 J Street	\$169	\$194 / \$219	Across the Street	\$20 Self Parking \$32 Valet
		Hyatt Regency	1209 L Street	\$169	\$194 / \$219	1 Block	\$20 Self Parking \$29 Valet Complimentary WiFi
		Residence Inn	1121 15 th Street	\$159 – Studio King	w/ pull out Sofa (Max 3 p)	2 Blocks	\$20 Self Parking Complimentary WiFi Hot Breakfast Buffet Included
		Holiday Inn Express	728 Sixteenth Street	\$135	\$135	4 Blocks	Complimentary Parking Complimentary WiFi Hot Breakfast Buffet Included
		Best Western Sutter House	1100 H Street	\$130	\$130	4 Blocks	Complimentary Parking Complimentary WiFi Continental Breakfast Included

4. CANCELLATION AND DATE CHANGE POLICY:

Prior to September 14, 2017-

All hotel reservations, date changes, name changes and cancellations must be submitted to Conference Housing
Contact us at info@conferencehousing.com or fax to 877-385-9595

Cancellations must be received prior to 7 days of your arrival or a one-night room charge may apply

On or After September 15, 2017-

End of Paper: September 1st 2017

Contact the hotels directly for any arrival/departure changes or name changes
Please contact Conference Housing with any cancellations as we will try and use
the room for another attendee

If you do not show up on your scheduled arrival date a one-night room charge may apply

5. FORM OF GUARANTEE:

Your credit card will not be charged prior to the event - Payment will be requested at check in by the hotel

<input type="checkbox"/> Visa	<input type="checkbox"/> MasterCard	<input type="checkbox"/> American Express	<input type="checkbox"/> Discover	<input type="checkbox"/> Diners Club
Credit Card Account Number:			Expiration Date (must be later than 10/17)	
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Cardholder Name: (Please print)			Cardholder Signature:	

6. OPTIONAL PAYMENT BY CHECK:

A Credit Card is the preferred method to guarantee your reservation.

Conference Housing will not charge your credit card. All payments will be made directly to the hotel upon check-in.

If someone else is paying for your room with a credit card not present at check-in you must contact the hotel directly to set up prepayment. Please call the hotel after September 14, 2017 and ask for a 3rd party Credit Card Authorization form.

If you are paying by check for your stay you must pay the hotel directly prior to check-in. Please send all future funds no earlier than September 1, 2017 directly to the hotel with your reservation name, arrival date, departure date, and include the event name "CA Science Education Conference".



950 Glenn Drive, Suite 150
Folsom, CA 95630
www.cascience.org

HOTEL ADDRESSES

Hyatt Regency Sacramento at Capitol Park
1209 L Street

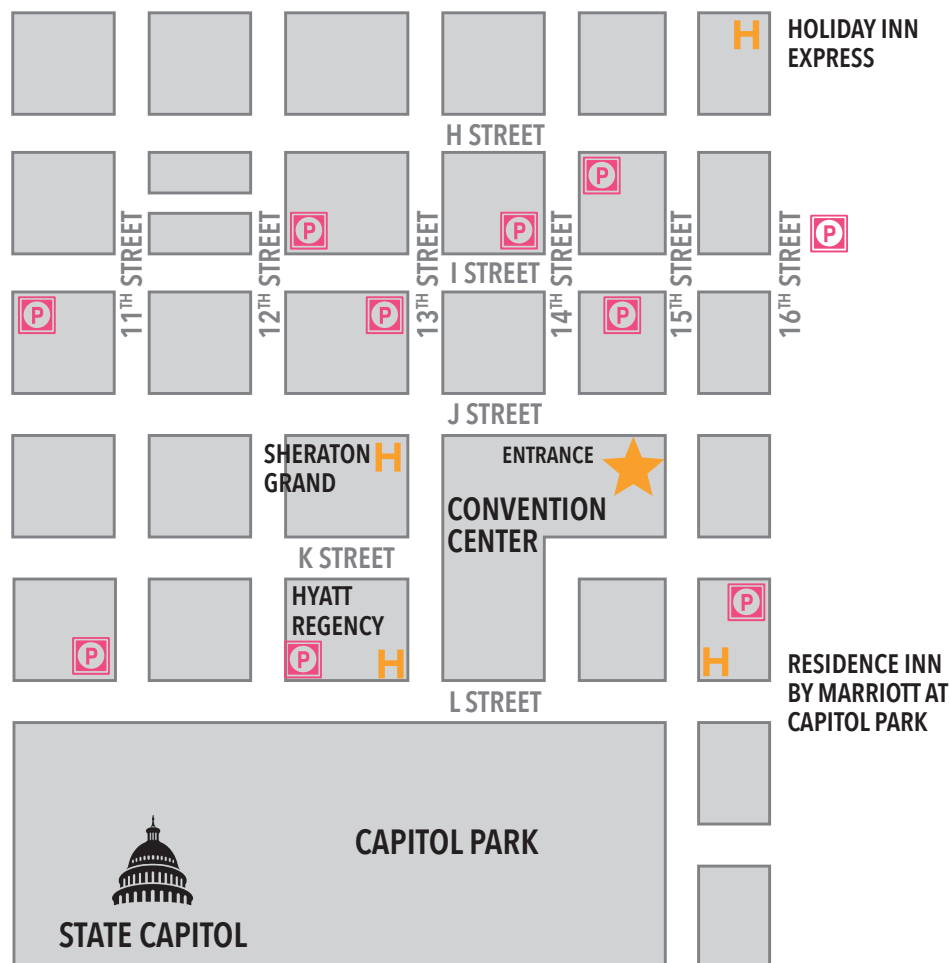
Sheraton Grand Sacramento Hotel
1230 J Street, 13th and J Street

Residence Inn Sacramento at Capitol Park
1121 - 15th Street

Holiday Inn Express Downtown Sacramento
728 - 16th Street

CONFERENCE FACILITY ADDRESS

Sacramento Convention Center
1400 J Street



Conference Sponsors CSTA thanks the following companies who proudly support the California Science Education Conference.

