INVESTIGATE.

CALIFORNIA STEAM SYMPOSIUM

DECEMBER 10—11

2017

Moscone Center West, San Francisco

steamcalifornia.org
cde.ca.gov
cdefoundation.org

Facebook: CaliforniaSTEAMConference
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Instagram: STEAM_symposium
THE CALIFORNIA STEAM SYMPOSIUM IS BROUGHT TO YOU BY:

TIPS

NAME BADGES
Obtained at registration, name badges are required for entrance to all keynotes, sessions, meals, and events.

WE WANT YOUR FEEDBACK!
Please complete session ratings in the app and the post-Symposium survey. For each one completed, you will be entered to win a prize!

STAY CONNECTED

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NETWORK NAME: CASTEAM17
ACCESS CODE: casteam17

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Stay updated during the 2017 CA STEAM Symposium!
December 10, 2017

Dear Symposium Attendees:

I am pleased to welcome you to the 2017 California STEAM Symposium.

Presented by Chevron, this year's symposium features outstanding keynote speakers, over 220 presentations, and 100 student STEAM demonstrations. It is the largest event of its kind in California and provides hands-on strategies and resources to showcase a variety of STEAM programs. This is a great professional development opportunity for you to develop new ideas, network with colleagues, and bring information back to your schools and organizations.

As State Superintendent and a former high school science teacher and coach, I strongly support STEAM education as a pathway to 21st Century careers and college. California is a global trailblazer in science and technology, and we know that businesses want and need STEAM-trained workers. Jobs in these industries pay more than jobs in other fields and help fuel California’s economy, so it is critical that we invest time and funds into our youth.

Our theme is "Investigate. Collaborate. Innovate." Experts in STEAM education will illustrate this theme throughout the conference and will highlight these concepts in the various presentations. Conference strands include: STEAM Across Grades and Disciplines; Integrating Environmental Literacy in STEAM Disciplines; Design Thinking and Engineering: Where Art Meets Science; Supporting STEM/STEAM through 21st Century Learning Environments; Learning Beyond the Classroom; and Preparing a 21st Century Workforce.

Thank you for all for being a part of this wonderful conference and for your role in preparing California's students to become our country’s future inventors and designers. Together, we can develop and sustain our state’s leadership in technology, entertainment, agriculture, science, and more… the sky’s the limit.

Sincerely,

Tom Torlakson
State Superintendent of Public Instruction
Welcome to San Francisco!

California education has come a long way since 2013, the first year of what would become the annual California STE(A)M Symposium. The State Board of Education adopted the Mathematics Framework only two weeks before the inaugural event, and the Next Generation Science Standards were adopted a couple months before that.

Now in its fifth year, and the first as the STEAM Symposium, this conference has evolved as STEAM learning and instruction have evolved to reflect how students learn best—emphasizing hands-on learning and discovery and embracing students’ natural curiosity. Californians Dedicated to Education Foundation has been there since the beginning and we couldn’t be more proud of what this professional learning conference for California’s science, technology, engineering, art, and math (STEAM) educators has become.

We now feature a Makerspace to give you the opportunity to experience the power of hands-on exploration and learning for yourself, and discover new ways to bring creativity and the lessons of perseverance, collaboration, and critical thinking to your classroom.

The more than 220 presentations you have access to this year reflect the opportunities to connect STEAM disciplines to the real world. Whether that’s the inclusion of environmental literacy or (for the first time) design thinking and engineering, we know better than ever that all students, especially those students who are underrepresented in STEAM careers, have a better chance of seeing themselves as having the talent and ability to become scientists and engineers when their learning is relevant to their real lives.

While the content and Symposium features may change year-to-year, our deep commitment to increasing access and participation in high-quality STEAM learning, especially for girls and other historically underrepresented students, has not changed. That is why our Content Pathways, another new feature this year to help you choose which conference sessions to attend, include English Language Learners, Equity and Access, and Girls and Young Women.

This incredible annual Symposium would not be possible without the support of our co-hosts, the California Department of Education and the California Commission on the Status of Women and Girls.

We also can’t thank our generous sponsors enough, especially the Presenting Sponsor Chevron who has been with us since the beginning.

We hope these next two days provide you with a multitude of opportunities to engage with your colleagues, to reignite your passion for science, technology, engineering, art, and math learning, and to learn something new!

Thank you for all that you do for California’s students.

Shelly Masur, CEO
Californians Dedicated to Education Foundation
ENGAGING GIRLS IN STEAM

Building a Statewide Initiative

The California Commission on the Status of Women and Girls (CCSWG) has joined the California Department of Education (CDE), the Californians Dedicated to Education Foundation (CDEF), and the University of California Davis (UCD) to sponsor leadership events and develop partnerships with private organizations dedicated to improving opportunities for women and girls in Science, Technology, Engineering (Arts) and Mathematics, or STEAM. Our 2017 included:

- Statewide Town Hall Series Sponsored local educational agencies to highlight and encourage girls and young women to explore local opportunities and future careers in STEAM located in Los Angeles County, Riverside County, and San Joaquin County.
- Next Generation Science Standards (NGSS) Supported the CDE to incorporate girls and young women into the equity and access framework as well as implement the Train the Trainer Learning Module.

Women and Girls in STEM Week Partnered with TechNet and the CA Legislative Women’s Caucus to bring Middle and High School girls to Sacramento. The event included an “Hour of Code” hosted by Apple and informational hearing led by Assemblymember Tony Thurmond Chair of the Select Committee on Science, Technology, and Engineering and Math Education.

Supported the CDE to incorporate girls and young women into the equity and access framework as well as implement the Train the Trainer Learning Module.

JOIN THE MOVEMENT

MWM-CA is asking you to represent MWM-CA in your communities as an MWM-CA Ambassador or STEAM Mentor. You can register mentor programs, seek mentors or sign up as an individual to support the growing movement in increase women and girls in STEAM. Please visit http://mwm-ca.org/ for more information, or find the CCSWG booth in the Expo.

WELCOME

As educators you play a vital role in the advancement of California’s children. I would like to thank each of you for dedicating your time to developing and expanding your individual expertise in STEAM. During my tenure in the leadership of the CA Commission on the Status of Women and Girls we have committed to greatly expanding our focus on educational opportunities for and achievements of girls in STEM. As cosponsors of the Symposium, the Commission is honored to welcome thousands of educators from across California to San Francisco. I am proud to be part of this growing movement and look forward to many more years to come.

Lupita Cortez Alcalá, Commission Appointee of the State Superintendent of Public Instruction

MILLION WOMEN MENTORS CALIFORNIA

Million Women Mentors, California (MWM-CA) is excited to be an active part of changing the lives of young women and girls through the power of mentoring. MWM-CA has been national recognized by Million Women Mentors as a state leader. In October, California received the State Achievement Award at the 2017 MWM National GALA & Summit in Washington, D.C.

MWM-CA has a goal of engaging at least 100,000 mentors and mentees in 2017. MWM-CA would like to encourage corporations and schools who already have mentoring programs to Be Counted. Together we can PROVE that mentoring relationships can change the world.

PLEDGE GOAL: 100,000 COMPLETED: 66,210
2017 CALIFORNIA STEAM SYMPOSIUM SPONSORS

THANK YOU

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#GENERAL INFORMATION

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#TIPS

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# Schedule of Events

## Saturday, December 9
- 1:00 p.m. – 5:00 p.m. Exhibit Load-In .......................................................... Level 2
- 1:00 p.m. – 5:00 p.m. Registration Open......................................................... Level 1

## Sunday, December 10
- 7:30 a.m. – 5:00 p.m. Registration Open .......................................................... Level 1
- 7:30 a.m. – 8:45 a.m. Breakfast........................................................................... Level 2 by Exhibits
- 7:30 a.m. – 5:30 p.m. Exhibits Open................................................................. Level 2
  Makerspace Open......................................................................................... Level 3
- 7:45 a.m. – 8:45 a.m. Newcomers’ Orientation .............................................. Room 3016
- 9:00 a.m. – 10:20 a.m. Morning General Session and Keynote.......................... Level 3
- 10:15 a.m. – 1:40 p.m. Morning STEAM Showcase......................................... Level 2
- **10:30 a.m. – 11:30 a.m.** Breakout Session I................................................ Levels 2 and 3
- 11:30 a.m. – 11:45 a.m. Morning Break
- **11:45 a.m. – 12:45 p.m.** Breakout Session II............................................... Levels 2 and 3
- 12:45 p.m. – 1:45 p.m. Lunch............................................................................ Level 2 by Exhibits
- 1:45 p.m. – 2:55 p.m. Afternoon General Session and Keynote..................... Level 3
- 2:50 p.m. – 5:30 p.m. Afternoon STEAM Showcase....................................... Level 2
- **3:05 p.m. – 4:05 p.m.** Breakout Session III................................................ Levels 2 and 3
- 4:05 p.m. – 4:30 p.m. Afternoon Break
- **4:30 p.m. – 5:30 p.m.** Breakout Session IV................................................ Levels 2 and 3

## Monday, December 11
- 7:00 a.m. – 12:00 p.m. Registration Open......................................................... Level 1
- 7:00 a.m. – 7:45 a.m. Breakfast........................................................................... Level 2 by Exhibits
- 7:00 a.m. – 1:30 p.m. Exhibits Open................................................................. Level 2
  Makerspace Open......................................................................................... Level 3
- 8:00 a.m. – 9:00 a.m. Breakout Session V.................................................... Levels 2 and 3
- **9:10 a.m. – 10:10 a.m.** Breakout Session VI............................................... Levels 2 and 3
- 10:10 a.m. – 10:35 a.m. Morning Break
- 10:35 a.m. – 12:05 p.m. General Session and Keynote.................................... Level 3
- 12:05 p.m. – 12:30 p.m. Lunch............................................................................ Level 2 by Exhibits
- **12:30 p.m. – 1:30 p.m.** Breakout Session VII.............................................. Levels 2 and 3
- 1:30 p.m. – 2:30 p.m. Closing Team Time...................................................... Nook 304

*All events take place in Moscone Center West*
### SESSIONS AT A GLANCE

**SUNDAY, DECEMBER 10, 2017 • Session I • 10:30 a.m. to 11:30 a.m.**

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<tr>
<th>ROOM</th>
<th>PRESENTATION TITLE</th>
<th>SESSION ID</th>
<th>STRAND</th>
<th>PATHWAY 1</th>
<th>PATHWAY 2</th>
<th>PATHWAY 3</th>
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<td>2000</td>
<td>Fractals: Integrating STEAM Content Using the Crosscutting Concept of Patterns</td>
<td>528</td>
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<td>2002</td>
<td>Integrated STEAM Lesson in an Elementary Classroom</td>
<td>31</td>
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<td>2004</td>
<td>Creating and Managing a 4 C’s Classroom</td>
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<td>2006</td>
<td>Maker Math: Putting the “Hands-on” Back into Math</td>
<td>156</td>
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<td>MM</td>
<td>MSA</td>
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<tr>
<td>2007</td>
<td>Navigating the Process of Developing a STEAM School</td>
<td>15</td>
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<td>LA</td>
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<td>2008</td>
<td>Full Steam Ahead with the Manteca USD Community Makerspace</td>
<td>328</td>
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<td>2009</td>
<td>Family Science Nights: What’s in the Air?</td>
<td>122</td>
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<tr>
<td>2010</td>
<td>Video Game Design with Virtual Reality Integration</td>
<td>433</td>
<td>3</td>
<td>CTE</td>
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<tr>
<td>2011</td>
<td>Phenomena and Storylines: What’s the Big Deal?</td>
<td>376</td>
<td>4</td>
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<td>2012</td>
<td>Candy Density Lab and Engineering Challenge</td>
<td>205</td>
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<td>2020</td>
<td>STEAMing through the Months: It’s Elementary</td>
<td>236</td>
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<td>2022</td>
<td>STEM Education in the San Francisco Math Circle</td>
<td>32</td>
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<td>2024</td>
<td>Discourse and STEAM Instruction in Linguistically Diverse Classrooms</td>
<td>166</td>
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<td>3000</td>
<td>An Inside Look at the 49ers Professional Development for Educators</td>
<td>550</td>
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<td>3001</td>
<td>Learning by Making for STEM Success</td>
<td>254</td>
<td>2</td>
<td>CTE</td>
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<tr>
<td>3002</td>
<td>The Science and Story of CA NGSS</td>
<td>152</td>
<td>3</td>
<td>AE</td>
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<tr>
<td>3003</td>
<td>District Model to Support CA NGSS in the Elementary Classroom</td>
<td>96</td>
<td>1</td>
<td>LA</td>
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<td>3004</td>
<td>Advancing and Strengthening STEM and Environmental Literacy through Local Control</td>
<td>59</td>
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<td>3005</td>
<td>WOW! Design a Program Code to Return the Robot Mouse</td>
<td>412</td>
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<td>ELL</td>
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<tr>
<td>3014</td>
<td>Computer Science Education: How to Benchmark &amp; Improve Your Offerings!</td>
<td>487</td>
<td>6</td>
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<td>Songwriting For the Science Geek: Using Music to Teach STEM</td>
<td>458</td>
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<td>3022</td>
<td>Coffee on Mars! Engineering Design Challenges for 6-12</td>
<td>334</td>
<td>3</td>
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<td>3024</td>
<td>Partnerships for STEAM: Access to Engineering Careers for All</td>
<td>523</td>
<td>6</td>
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<td>Nook 301</td>
<td>Global Watershed Project: Water and Chemistry and Restoration</td>
<td>17</td>
<td>2</td>
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<td>Nook 302</td>
<td>Project Lead the Way K-12 STEM Pathway</td>
<td>290</td>
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<td>Nook 303</td>
<td>Making the Connection for Action in Your Community</td>
<td>192</td>
<td>5</td>
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<td>Nook 304</td>
<td>Team Time</td>
<td>540</td>
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<td>Stage</td>
<td>Designing a Makerspace and Makerspace Program</td>
<td>293</td>
<td>4</td>
<td>MM</td>
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</tbody>
</table>

### STRANDS

1. **STEAM Across Grades and Disciplines**
2. **Integrating Environmental Literacy in STEAM Disciplines**
3. **Design Thinking and Engineering: Where Art Meets Science**
4. **Supporting STEM/STEAM through 21st Century Learning Environments**
5. **Learning Beyond the Classroom**
6. **Preparing a 21st Century Workforce**

### PATHWAYS

- **CTE** Career Technical Education
- **MM** Maker and Makerspaces
- **EL** Early Learning
- **ELL** English Language Learners
- **GW** Girls and Young Women
- **LA** Leadership and Administration
- **MSA** Making Standards Come Alive

#CASTEAM17 | WI-FI: CASTEAM17 / casteam17
## Sessions at a Glance

**Sunday, December 10, 2017 • Session II** – 11:45 a.m. to 12:45 p.m.

<table>
<thead>
<tr>
<th>Room</th>
<th>Presentation Title</th>
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<th>Pathway 3</th>
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<tr>
<td>2000</td>
<td>Pixel Art Scaffold from Google Sheets to Recycled Art Project</td>
<td>445</td>
<td>3</td>
<td>CTE</td>
<td>MM</td>
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<tr>
<td>2002</td>
<td>CA NGSS for All Students Using 4-Part Performance Tasks</td>
<td>393</td>
<td>1</td>
<td>AE</td>
<td>ELL</td>
<td>MSA</td>
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<td>2004</td>
<td>Creative Computing: A Road to CS4All</td>
<td>62</td>
<td>4</td>
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<td>CTE</td>
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<td>2007</td>
<td>Creating a Middle School STEAM Elective</td>
<td>519</td>
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<td>CTE</td>
<td>MM</td>
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<td>2008</td>
<td>Chemical Engineering for Middle School</td>
<td>478</td>
<td>2</td>
<td>CTE</td>
<td>MM</td>
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<tr>
<td>2009</td>
<td>International Space Station Microgravity: Mass vs Weight</td>
<td>496</td>
<td>3</td>
<td>AE</td>
<td>CTE</td>
<td>MSA</td>
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<td>2010</td>
<td>Coding Across the Curriculum</td>
<td>33</td>
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<td>2011</td>
<td>Lennox Creates an Engineering School for Underrepresented Students</td>
<td>145</td>
<td>4</td>
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<td>LA</td>
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<td>2012</td>
<td>3D Printing for the K-6 Classroom</td>
<td>128</td>
<td>2</td>
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<td>2020</td>
<td>Designing Writing Assignments to Affirm Student Goals and Cultural Capital</td>
<td>54</td>
<td>6</td>
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<td>2022</td>
<td>Designing Plant Packages with the Consumer in Mind</td>
<td>428</td>
<td>3</td>
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<td>2024</td>
<td>Interactive and Engaging Agricultural Interactive Videoconferencing Programs with KCOE</td>
<td>436</td>
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<td>3000</td>
<td>One Step Closer to Mars with Aquaponics: STAR Activity!</td>
<td>201</td>
<td>4</td>
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<td>3001</td>
<td>STEAM Traveler: Using Multicultural Folktales to Enrich STEAM</td>
<td>443</td>
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<td>3002</td>
<td>Engineering in Early Childhood: Bringing Science and Mathematics to Life</td>
<td>35</td>
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<td>3003</td>
<td>Building a Community of Curious Learners in the Early Years</td>
<td>136</td>
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<td>Programming Ozobots to Engage Content Across K-5 Curriculum</td>
<td>311</td>
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<td>3005</td>
<td>Science and Service-Learning</td>
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<td>3014</td>
<td>The Art of STEAM Notebooks</td>
<td>158</td>
<td>3</td>
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<td>3016</td>
<td>Using Computational Thinking Mathematics in Games</td>
<td>312</td>
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<td>CTE</td>
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<td>3016</td>
<td>Adventures in STEAM: From Science Fair to Interactive STEAM Showcase</td>
<td>322</td>
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<td>3016</td>
<td>How to Implement a Robotics Challenge and STEAM Showcase!</td>
<td>93</td>
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<td>3016</td>
<td>A District and University Partnership: Creating Middle School FAB Labs</td>
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<td>3016</td>
<td>WonderLab: Building Bridges with STEAM</td>
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### Strands

1. **STEAM Across Grades and Disciplines**
2. **Integrating Environmental Literacy in STEAM Disciplines**
3. **Design Thinking and Engineering: Where Art Meets Science**
4. **Supporting STEM/STEAM through 21st Century Learning Environments**
5. **Learning Beyond the Classroom**
6. **Preparing a 21st Century Workforce**

### Pathways

- **CTE** Career Technical Education
- **AE** Access and Equity
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- **GW** Girls and Young Women
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### SESSIONS AT A GLANCE

**SUNDAY, DECEMBER 10, 2017 • Session II – 11:45 a.m. to 12:45 p.m. [continued from previous page]**

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### STRANDS

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#CASTEAM17 | WI-FI: CASTEAM17 / casteam17
## SESSIONS AT A GLANCE

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1. STEAM Across Grades and Disciplines
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## Sessions at a Glance

### Sunday, December 10, 2017 • Session IV – 4:30 p.m. to 5:30 p.m.

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### SECTIONS AT A GLANCE

**SUNDAY, DECEMBER 10, 2017 • Session IV – 4:30 p.m. to 5:30 p.m. [continued from previous page]**

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### STRANDS

1. STEAM Across Grades and Disciplines
2. Integrating Environmental Literacy in STEAM Disciplines
3. Design Thinking and Engineering: Where Art Meets Science
4. Supporting STEM/STEAM through 21st Century Learning Environments
5. Learning Beyond the Classroom
6. Preparing a 21st Century Workforce

### PATHWAYS

- **CTE**: Career Technical Education
- **MM**: Maker and Makerspaces
- **EL**: Early Learning
- **ELL**: English Language Learners
- **AE**: Access and Equity
- **GW**: Girls and Young Women
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- **MSA**: Making Standards Come Alive
### Sessions at a Glance

**Monday, December 11, 2017 • Session V – 8:00 a.m. to 9:00 a.m.**

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### Strands

1. **STEAM Across Grades and Disciplines**
2. **Integrating Environmental Literacy in STEAM Disciplines**
3. **Design Thinking and Engineering: Where Art Meets Science**

### Pathways

- **CTE** Career Technical Education
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## SESSIONS AT A GLANCE

### MONDAY, DECEMBER 11, 2017 • Session VI – 9:10 a.m. to 10:10 a.m.

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### STRANDS
- **1. STEAM Across Grades and Disciplines**
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## SESSION AT A GLANCE

**MONDAY, DECEMBER 11, 2017 • Session VI – 9:10 a.m. to 10:10 a.m. [continued from previous page]**

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<td>Forestry Challenge: Connecting Match and Science to Hands-On Forest Experiences</td>
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### STRANDS
1. **STEAM Across Grades and Disciplines**
2. **Integrating Environmental Literacy in STEAM Disciplines**
3. **Design Thinking and Engineering: Where Art Meets Science**
4. **Supporting STEM/STEAM through 21st Century Learning Environments**
5. **Learning Beyond the Classroom**
6. **Preparing a 21st Century Workforce**

### PATHWAYS
- **CTE**: Career Technical Education
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#CASTEAM17  |  WI-FI: CASTEAM17 / casteam17  |  17
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**INVESTIGATE. COLLABORATE. INNOVATE.**

**2017 CALIFORNIA STEAM SYMPOSIUM**
“As a first year teacher, I was blown away by how large the STEM community is...The breakout sessions I attended were really informative and helped provide insights into what it means to be a STEM teacher and the value that STEM education can have on our students' learning.”

-STEM SYMPOSIUM ATTENDEE
Shaping Our Future Starts in Our Classrooms

Chevron champions science, technology, engineering and math (STEM) education in the United States, in K-12 classrooms and beyond. Through our programs and strategic partnerships, we help students and teachers get the tools and access the resources they need to take advantage of every opportunity STEM offers.

Chevron's engagement can be found throughout the Symposium, from breakout sessions, to panels, to the Chevron Lounge!

Check Out Some Of Our Partner Sessions

San Francisco 49ers
Session ID: 552, SESSION 3
Sports & STEAM: Leveraging Kids' Games to Inspire Learning & Growth
Room: 3000
With a focus on STEAM concepts and life skills, this panel articulates the power of athletics as a means to support educational engagement. Learn from leaders in the field (literally) concerning how to use sports to inspire interest and engagement in academics.

Children Now
Session ID: 324, SESSION 6
Leveraging Policy and Practice to Advance STEAM Teaching and Learning
Room: 2020
Panel will discuss how to engage and mobilize local and regional networks to leverage public policy and educational practice to advance STEAM teaching and learning. Emphasis will be placed on how to secure support from STEAM-sector business and industry leaders.

Achieve
Session ID: 174, SESSION 7
Building Effective Advocacy to Support STEM Education
Room: 3020
In this interactive workshop participants will learn about effective advocacy and communication practices and utilize knowledge gained to develop an advocacy goal and key messages for their unique context to support STEM education in their school or community.

Digital Promise
Session ID: 377, SESSION 7
Room: 2006
Take home ideas for your classroom in this session featuring teachers from the Global Learning Studios network of classrooms collaborating to empower students to design and make solutions to the biggest problems facing the world today.

Keynote Panel
during General Session
Monday, December 11
10:35 a.m. - 12:05 p.m.
Level 3
Blair Blackwell, MODERATOR, MANAGER, EDUCATION AND CORPORATE PROGRAMS, CHEVRON

Chevron Sponsor Spotlight
at the STEAM Stage
Sunday, December 10
1:05-1:20 p.m.
Level 3

Looking to recharge?
Visit the Chevron Lounge!
Take a break and collaborate with colleagues at the Chevron Lounge, located on Lobby Level 3. While you’re there, check out the display of sample projects from Fab Labs across the country, and pickup a DIY resource guide. Charging stations will also be available for your use.
Techbridge Girls  
Session ID: 238, SESSION 6  
Engaging in and Celebrating Making with Underserved Girls  
Room: Nook 302

Learn how to engage underserved youth in the meaningful process of Making! Participants will learn about different approaches to encourage Making, experience a Maker project, and reflect on ways to share student Making with the broader community.

Lawrence Hall of Science  
Session ID: 59, SESSION 1  
Advancing and Strengthening STEM and Environmental Literacy through Local Control  
Room: 3004

Gain a deeper sense of how to advance in one’s district/school through engagement of district leadership and stakeholders. Participants will work with colleagues and session leaders to uncover concrete strategies and actions for incorporating STEM and Environmental Literacy supports district-wide.

Exploratorium  
Session ID: 166, SESSION 1  
Discourse and STEAM Instruction in Linguistically Diverse Classrooms  
Room: 2024

Join the Exploratorium Institute for Inquiry to examine discourse in linguistically diverse elementary STEAM classrooms. Participants will engage in a hands-on investigation, reflect on their use of discourse, and examine videos of discourse in classrooms.

Project Lead the Way  
Session ID: 290, SESSION 1  
Project Lead the Way K-12 STEM Pathway  
Room: Nook 302

Overview of a STEM curriculum that provides training and ongoing support to classroom teachers. Participants will experience a module during the workshop to see how PLTW curriculum can be used across the curriculum.

CSU  
Session ID: 525, SESSION 7  
Sports and STEAM: Inspiring and Inclusive  
Room: 3005

Experience the Chevron STEM Zone through videos and discussions and sports-themed computer models that emphasize engineering design and CA NGSS Science and Engineering Practices. CSU future teachers facilitate STEM Zone activities with 3rd-8th grade students when they attend the interactive exhibits.

CSU  
Session ID: 551, SESSION 3  
"Making" Ideas a Reality: CSU Fab Labs and Makerspaces  
Room: 2012

In this session, four California State University Fab Lab and makerspace leaders and partners will discuss their experiences and share best practices related to student success and community engagement. They will also offer practical advice for bringing making to your community.
INVESTIGATE, COLLABORATE, AND INNOVATE IN OUR
MAKERSPACE
BRING YOUR CURIOSITY!

SUNDAY, DECEMBER 10, 2017

MAKERSPACE CLASSROOM SCHEDULE

10:30 – 10:55 a.m. and 11:05 – 11:30 a.m.
Bots to Biology: Making and Engineering Habitats for Systems Thinking, COMMUNITY SCIENCE WORKSHOP NETWORK

11:45 a.m. – 12:45 p.m.
Make a Cardboard Robot Using the Hummingbird Robotics Kit, BIRDBRAIN TECHNOLOGIES

3:05 – 4:05 p.m.
Explore Motions and Mechanisms with Cardboard Automata and Paper Linkages, WONDERFUL IDEA CO

4:30 – 4:55 p.m.
Storybased STEAM (TK-2): Combine Maker Challenges with Literature for Engaging Lessons with Young Students, SONOMA COUNTY OFFICE OF EDUCATION

5:05 – 5:30 p.m.
Bling Your Bandana with Sewable Circuitry: Learning Energy Concepts Through Soft Circuits, SONOMA COUNTY OFFICE OF EDUCATION
A MAKER IS A...

Stop by the Makerspace on Level 3 to experience hands-on learning and find innovative ways to bring maker education into your curriculum.

MONDAY, DECEMBER 11, 2017

MAKERSPACE CLASSROOM SCHEDULE

8:00 – 8:25 a.m.

Circuit Arcade: Make Your Own Simple Circuit Kits Using Cardboard, Office Supplies, and Inexpensive Electronic Components, MAKER PROMISE

8:35 – 9:00 a.m.

Storybased STEAM (3-12): Explore Ways That Stories (fiction and nonfiction) Can Be Woven with Maker Activities to Enhance Engagement and Content Learning, SONOMA COUNTY OFFICE OF EDUCATION

9:10 – 10:10 a.m.

Bots to Biology: Making and Engineering Habitats for Systems Thinking, COMMUNITY SCIENCE WORKSHOP NETWORK

The 2017 Makerspace is sponsored by:

CSU The California State University

Learn more about Sonoma State University's Maker Educator Certificate Program: https://www.sonoma.edu/exed/maker-certificate/

Additional funding for the Makerspace provided by:
WE AGREE.

Chevron is proud to sponsor the 2017 California STEAM Symposium.

Today’s students go on to become tomorrow’s employees — including ours. At Chevron, we support science, technology, engineering and math education to help students develop real-world problem-solving and critical-thinking skills. We’re preparing them for the opportunities ahead. It’s good for the future of our community. And our company.

Learn more at chevron.com
**Marley’s Amazing Microbits**
First graders show off the amazing Microbit that they coded with the help of their high school mentors.

*Cynthia Schulz, MENTOR, LA TERCERA STEAM SCHOOL*

**The Story of the Butterfly**
The life story of a butterfly is told through a hyperduino, video, and lights on a board.

*Cynthia Schulz, MENTOR, LA TERCERA STEAM SCHOOL*

**Coding For All**
Alexyss will demonstrate beginning Software Engineering utilizing the Java programming language. She will use the TKP Java curriculum to demonstrate basic computer science constructs. With TKPJava, Alexyss will be translating English pseudo-code into the Java language and compiling and executing her code on Eclipse, an industry-standard Integrated Development Environment.

*Deepika Srivastava, MENTOR, MORENO VALLEY UNIFIED SCHOOL DISTRICT*

**Coding For All**
Jacquilene will demonstrate coding using Greenfoot. Greenfoot is an interactive Java development environment designed primarily for educational purposes at the high school and undergraduate level. It allows easy development of two-dimensional graphical applications, such as simulations and interactive games. She will use visualisation and will program actors in standard textual Java code, providing a combination of programming experience in a traditional text-based language with visual execution.

*Deepika Srivastava, MENTOR, MORENO VALLEY UNIFIED SCHOOL DISTRICT*

**Coding For All**
Tharushi will create a website to showcase all the STEAM exploratories that are available to Palm students. She will build this website on Google Drive using the web technologies HTML, CSS, JavaScript, and jQuery and demonstrate how easy it is to edit, preview, collaborate, and publish websites to Google Cloud using the Editey apps available on Google Drive.

*Deepika Srivastava, MENTOR, MORENO VALLEY UNIFIED SCHOOL DISTRICT*

**Coding For All**
Shannon’s coding projects will demonstrate Scratch Coding language and how it can be used as a powerful tool to manifest her understanding of Common Core State Standards in Math and Science. She will lead the audience in developing a game and animations using Scratch programming. Scratch is a programming language and an online community where students can program and share interactive media such as stories, games, and animations.

*Deepika Srivastava, MENTOR, MORENO VALLEY UNIFIED SCHOOL DISTRICT*

**Cellular Robots**
Our group will demonstrate a robot that has been designed to model cell behavior. We will describe how cells are similar to robots and the differences, or limitations, of using robots as models.

*Jessica Allen, MENTOR, BURTON HIGH SCHOOL*

**Cellular Robots**
During a summer workshop, we learned how to program Lego robots and how they are similar, or can demonstrate behavior that is similar, to cells. We will show a robot that we have programmed to behave like a cell.

*Jessica Allen, MENTOR, DE ANZA HIGH SCHOOL*

**Cellular Robots**
We will demonstrate that robots can be programmed to behave like cells to help people understand cells better.

*Jessica Allen, MENTOR, SAN FRANCISCO INTERNATIONAL HIGH SCHOOL*

**A Butterfly Story**
On a trifold, a hyperduino has been attached and runs a computer which shows the video where students tell a story of the life of a butterfly, lighting up art that the first graders have made.

*Lauren Jolly, MENTOR, LA TERCERA STEAM SCHOOL*
Interactive Cell Models
Cell models will be made of art supplies, littleBits, or other electronic components and teach about photosynthesis and cellular respiration.
Liat Baranoff, MENTOR, GIDEON HAUSNER JEWISH DAY SCHOOL

Carboard Automata
The XTech Advanced students will share a STEAM project called Cardboard Automata. Automata are centuries-old mechanical toys made with gears, cams and cam followers, which animate a sculpture when hand-cranked. The cardboard version is made with easily accessible and affordable materials and allows for quick experimentation and open-ended designs. Examples will be available as well as a working station where visitors can try the activity themselves. Resource materials will be available for interested teachers.
Meg Escudé, MENTOR, EXPLORATORIUM

Taking a Deep Dive: Sand Crabs and El Niño/ La Nina Trends Along the California Coastline
A small group of students from the California Academy of Sciences examined sand crab abundance data taken from the LiMPETS citizen science database, and compared that with El Niño/La Niña trends over the past fifteen years.
Nina Rubin, MENTOR, CALIFORNIA ACADEMY OF SCIENCES

Notre Dame High School Tiger Tech Team
A student team of four and one faculty advisor assisted the development of policy integration of technology for 460 students, and 70 faculty and staff. They will share accomplishments and goals to inspire other schools to support student voice concerning choice about technology integration. Topics include #DigCit Week, +1 Tech Policy, Towards the Sun Podcast, G+ Community, Google Certification, technical trainings, and more.
Rebecca Girard, MENTOR, NOTRE DAME HIGH SCHOOL

Integrating Robotics in K-12 Education
The student will demonstrate projects that he has developed to emphasize the importance of integrating Robotics in K-12 education. The student will use projects that were developed with robotics platforms such as Dash-and-Dot, Spark, LEGO WeDo and LEGO EV3 to illustrate the ease of programming these robots and the impact of robotics in developing STEAM-related concepts for students.
Vikas Srivastava, MENTOR, STEM FOR ALL FOUNDATION

Coding Across Content Areas
The student will use projects developed with coding platforms such as Scratch, Alice, and App Lab to illustrate the importance of integrating coding in K-12 education. The projects will demonstrate the application of coding across content areas and illustrate the ease of learning coding with these platforms.
Vikas Srivastava, MENTOR, STEM FOR ALL FOUNDATION

Containing Influenza
This summer all the first year SMASH scholars were responsible for finding a disease to research and use all classes to present the problem that the disease creates and a solution that we came up with to solve the particular issue. Our group chose the flu as our disease because it is very common, yet people know little to nothing about it.
Dr. Jennifer Cohen, MENTOR, SMASH BERKELEY

Bay Area Kids Against Disease
We decided to make a website for teachers of elementary schools and parents to use and show their kids and have them play the games we linked to our website. We also created our own game for our website. All of the games are focused on personal hygiene for children to learn the importance behind it.
William Cardenas, MENTOR, SMASH STANFORD
Health Message Design Process and Public Knowledge of Vaccine Importance

In the San Francisco Health Investigators program, we worked to learn about our communities’ knowledge and awareness about vaccinations and developed health messages to increase awareness and change behaviors around vaccinations. We did interviews to learn more about people’s knowledge and awareness of vaccines. After doing interviews, we decided to create whiteboard videos that focus on vaccinations with the help of an animator, YourekaScience.org. I helped to create a video message about the importance of vaccinations and herd immunity. I will show my video at the showcase and share data that we collected about the effectiveness of the video message.

Ben Koo, MENTOR, SAN FRANCISCO HEALTH INVESTIGATORS PROGRAM, SCIENCE & HEALTH EDUCATION PARTNERSHIP AT UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO

Vaccine Awareness Via Whiteboard Videos

In the San Francisco Health Investigators program, we worked to learn about our communities’ knowledge and awareness about vaccines and developed health messages to increase awareness and change behaviors around vaccination. We conducted interviews to learn more about people’s knowledge and awareness of vaccines. After doing interviews, we decided to create whiteboard videos that focus on vaccinations with the help of a science animation company, YourekaScience.org. I helped to create a video message about how vaccines work. I will show my video at the showcase and share data that we collected about the effectiveness of the video message on a poster.

Ben Koo, MENTOR, SAN FRANCISCO HEALTH INVESTIGATORS PROGRAM, SCIENCE & HEALTH EDUCATION PARTNERSHIP AT UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO, ABRAHAM LINCOLN HIGH SCHOOL

Eureka! It’s Zika!

In the San Francisco Health Investigators program at the University of California at San Francisco, we interviewed members of our communities around knowledge and awareness of Zika virus and then developed health messages that were targeted to increase awareness of Zika virus and its impacts. I chose to focus my messaging on increasing awareness of where Zika is currently spreading for travelers going abroad. We tested our messages to see if they were effective and I will be presenting my research results on message effectiveness.

Ben Koo, MENTOR, SAN FRANCISCO HEALTH INVESTIGATORS PROGRAM, SCIENCE & HEALTH EDUCATION PARTNERSHIP AT UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO

Pertussis Prevention

In the San Francisco Health Investigators program, we first set out to interview community members to learn about their awareness and knowledge about pertussis. Our target audiences were families, children, teens and parents. We then used that data to develop a health message. My group and I decided to create a bold but simple message about pertussis. We then tested this message at a large public event at AT&T park to see how effective it was. I would like to show my poster with the health message I helped to develop along with my data from testing the message.

Ben Koo, MENTOR, SAN FRANCISCO HEALTH INVESTIGATORS PROGRAM, SCIENCE & HEALTH EDUCATION PARTNERSHIP AT UNIVERSITY OF CALIFORNIA AT SAN FRANCISCO, LOWELL HIGH SCHOOL

Absorption and Radiation Using EV3

The purpose of Valley Christian’s ISS program is to measure how different colors of paper absorb heat and affect its temperature. We programmed EV3’s to expose the paper to light for a period of time, and then turned the light off. During this, the EV3 records how the temperature of the sensors rise as the light is on and decreases as the light is off.

Clarissa Chaplin, MENTOR, THE QUEST INSTITUTE
Engineering in the Humanities

Students will share how engineering developed along with society.

Efrain Pinedo, MENTOR, LENNOX MIDDLE SCHOOL OF ENGINEERING

Engineering in the Humanities

The students will share how engineering lessons can be approached through an engineering lens.

Efrain Pinedo, MENTOR, LENNOX MIDDLE SCHOOL OF ENGINEERING

Rio Summer Science Academy in Virtual Reality

Rio School District will demonstrate the Rio Summer Science Academy (RIOSSA) activities using Virtual Reality (VR) and Augmented Reality (AR). The audience will get to visit RIOSSA using VR headsets. Students will also help the audience to create VR and AR content.

Jarkko Mylläri, MENTOR, RIO SCHOOL DISTRICT

The iCane Traffic System

Crossing a road is a very easy task for most of us, but it is much harder for a visually challenged individual. Our solution helps those affected with visual impairment safely cross an intersection. Blind people are trained to walk with a cane, so we thought of an intelligent cane that works with an existing traffic system. Our criteria was based on observing videos of blind people crossing an intersection with a cane. First, the cane will control the traffic light. Second, the cane vibrates when it detects the black and white or yellow colors of a zebra crossing to keep the pedestrian from drifting off the road. With advanced programming, a small Arduino board, and just a few other modules, we were able to complete this project successfully. Our final prototype was 100% successful and we have accomplished the following: when a person is two feet away from the crossing, the traffic signal beeps. The iCane can control the traffic light using an infrared remote, and the iCane vibrates on the crosswalk within 3 centimeters of walkway guides. Overall, our intelligent white cane (iCane) can electronically assist the visually impaired community in crossing intersections safely.

Janet Wu, MENTOR, 49ERS STEM LEADERSHIP INSTITUTE

Hydroloon

Our Project is trying to solve the problem of how many third world countries don’t have access to clean, fresh water. With the Hydroloon we can make a difference to those countries such as India, Cuba, countries in Africa, and the Philippines. Hydroloon, inspired by Google’s Loon which gives internet access to third world countries, is a balloon which is fit to fly up to clouds using electric propulsion and weather flight tracks to collect moisture in clouds using fog mesh. The water is then collected through a pipe into buckets transported to “Hydroloon Stations” where a pipe is connected to trucks giving water in smaller amounts.

Michelle Scilingo, MENTOR, 49ERS STEM LEADERSHIP INSTITUTE

FTC 13219 - X-Cavators Robot

Our exhibit will be an opportunity to demonstrate the capability of our FIRST Tech Challenge competition-level robot and some of the programming and construction that happened behind the scenes. We will also be sharing an overview of this year’s FTC theme, FIRST Relic Recovery, and some of the strategies we used and experiences we gained as part of the tournament season this year.

Alan Tan, MENTOR, 49ERS STEM LEADERSHIP INSTITUTE

Oil Cleaner

We are creating a device that gets rid of oil spills by collecting the oil from the ocean. We have been researching some ways oil can be separated from water and will then use the technique to create a device that can filter oil from water and then trap it inside. In order to test our product’s effectiveness, we will be testing for completion of the oil and water separation. In addition, we will be running plant tests on the different water conditions to observe the effect that water quality has on plant life.

Sarah Rahman, MENTOR, 49ERS STEM LEADERSHIP INSTITUTE
Building a Community of STEM Sisters

We started by listing out each of our own differences, both visible and non-visible. Then we came up with words that people associate with these differences. Some words are positive, while others are negative. After all our brainstorming, we put together videos of all of our STEM Sisters embracing their differences. The videos were recorded using iPads, a green screen, and iMovie. We all used different animations and some of us used background music, too. At the conference, we will have a Chromebook with the videos playing, as well as printed QR codes on a poster board for the participants to follow our videos.

Justine Sares, MENTOR, JOHN MCCANDLESS STEM CHARTER SCHOOL

The Wild Fire Prevention Plan

In this project we educated the community about the importance of having sprinklers and fire extinguishers that may serve to help them in case of a severe situation.

Lucy Rivera, MENTOR, LEADERSHIP PUBLIC SCHOOL, HAYWARD

Alarm that Wakes Different Types of People

In this study we explored different sounds that come for different people and activities.

Lucy Rivera, MENTOR, LEADERSHIP PUBLIC SCHOOL, HAYWARD

PTSD Eliminate

The project will be to create either an app or an instrument that calms victims of PTSD when they’re getting anxious.

Lucy Rivera, MENTOR, LEADERSHIP PUBLIC SCHOOL, HAYWARD

Book Transcriber

In this project, we developed an easier way to copy and paste quotes from a book to a Google document.

Lucy Rivera, MENTOR, LEADERSHIP PUBLIC SCHOOL, HAYWARD

Memory Store

We will develop a device to try to help people remember those beautiful memories that they do not get to keep. It will be for people with Alzheimer’s, but it can also be for people who want to see their memories.

Lucy Rivera, MENTOR, LEADERSHIP PUBLIC SCHOOL, HAYWARD

RealLove

We created an app for a person in a relationship to input common or uncommon things that are bad in the relationship. The app gives personalized advice based on compiled, crowdsourced information.

Lucy Rivera, MENTOR, LEADERSHIP PUBLIC SCHOOL, HAYWARD

Zoo Habitat PBL

Teams of fourth graders created zoo habitats that responded to our PBL driving question: How can we create an ethical habitat for two given animals? This project started with a series of life science lessons about plant and animal structures as well as lessons on what ethics are and what it means to be ethical. The students then chose a biome and did research on their two randomly selected animals. From there, they designed a habitat that would both meet the needs of their animals and be an ethical home for them. The students created two scaled blueprints for their habitats, a bird’s eye view and a visitor’s view. The students created signs to go in front of their exhibits that includes a drawing they did of their animal and information on their animal and its needs. Some components of the sign will also be written in Mandarin, such as the name of the animal and it’s habitat. Lastly, the students created an interactive component using MakeyMakey that added sounds, close-up pictures, or videos of their animal and the habitat they created. The students presented their designs to their schoolmates, parents, and experts in related fields such as architects and animal care.

Robin Boynton, MENTOR, BULLIS CHARTER SCHOOL

Building Bridges in Earthquake Country: From the Past to the Present

The students will build a variety of bridges in relationship to tension and compression in Earthquake Country.

Lisa Ernst, MENTOR, ALICE FONG YU K-8 SCHOOL

Building Bridges in Earthquake Country: From the Past to the Present

The students will be demonstrating their bridges in Chinese and English and align their explanations to the CA NGSS.

Lisa Ernst, MENTOR, ALICE FONG YU K-8 SCHOOL
Dr. Edith “Edie” Widder, CO-FOUNDER, CEO AND SENIOR SCIENTIST AT THE OCEAN RESEARCH & CONSERVATION ASSOCIATION (ORCA) AND 2016 CA STEM SYMPOSIUM KEYNOTE

“\textit{It was a great event! I would highly recommend it to all California educators!}”

-STEM SYMPOSIUM ATTENDEE
CONFERENCE WELCOME

Shelly Masur, CEO OF CALIFORNIANS DEDICATED TO EDUCATION FOUNDATION

Shelly Masur is the CEO of Californians Dedicated to Education Foundation. She brings over twenty years of successful experience working as an educational leader with youth-serving nonprofits and in 2013 was named as one of the “100 Women of Influence” by the Silicon Valley Business Journal. She is a City Council Member in Redwood City and a former school board member in the Redwood City School District in San Mateo County.

INTRODUCTION

Lupita Cortez Alcalá, CHAIR, CALIFORNIA COMMISSION OF THE STATUS OF WOMEN AND GIRLS

Lupita Cortez Alcalá joins the California Student Aid Commission from the California Department of Education where she served as Deputy Superintendent of Instruction and Learning Support. She is currently Chair of the California Commission on the Status of Women and Girls, as the designee for State Superintendent of Public Instruction Tom Torlakson. She has spent her career championing better educational outcomes for students, including advocacy for STEM education. Ms. Alcalá holds a bachelor’s degree in political science from the University of California, San Diego and a master’s degree from Harvard University School of Education.

INTRODUCTION

Tom Torlakson, STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

As elected chief of schools for all of California, Tom Torlakson oversees the education of nearly 6.3 million children attending over 10,000 schools in more than 1,000 districts across the state.

He began his career as a science teacher and high school cross-country coach - his teams winning 12 championships before Torlakson went on to be elected to the Antioch City Council, Contra Costa County Board of Supervisors, and the California State Assembly and Senate. In the Legislature, he led successful efforts to improve student health, cut the dropout rate, develop the largest system of afterschool programs in the nation, and the largest career technical education programs in the nation. Torlakson served as Acting Governor for three days in 2016, the first time a State Superintendent assumed this role. (You might ask him about how it went…)

INTRODUCTION

Jenelle Ball, EDUCATOR

Jenelle Ball has been teaching College prep chemistry and Advanced Placement Chemistry at Chico High School since 1986. She also is the Science Department Chair. Jenelle was the 2015 recipient of the James Bryant Conant Award from the American Chemical Society for excellence in high school teaching. Jenelle is currently the President of the American Association of Chemistry Teachers. She has a BS in Chemistry from California State University at Chico, an MS in Chemistry from University of California at Santa Cruz and an MA in Science Education from University of California, Santa Barbara. Jenelle’s passion is to make chemistry accessible to students while maintaining high standards that prepare students for further study. She is also dedicated to supporting all teachers of chemistry.

INTRODUCTION

Dean Reese, EDUCATOR

Dean received his bachelor’s degree in Physics and Astronomy from the University of Massachusetts, Amherst in 2002. Currently, he is the IB Coordinator at Tracy High School. In addition to coordinating, he also teaches the Makerspace and Physics class. Throughout his 16 years as an educator at Tracy High School he has advised the Tracy High Earth Club, Scientifically Speaking Club, and Computer Programming Club. He has been a Master Teacher for Lawrence Livermore National Laboratory’s Education Program since 2007 and currently instructs in the Computer Simulation Teacher Research Academy. In 2011, Dean was awarded the Cortopassi Family Foundation Excellence in Science Teaching Award. Dean was involved as an instructor for the SIMMS (Secondary Integration of Modeling in Math and Science) Project with the intent of developing computer-modeling skills for high school science and math teachers within the San Joaquin County. Dean is a National Board Certified Teacher in Adolescent and Young Adult Science. He currently serves on the Instructional Quality Commission, an advisory board to the California State Board of Education.
Captain Mark Kelly, NASA Space Mission Commander

NASA space mission commander and American hero Captain Mark Kelly demonstrates how focus, dedication and persistence can help you tap into your potential to succeed in any competitive setting.

With an extraordinary career of service to our military, our nation and humanity, Mark has secured his place in history as a role model, modern-day pioneer, and leader of distinction. Together with his identical twin brother, Scott, he has laid the groundwork for the future of space exploration as the subjects of an unprecedented NASA study on how space affects the human body.

Mark captivates audiences with lessons learned from his extensive travels and experiences in the Navy, outer space and on the ground. From leading teams in some of the most dynamic environments imaginable, to the thrill of spaceflight, and the recovery and resilience of his wife, Gabrielle Giffords, he reveals the foundations for success so you can accomplish your mission in life and work.

TOPIC: Endeavour to Succeed

For Mark Kelly, focus equals success - even in the face of adversity. Personifying the best of the American spirit, Kelly is a homegrown hero who was a combat pilot in Iraq, an astronaut on four space shuttle missions, and commander of the final flight of Space Shuttle Endeavour. On January 8, 2011, Captain Mark Kelly would face the toughest challenge of his life when an assassination attempt was made on his wife, former Congresswoman Gabrielle Giffords. His dedication to family and Giffords’s road to recovery would captivate the nation.

Captain Mark Kelly has combined teamwork, leadership, communication, and family in an unwavering commitment to succeed. He will show us how to accomplish our mission while maintaining the love and devotion to family that is the foundation of true success.
Across the CSU's 23 campuses, STEM leaders are developing the talent and innovation—including the world-class teacher workforce—that support California’s economy. The CSU salutes the Maker Certificate Program, led by Sonoma State University and the Sonoma County Office of Education, for their work with the next generation of maker educators. The Maker Certificate Program offers a series of mini-courses for people seeking to lead maker activities in schools, clubs, community centers, and other organizations. Please visit the Makerspace near Exhibit Hall to learn more about the maker movement and the certificate program.
SESSION ID: 528
Fractals: Integrating STEAM Content Using the Crosscutting Concept of Patterns
Room: 2000
PATHWAYS: AE, MSA
Fractals are patterns found in nature, mathematics, and art. During this session, take part in hands-on activities to learn how fractals can be used to demonstrate integrated learning and thinking through the CA NGSS Crosscutting Concept of Patterns.

Doron Markus, SCIENCE AND ENGINEERING COORDINATOR, SAN MATEO COUNTY OFFICE OF EDUCATION
Kim Bambao, MATH COORDINATOR, SAN MATEO COUNTY OFFICE OF EDUCATION

SESSION ID: 31
Integrated STEAM Lesson in an Elementary Classroom
Room: 2002
PATHWAYS: MSA
This interactive workshop shows participants how an elementary science unit is organized to teach integrated STEAM lessons, which support literacy for English Language Development. Participants experience the lesson, debrief, and discuss how to modify it for specific classrooms.

Sandi Yellenberg, SCIENCE COORDINATOR, SANTA CLARA COUNTY OFFICE OF EDUCATION

SESSION ID: 499
Creating and Managing a 4 C’s Classroom
Room: 2004
PATHWAYS: AE, MSA
CA CCSS, ELA, CA NGSS, PLC, 4 C’s...WTF! (What’s This For?) Join us where you will learn simple and easy ideas and strategies to implement the next day. Come find the path to a 4Cs Nirvana with Ralph the Wonder Wombat!

Thomas Kerman, TEACHER, COACH, HESPERIA UNIFIED SCHOOL DISTRICT
Robert Hargis, TEACHER/INSTRUCTIONAL COACH, HESPERIA UNIFIED SCHOOL DISTRICT

SESSION ID: 156
Maker Math: Putting the “Hands-on” Back into Math
Room: 2006
PATHWAYS: CTE, MM, MSA
Help your students love math! Engineering design challenges are the perfect partner for math concepts. Come experience a CA NGSS and CA CCSS aligned design challenge lesson that will give you the tools you need to get math and science back together!

Liz O’Hare, PROFESSIONAL DEVELOPMENT SPECIALIST, THE TECH MUSEUM OF INNOVATION
Michael Shoesmith, AFTER-SCHOOL SITE DIRECTOR, YMCA OF SILICON VALLEY

SESSION ID: 15
Navigating the Process of Developing a STEAM School
Room: 2007
PATHWAYS: CTE, LA, MM
How can you navigate the process of developing a STEAM center? This presentation discusses problems, solutions, and outcomes for Makerspace design and planning, and engages participants in activities to implement collaborative visioning workshops for successful indoor/outdoor learning environments.

Olivia Graf Doyle, DESIGN PRINCIPAL, ARCHITECTURE FOR EDUCATION
John Puglisi, SUPERINTENDENT, RIO SCHOOL DISTRICT

SESSION ID: 328
Full Steam Ahead with the Manteca USD Community Makerspace
Room: 2008
PATHWAYS: AE, MM
See how Manteca Unified School District has used the maker movement to provide STEAM activities for students and families both inside and outside the school day. Gain a district perspective as well as some nuts and bolts ideas.

Stephan Unterholzner, SCIENCE TEACHER, MANTECA UNIFIED SCHOOL DISTRICT
Kathy Ruble, TEACHER, MANTECA UNIFIED SCHOOL DISTRICT
SESSION 1 PRESENTATIONS

SESSION ID: 122
Family Science Nights: What’s in the Air?
Room: 2009
PATHWAYS: AE, MM, MSA

Participants will experience hands-on activities that can be used for family nights or STEAM day events. Participants will engage in activities utilizing air flow. Additionally, participants will need to utilize the Engineering Design Process.

Dave Chun, Director, K-12 MATHEMATICS, SACRAMENTO COUNTY OFFICE OF EDUCATION
Jon Rhodea, SCIENCE CURRICULUM SPECIALIST, SACRAMENTO COUNTY OFFICE OF EDUCATION

SESSION ID: 205
Candy Density Lab and Engineering Challenge
Room: 2012
PATHWAYS: AE, GW, MSA

Do your students like candy? If so, come to this workshop to learn how to use candy to facilitate floating, sinking, dissection, buoyancy, density, and engineering activities in your classroom. You will walk away with a 5E Candy STEAM lesson!

Julie Sutton, TEACHER, MOORPARK UNIFIED SCHOOL DISTRICT

SESSION ID: 236
STEAMing Through the Months: It’s Elementary
Room: 2020
PATHWAYS: EL, MM, MSA

Experience hands-on STEAM projects for budding scientists, technologists, engineers, makers, and poets that are student-centered around monthly-themed holidays and celebrations. Participate in classroom-tested projects, daily calendar-themed starters and go home with resources that will engage elementary students throughout the year.

Dr. Gary Carnow, EDUCATOR, CLEVER THINKERS

SESSION ID: 32
STEM Education in the San Francisco Math Circle
Room: 2022
PATHWAYS: MSA

The San Francisco Math Circle is an alternative math enrichment program designed to develop a positive attitude towards mathematics by introducing youth to elements of mathematical culture. See how their model and philosophy aligns with content standards in this hands-on workshop.

Emily McCullough, DIRECTOR, SF MATH CIRCLE; PROJECT COORDINATOR, CENTER FOR SCIENCE AND MATH EDUCATION, SAN FRANCISCO STATE UNIVERSITY
Larry Horvath, PROFESSOR, GRADUATE SCHOOL OF EDUCATION; INTERIM CO-DIRECTOR, CENTER FOR SCIENCE AND MATH EDUCATION, SAN FRANCISCO STATE UNIVERSITY

SESSION ID: 376
Phenomena and Storylines: What’s the Big Deal?
Room: 2011
PATHWAYS: AE, MSA

Everyone seems to be talking about phenomena and storylines these days. Come learn why they are so important and how to develop an instructional segment around them that makes learning come alive for every student!

Kristin Majda, STEM EDUCATOR & CONSULTANT, PRESIDENT OF GCSN, GOLD COAST SCIENCE NETWORK (GCSN) CHAPTER OF THE CA SCIENCE TEACHERS ASSOCIATION
Amanda McGee, DIRECTOR OF CURRICULUM DEVELOPMENT, ACCELERATE LEARNING

STRANDS

1. STEAM Across Grades and Disciplines
2. Integrating Environmental Literacy in STEAM Disciplines
3. Design Thinking and Engineering: Where Art Meets Science
4. Supporting STEM/STEAM through 21st Century Learning Environments
5. Learning Beyond the Classroom
6. Preparing a 21st Century Workforce

PATHWAYS

CTE Career Technical Education
AE Access and Equity
MM Maker and Makerspaces
GW Girls and Young Women
EL Early Learning
LA Leadership and Administration
ELL English Language Learners
MSA Making Standards Come Alive

#CASTEAM17 | WI-FI: CASTEAM17 / casteam17
SESSION ID: 166
Discourse and STEAM Instruction in Linguistically Diverse Classrooms
Room: 2024
PATHWAYS: AE, ELL, MSA
Join the Exploratorium Institute for Inquiry to examine discourse in linguistically diverse elementary STEAM classrooms. Participants will engage in a hands-on investigation, reflect on their use of discourse, and examine videos of discourse in classrooms.
Fred Stein, SENIOR SCIENCE EDUCATOR, EXPLORATORIUM INSTITUTE FOR INQUIRY

SESSION ID: 550
An Inside Look at the 49ers Professional Development for Educators
Room: 3000
PATHWAYS: AE, LA, MSA
The 49ers Professional Development supports educators by exploring topics including STEAM integration and project-based learning. Using football as a platform, the 49ers drive the importance of creating relevance in every learning opportunity.
Sofy Navarro, STEAM EDUCATION MANAGER, SAN FRANCISCO 49ERS
Bronwen Phillips, SENIOR STEAM EDUCATOR, SAN FRANCISCO 49ERS

SESSION ID: 254
Learning by Making for STEM Success
Room: 3001
PATHWAYS: CTE, MM, MSA
This interactive workshop introduces Learning by Making, an integrated STEM curriculum developed for ninth-grade students. This CA NGSS-aligned curriculum challenges students to design, construct, make measurements, and analyze data that are personally relevant and critical to the future of our planet.
Lynn Cominsky, PROFESSOR AND CHAIR, SONOMA STATE UNIVERSITY
Carolyn Peruta, EDUCATION SPECIALIST, SONOMA STATE UNIVERSITY

SESSION ID: 152
The Science and Story of CA NGSS
Room: 3002
PATHWAYS: AE, GW, MSA
Storytelling has long been part of human communication and has the power to engage students and increase retention of information. Come experience how story components such as history, fiction, music, media, and hands-on activities can help students learn scientific topics.
Anna Van Dordrecht, CURRICULUM COORDINATOR FOR SCIENCE, SONOMA COUNTY OFFICE OF EDUCATION
Dan Blake, DIRECTOR OF INNOVATION AND PARTNERSHIPS, SONOMA COUNTY OFFICE OF EDUCATION

SESSION ID: 96
District Model to Support CA NGSS in the Elementary Classroom
Room: 3003
PATHWAYS: LA
How do you bring science back to your elementary classrooms? See our district model of support for elementary teachers transitioning to CA NGSS. This model helps teachers understand the CA NGSS conceptual shifts and how to incorporate phenomena in an inquiry-based approach.
Doug Henderson, STEAM COORDINATOR, VAL VERDE UNIFIED SCHOOL DISTRICT
Jennifer Doskocil, COORDINATOR-ELEMENTARY EDUCATION, VAL VERDE UNIFIED SCHOOL DISTRICT

SESSION ID: 59
Advancing and Strengthening STEM and Environmental Literacy through Local Control
Room: 3004
PATHWAYS: AE, LA
Gain a deeper sense of how to advance in one’s district/school through engagement of district leadership and stakeholders. Participants will work with colleagues and session leaders to uncover concrete strategies and actions for incorporating STEM and Environmental Literacy supports district-wide.
Vanessa Lujan, PROGRAM DIRECTOR, LAWRENCE HALL OF SCIENCE, UNIVERSITY OF CALIFORNIA, BERKELEY

STRANDS
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PATHWAYS
CTE Career Technical Education
MM Maker and Makerspaces
EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive
SESSION I PRESENTATIONS

SESSION ID: 412
WOW! Design a Program Code to Return the Robot Mouse
Room: 3005
PATHWAYS: EL, ELL, MSA

Design the habitat and discover the program code needed to get the Robot Mouse back safely to Mars. This session is adaptable for grades K-8. Focus will be on integrating curriculum and standards in an exciting and challenging way.

Professor Judy Williams, CHAPMAN UNIVERSITY / ETA-HAND2MIND

SESSION ID: 487
Computer Science Education: How To Benchmark & Improve Your Offerings!
Room: 3014
PATHWAYS: AE, CTE, MSA

Computer science offerings are critical for preparing students for the 21st Century workforce. Learn how to benchmark and improve your CS programs and complete hands-on activities that will help you better counsel students regarding real-world coding and ancillary career opportunities.

Laura Farrelly, COO, COURAGION

SESSION ID: 458
Songwriting For The Science Geek: Using Music to Teach STEM
Room: 3020
PATHWAYS: AE, ELL, MSA

Join veteran STEM educator and award-winning geek rock star, Tim Griffin, for a lightning workshop on using music as a fun, effective tool for enhancing STEM instruction. Evidence and free online resources will be shared.

Tim Griffin, LEAD TEACHER, GRIFFINED

SESSION ID: 334
Coffee on Mars! Engineering Design Challenges for Grades 6-12
Room: 3022
PATHWAYS: MSA

Design a coffee cup for Martians! This session brings to life 21st Century problem-solving skills through engineering design challenges. Activities focus on collaboration and the design process allowing multiple solutions to problems. Modifications and extensions presented for numerous grades/abilities.

Christine Hirst, AEROSPACE ENGINEERING COORDINATOR, STEM, ASTRONOMY TEACHER, ADJUNCT FACULTY, WILLIAM S. HART DISTRICT, COLLEGE OF THE CANYONS
Daniel Bernhardt, 6TH GRADE SCIENCE/MUSIC TEACHER, MARTIN LUTHER KING MIDDLE SCHOOL

SESSION ID: 523
Partnerships for STEAM: Access to Engineering Careers for All
Room: 3024
PATHWAYS: AE

For the past 29 years, STEM equity and access have remained at the core of Great Minds in STEM. The Presentation will illustrate best practices along with a STEM challenge that motivates students to see themselves as future STEM professionals.

Ana Park, CHIEF EXECUTIVE OFFICER, GREAT MINDS IN STEM
Lupe Munoz-Alvarado, LEAD, GREAT MINDS IN STEM

SESSION ID: 17
Global Watershed Project: Water Chemistry and Restoration
Room: Nook 301
PATHWAYS: MSA, CTE, AE

A global collaborative project for students in secondary schools, that seeks to collect data from water sources (e.g. rivers, creeks) in different parts of the world, in order to see global and local changes in ecosystems.

Heather Wygant, TEACHER ON SPECIAL ASSIGNMENT, SANTA CLARA UNIFIED SCHOOL DISTRICT
Susan Paulsen, SCIENCE TEACHER, MORGAN HILL UNIFIED SCHOOL DISTRICT

STRANDS

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PATHWAYS

CTE Career Technical Education
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EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive
SESSION ID: 290
Project Lead the Way K-12 STEM Pathway
Room: Nook 302
PATHWAYS: MSA, EL, LA
Overview of a STEM curriculum that provides training and ongoing support to classroom teachers. Participants will experience a module during the workshop to see how PLTW curriculum can be used across the curriculum.
Ashlee Frades, TEACHER, PLTW MASTER TEACHER, STOCKTON UNIFIED

SESSION ID: 192
Making the Connection for Action in Your Community
Room: Nook 303
PATHWAYS: AE, GW
Lupita Cortez Alcala, COMMISSIONER, CALIFORNIA COMMISSION ON THE STATUS OF WOMEN & GIRLS
Nancy Kirshner-Rodriguez, EXECUTIVE DIRECTOR, CALIFORNIA COMMISSION ON THE STATUS OF WOMEN & GIRLS

SESSION ID: 540
Team Time
Room: Nook 304
PATHWAYS: LA
Gather your team in this meeting space and plan how you will implement what inspired you or create a presentation to share when you return.
Neal Bottom, FELLOW, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 293
Designing a Makerspace and Makerspace Program
Room: Stage
PATHWAYS: MM
Set up a successful Makerspace Program. Learn how to create a Makerspace or Makercorner in your classroom that supports project-based learning, design thinking and CA NGSS. Low cost solutions will be included in the discussion.
Lynn Reed, MAKERSPACE DIRECTOR, BULLIS CHARTER SCHOOL
Mick Coleman, MAKERSPACE DIRECTOR, BULLIS CHARTER SCHOOL
THE SAN FRANCISCO 49ERS ORGANIZATION IS PROUD TO SUPPORT
STEAM EDUCATION
Participate in Hour of Code™ using CS First

CODING ACTIVITY

Create your own Google logo

Start: g.co/CSFirst/CDESTEAM

LEARN MORE AT OUR SESSION

Continuing Momentum Beyond Hour of Code with CS First and Google

SESSION 5    |    ROOM 3000

Keep the momentum of CS Ed Week going with CS First and other Google CS Education initiatives. Hear from teachers who used the latest CS First HOC activity with their students, and you’ll get the opportunity to try it too!

More computer science sessions at the symposium

Creative Computing: A Road to CS4All
SESSION 2    |    ROOM: 2004

How to Host a "Family Code Night" at Your School
SESSION 3    |    ROOM: 3001

Coding Across the Curriculum: Integrating CS into Core Academic Courses
SESSION 4    |    ROOM: 2010

California State Standards for K-12 CS
SESSION 4    |    ROOM: 3014

Art + Math + Code + Creativity = Animations
SESSION 5    |    ROOM: 3024

CSforCA: Computer Science for All in California
SESSION 6    |    ROOM: 2000

Leveraging Corporate Partnerships for CS Expansion within Districts
SESSION 7    |    ROOM: 3003

The ‘Hour of Code™’ is a nationwide initiative by Computer Science Education Week (csedweek.org) and Code.org to introduce millions of students to one hour of computer science and computer programming.
### SESSION ID: 445

**Pixel Art Scaffold from Google Sheets to Recycled Art Project**

**Room:** 2000  
**PATHWAYS:** CTE, MM

In the Pixel Art scaffolding project presentation the presenter will take you through creating basic pixel art pieces using a template in Google Sheets through creating a recycled art piece. Supplementary activities for all grade levels will be provided.

**Debra Erdmann**, MULTIMEDIA TEACHER, OXNARD HIGH SCHOOL  
**Jay Sorensen**, COORDINATOR OF EDUCATIONAL TECHNOLOGY, OXNARD UNION HIGH SCHOOL DISTRICT

### SESSION ID: 393

**CA NGSS for All Students Using Four-Part Performance Tasks**

**Room:** 2002  
**PATHWAYS:** AE, ELL, MSA

Come learn how to implement and design three-dimensional, four-part performance tasks to help every student find success with the CA NGSS. Sample curriculum will be shared as well as lessons learned while shifting our teaching and grading practices.

**Cari Williams**, Digital Learning Coach, Tustin Unified School District  
**Matt Ireland**, SCIENCE AND STEAM TEACHER, PIONEER MIDDLE SCHOOL

### SESSION ID: 62

**Creative Computing: A Road to CS4All**

**Room:** 2004  
**PATHWAYS:** AE, CTE, MSA

Follow the development of a course integrating computer science concepts and programming into an art course that fulfills the UC “F” Visual and Performing Arts requirement, created to provide access to authentic CS education to girls and minorities historically underrepresented in CS.

**Jennie Lyons**, MS., SAN FRANCISCO UNIFIED SCHOOL DISTRICT  
**Chris Barrious**, STEM EDUCATION TECHNOLOGY

### SESSION ID: 526

**Innovation! Solving Global Energy Challenges in Engaging, Hands-On Engineering Projects**

**Room:** 2006  
**PATHWAYS:** MSA

Participants will directly experience innovation, collaboration, and creativity in Engineering Design through a Green Engineering project. They will together apply STEAM knowledge in planning a model insulated home, addressing global energy consumption challenges, and using CA NGSS and CA CCSS practices.

**Joan Bissell**, DIRECTOR, TEACHER EDUCATION AND PUBLIC SCHOOL PROGRAMS, CALIFORNIA STATE UNIVERSITY  
**Bob Capriles**, MATH AND ENGINEERING TEACHER, FREMONT UNION HIGH SCHOOL DISTRICT

### SESSION ID: 519

**Creating a Middle School STEAM Elective**

**Room:** 2007  
**PATHWAYS:** CTE, MM, MSA

Learn how Cayucos School has created a STEAM elective around project-based learning in the fields of architecture, animation, forensics, and more. Jake Rideout, STEAM TOSA, will walk participants through the process of backwards-planning a project that combines multiple subject areas.

**Jake Rideout**, STEAM AND MEDIA TOSA, CAYUCOS ELEMENTARY AND MIDDLE SCHOOL
SESSION II PRESENTATIONS

SESSION ID: 478
Chemical Engineering for Middle School
Room: 2008
PATHWAYS: CTE, MM, MSA
Find out how to use chemical engineering and material science to make high strength composite materials from recyclables, design water filtration units to reclaim dirty water and more! The activities presented are “Monday Ready” and align perfectly with the CA NGSS.

Julie Smith, SCIENCE DEPARTMENT CHAIR, TEACHER, LENNOX MIDDLE SCHOOL - SCHOOL OF ENGINEERING
Christina Aranzazu, TEACHER, LENNOX MIDDLE SCHOOL - SCHOOL OF ENGINEERING

SESSION ID: 496
International Space Station Microgravity: Mass vs. Weight
Room: 2009
PATHWAYS: AE, CTE, MSA
Come learn about mass and weight. Engage in “out of this world” hands-on, standards-aligned STEM experiments. Analyze data, create charts, tables, and graphs, then compare your results with similar experiments on board the International Space Station in microgravity by NASA astronauts.

Barbie Buckner, EDUCATION SPECIALIST, NASA ARMSTRONG FLIGHT RESEARCH CENTER

SESSION ID: 145
Lennox Creates an Engineering School for Underrepresented Students
Room: 2011
PATHWAYS: ELL, LA, MM
The Lennox Schools of Engineering were created from the belief that the children of our community deserved a transformative experience. Lennox employs four engineers to work directly with students. Hear how we did it, and do some hands-on activities.

Salvador Martin, ASSISTANT PRINCIPAL, LENNOX MIDDLE SCHOOL
Farnoosh Aguilar, PRINCIPAL, LENNOX ELEMENTARY SCHOOL DISTRICT

SESSION ID: 128
3D Printing for the K-6 Classroom
Room: 2012
PATHWAYS: MM, MSA
Get ready to teach 3D printing! Empower your students with authentic, real-world project-based learning using this awesome tool. Explore 3D Modeling scaffolds and project management for your K-6 environment. Free resources, CCSS/NGSS lessons, and teaching slideshow provided.

Gina Thackrey, STREAM TOSA, SOLANA BEACH SCHOOL DISTRICT

SESSION ID: 33
Coding Across the Curriculum
Room: 2010
PATHWAYS: MSA
We begin discussing the benefits of integrating coding into all subject areas. The presenter then demonstrates how coding can be used for summative projects across curricular areas, including example projects and rubrics. Finally, participants will create their own Scratch project.

Erin Dunroe, TEACHER, LAKE CENTER MIDDLE SCHOOL

SESSION ID: 54
Designing Writing Assignments to Affirm Student Goals and Cultural Capital
Room: 2020
PATHWAYS: AE
Participants will be empowered to implement reflective journaling in their own classroom. They will be able to recognize different types of cultural capital in order to affirm students and create a more inclusive and supportive learning environment.

Khanh Tran, UNDERGRADUATE STUDENT, SAN FRANCISCO STATE UNIVERSITY CSME
Alegra Eroy-Reveles, ASSISTANT PROFESSOR OF CHEMISTRY AND BIOCHEMISTRY, SAN FRANCISCO STATE UNIVERSITY

STRANDS
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5 Learning Beyond the Classroom
6 Preparing a 21st Century Workforce

PATHWAYS
CTE Career Technical Education
MM Maker and Makerspaces
EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive
SESSION II PRESENTATIONS

SESSION ID: 428
Designing Plant Packages with the Consumer in Mind
Room: 2022
PATHWAYS: AE, GW, MSA

Engage in a hands-on, elementary STEAM lesson - engineering a package that can meet the needs of a plant and attract consumers. Consider how engineering design challenges can be modified to develop meaningful STEAM activities.

Katy Hutchinson, PROFESSIONAL DEVELOPMENT PROVIDER, MUSEUM OF SCIENCE - BOSTON

SESSION ID: 436
Interactive and Engaging Agricultural Interactive Videoconferencing Programs with KCOE
Room: 2024
PATHWAYS: EL

KCOE is committed to providing engaging and educational content through the use of interactive videoconferencing. Your students will enjoy STEM-focused agricultural lessons and activities that provide them a better understanding of where their food and fiber originates.

Haley Moreno, TEACHER, CURRICULUM & INSTRUCTIONAL TECHNOLOGY, KINGS COUNTY OFFICE OF EDUCATION

SESSION ID: 201
One Step Closer to Mars with Aquaponics: STAR Activity!
Room: 3000
PATHWAYS: MSA

Discover how the Mars generation can contribute to long distance space travel through real-world classroom inquiry and engineering design using replicate aquaponics systems. Leave with a high-engagement science inquiry and engineering design unit developed during summer research as NASA Ames.

Anne McHugh, SCIENCE TEACHER & STAR FELLOW, BEAVERTON SCHOOL DISTRICT & STAR PROGRAM, NASA AMES
John Keller, STAR PROGRAM DIRECTOR CAL POLY SAN LUIS OBISPO

SESSION ID: 443
STEAM Traveler: Using Multicultural Folktales to Enrich STEAM
Room: 3001
PATHWAYS: MSA

In this workshop participants will travel through three well developed 5E units and create art pieces that weave multicultural folktales from Africa, Central America, and Asia with STEM instruction.

Maria Blue, NASA MASTER TEACHER, SAUGUS TEACHER OF THE YEAR, EMBLEM ACADEMY
Teresa Mobley, TEACHER, EMBLEM ACADEMY

SESSION ID: 35
Engineering in Early Childhood: Bringing Science and Mathematics to Life
Room: 3002
PATHWAYS: EL

Design and construct using readily accessible materials, explore resources to support EL in science and mathematics, examine the alignment between the California Preschool Learning Foundations and the Kindergarten CA NGSS and CA CCSS: Mathematics, and engage with other early childhood educators.

Sheila Arnold, COORDINATOR OF INSTRUCTIONAL PROGRAMS, ORANGE COUNTY DEPARTMENT OF EDUCATION
Kimberly Norman, PROFESSOR, CALIFORNIA STATE UNIVERSITY, FULLERTON

SESSION ID: 136
Building a Community of Curious Learners in the Early Years
Room: 3003
PATHWAYS: AE, EL, MSA

Experience an action-driven inquiry lesson sequence that is all about tapping into and building on an Early Learner’s curiosities. This session is hands-on STEAM learning through collaborative investigation. Participants will engage in methods that engage all learners.

Stephanie Gottfried, TEACHER, ARROYO ELEMENTARY, ONTARIO-MONTCLAIR SCHOOL DISTRICT
Mary Walls, CREEC COORDINATOR, CREEC REGION 10

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#CASTEAM17 | WI-FI: CASTEAM17 / casteam17
SESSION II PRESENTATIONS

SESSION ID: 311
Programming Ozobots to Engage Content Across K-5 Curriculum
Room: 3004
PATHWAYS: EL, MSA

Dive into the versatile world of Ozobots. These bots teach the fundamentals of coding and connect directly to the content areas. Participants will explore and code the Ozobots and walk away with lessons to use immediately in their classroom.

May Samari, STEM TEACHER, LOS ALAMITOS UNIFIED SCHOOL DISTRICT
Amy Bayani, TEACHER/ CO-FOUNDER/ CURRICULUM DEVELOPER, STems of ONE TREE

SESSION ID: 186
Science and Service-Learning
Room: 3005
PATHWAYS: AE, MSA

Engage all learners in your classroom by providing service-learning opportunities and civics instruction to make the science standards come alive, address access and equity, and as a result, extend learning beyond the classroom.

Janet Mann, CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION
Shannon Gordon, CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 158
The Art of STEAM Notebooks
Room: 3014
PATHWAYS: MSA

STEAM Notebooks: The visual and spatial representation of knowledge is the basis for accurately describing data in written form and provides an access point for analyzing and reflecting on that data.

Keri Porter, ASSISTANT PRINCIPAL, GEORGE DE LA TORRE ELEMENTARY SCHOOL

SESSION ID: 344
Cracking the Code: Creating Equity and Access in Computer Science
Room: 3020
PATHWAYS: AE, GW, LA

Engage in a break-out activity that educates and advocates for computer science programs for all students everywhere. Participants will walk away with access to Code.org curriculum and resources, instructional strategies, and tools to build equity in CS for all.

Christen Schwartz, MATH COORDINATOR, CONTRA COSTA COUNTY OFFICE OF EDUCATION
Anthonette Peña, DIRECTOR OF EDUCATION, ELEMENTARY INSTITUTE OF SCIENCE

SESSION ID: 294
Bridging the Gap for ELL’s Using STEM
Room: 3022
PATHWAYS: AE, ELL, MSA

This interactive, fun and hands-on workshop will focus on strategies to increase student achievement and understanding for ELL’s in STEM classrooms. Participants will engage in learning activities and strategies that bolster students’ academic language, discourse, and science vocabulary development skills.

Greg Nicholas, SCIENCE, STEM COORDINATOR, RIVERSIDE COUNTY OFFICE OF EDUCATION

SESSION ID: 218
Just Keep Swimming, Just Keep Swimming: Creating a Community STEAM Center
Room: 3024
PATHWAYS: AE, CTE, MM

Through perseverance and determination a team of educators, across two institutions, have built the beginning foundations of a family STEAM facility, called the Apple Valley Center for Innovation. Come hear our story and experience a sample Family STEAM Night.

Sean Gillette, TEACHER, APPLE VALLEY UNIFIED SCHOOL DISTRICT
Lisa Lamb, PRESIDENT/CEO, LEWIS CENTER FOR EDUCATIONAL RESEARCH

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PATHWAYS
CTE  Career Technical Education
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LA  Leadership and Administration
MSA  Making Standards Come Alive
SESSION II PRESENTATIONS

**SESSION ID: 395**

STEaM for One, and All for STEaM  
Room: Nook 301  
PATHWAYS: AE, ELL, GW  
STEaM for One, and All for STEaM explores options for educators to find the passions in the At-Opportunity student and connect them to community partners for career readiness. Relevance is key to reaching today’s “At-Risk” student.

Jeff Rivero, TEACHER-GREEN TEAM ADVISOR, MERCED UNION HIGH SCHOOL DISTRICT  
Jose Flores, CALIFORNIA ENVIRONMENTAL LITERACY EXPERT, GRID ALTERNATIVES

**SESSION ID: 146**

Beyond One Classroom:  
A District Approach to Computer Science  
Room: Nook 302  
PATHWAYS: AE, CTE, LA  
Join us to learn and discuss the development of a districtwide computer science pathway that integrates grades 7-12 and includes dual-enrollment opportunities through our community college partner at our schools.

Mariane Doyle, DIRECTOR, CAREER TECHNICAL AND ADULT EDUCATION, WILLIAM S. HART UNION HIGH SCHOOL DISTRICT

**SESSION ID: 505**

How to Organize and Implement a STEAM Camp  
Room: Nook 303  
PATHWAYS: GW, LA, MM  
We will cover how we organized and implemented a Spring Break STEAM camp for 330 of our students.

Matt Edwards, Educational Technology Coordinator, Merced County Office of Education  
Glenn Jones

**SESSION ID: 542**

Team Time  
Room: Nook 304  
PATHWAYS: LA  
Gather your team in this meeting space and plan how you will implement what inspired you or create a presentation to share when you return.

Neal Bottom, FELLOW, CALIFORNIA DEPARTMENT OF EDUCATION

**SESSION ID: 391**

Getting Started with Makerspaces  
Room: Stage  
PATHWAYS: MM  
Starting a Makerspace can be an overwhelming undertaking. I will help ease the burden by sharing my experience starting several Makerspaces. We will cover tools, program and budgeting along with plenty of time for questions and collaboration.

Rick Schertle, K-8 STEAM TEACHER, STEINDORF K-8 STEAM SCHOOL

#CASTEAM17  
WI-FI: CASTEAM17 / casteam17
SESSION ID: 312
Using Computational Thinking Mathematics in Games
Table #1
PATHWAYS: CTE, GW, MSA
Learn how to break down problems and utilize math to create fun interactive games using Scratch.
Kevin Chan, TEAM LEADER, SPARKSCS, CALIFORNIA STATE UNIVERSITY, EAST BAY
Janiene Langford, PROGRAM MANAGER, INSTITUTE FOR STEM EDUCATION

SESSION ID: 322
Adventures in STEAM: From Science Fair to Interactive STEAM Showcase
Table #3
PATHWAYS: AE, MM, MSA
This workshop tells Sonoma County’s story of transitioning a science fair to a STEAM Showcase. Participants will receive resources showing how traditional events, projects, and instruction can be modified to integrate STEAM areas and emphasize real-world purpose.
Casey Shea, CURRICULUM COORDINATOR FOR MAKER EDUCATION, SONOMA COUNTY OFFICE OF EDUCATION
Matt O’Donnell, TECH INNOVATION SPECIALIST, SONOMA COUNTY OFFICE OF EDUCATION

SESSION ID: 93
How to Implement a Robotics Challenge and STEAM Showcase!
Table #4
PATHWAYS: AE, CTE
Participants will explore the benefits of competitions to help students develop STEAM skills. We will share challenges and success of our district-wide Robotic Challenge and STEAM showcase to give all students an opportunity to participate and develop career skills.
Ruth Abatzoglou, CTE PROGRAM SPECIALIST, CTE- SANTA ANA UNIFIED SCHOOL DISTRICT
Zitlalpilli Luna, STEM AND CTE TEACHER, SANTA ANA UNIFIED SCHOOL DISTRICT

SESSION ID: 355
A District and University Partnership: Creating Middle School FAB Labs
Table #6
PATHWAYS: CTE, LA, MM
Learn how collaboration between a university engineering program and a K-12 district created middle school FAB Labs (Fabrication Lab) where students learn STEAM technical, teamwork, and creative thinking skills. We will share our story, showcase activities, and do hands-on activities.
Nga Le, TEACHER, SOUTH LAKE MIDDLE SCHOOL, IRVINE UNIFIED SCHOOL DISTRICT
Sam Ung, TEACHER, IRVINE UNIFIED SCHOOL DISTRICT

SESSION ID: 381
WonderLab: Building Bridges with STEAM
Table #7
PATHWAYS: EL, ELL, MM
WonderLab, a unique private/public-school partnership that nurtures students from diverse backgrounds to solve problems and pursue their passions in the MCDS Makers’ Lab. Student-directed experiences with STEAM-related curriculum provides a diverse setting that promotes the development of cultural competency skills.
Matt Pearson, DIRECTOR OF MAKERS LAB, MARIN COUNTRY DAY SCHOOL
Mare Manangan, TEACHER/CO-DIRECTOR OF WONDERLAB, MARIN COUNTRY DAY SCHOOL

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SESSION ID: 372
STEAM & the California Film Commission’s Career Readiness Program
Table #8
PATHWAYS: AE, CTE, GW
The California Film Commission administers the California Film and Television Tax Credit program. The program was created to increase film and television production jobs. Participants will leave with a clear idea of how STEAM interfaces with Film and TV production.
Nancy Rae Stone, PROGRAM DIRECTOR, CALIFORNIA FILM COMMISSION
Jack Mitchell, EDUCATIONAL PROGRAMS CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 255
The Study of Sound in a Collaborative Mashup!
Table #9
PATHWAYS: MM
Participants will be introduced to the Hillbrook Sound Project - a collaboration of science, music, art and writing for 3rd grade students. Learn how integrating these subjects with found objects is accessible to a range of age groups and backgrounds.
Jenny Jones, 3RD & 4TH GRADE SCIENCE TEACHER, HILLBROOK SCHOOL
Kristin Engineer, ELEMENTARY MUSIC TEACHER, HILLBROOK SCHOOL

SESSION ID: 14
Computer Science Unplugged
Table #10
PATHWAYS: AE, CTE
Learn fun ways to teach computer science concepts and computational thinking without the use of a computer including games, magic tricks, and art.
Jessica Allen, AP COMPUTER SCIENCE TEACHER, LENNOX ACADEMY

SESSION ID: 202
STEAM for Early Learners
Table #11
PATHWAYS: EL, MM, MSA
Hear examples of integrated STEAM units that weave ELA, social studies, Arts and CA NGSS standards together into engaging and academically-rich learning experiences for early learners. Learn how integrated STEAM units can foster student agency, critical thinking, and problem-solving skills.
Andrea McReynolds, 1ST GRADE TEACHER, K-2 TEAM LEADER, BULLIS CHARTER SCHOOL
Dana Kincaid, EDUCATOR, BULLIS CHARTER SCHOOL

SESSION ID: 217
From Concept to Reality: Building a High School Engineering Program
Table #12
PATHWAYS: CTE
Mt. Carmel High School provides a great example of how support from CTE created a strong engineering pathway at the high school. Staff from Mt. Carmel will present how they transformed an out-dated woodshop into a cutting edge engineering facility.
Karen Wytman, ENGINEERING TEACHER, MT CARMEL HIGH SCHOOL, POWAY UNIFIED SCHOOL DISTRICT
Katie Salo, ASSISTANT PRINCIPAL, MT. CARMEL HIGH SCHOOL, POWAY UNIFIED SCHOOL DISTRICT
SESSION ID: 469

Equity and Innovation: Exploring Cybersecurity Skills and Developing a School Cyber Team
Table #13
PATHWAYS: CTE

Come learn how to start a cybersecurity team at your school. Get information about competitions, developing teams, the virtual machine environment, and the difficulties and rewards of offering this program. Also, try out VMware to find vulnerabilities.

Tara Taylor, TEACHER, SWEETWATER UNION HIGH SCHOOL DISTRICT

SESSION ID: 363

Super Easy STEAM in a “Box” for Elementary Schools
Table #14
PATHWAYS: AE, ELL, MM

This workshop provides easy to use activities that educators can use to tie engineering, art, math and science to core learning curriculum in class through fun, engaging activities that build 21st Century skills such as problem-solving, collaboration, critical thinking, and communication.

Maria Rosenthal, INNOVATION SPECIALIST, DISCOVERY ELEMENTARY SCHOOL-SAN MARCOS UNIFIED SCHOOL DISTRICT

SESSION ID: 284

All Aboard the STEAM Train! Laying the Tracks for Success
Table #15
PATHWAYS: AE, CTE, LA

It takes vision and planning to create an engaging STEAM journey for students. No matter where you are in your process, we’ll help you inventory your resources, anticipate challenges, and plan next steps. Don’t miss the train! Destination: Success!

Soomin Chao, CURRICULUM COORDINATOR, TEMPLE CITY UNIFIED SCHOOL DISTRICT
Ethan Stocks, CURRICULUM COORDINATOR, TEMPLE CITY UNIFIED SCHOOL DISTRICT

SESSION ID: 282

Funding a STEAM Program
Table #16
PATHWAYS: CTE

Teachers will receive a list of funding sources and tips on building community partners to support a project-based STEAM program in the classroom.

Debbie Krikourian, FUNDING A STEAM PROGRAM, SUTTER MIDDLE SCHOOL/PROJECT LEAD THE WAY

SESSION ID: 476

Quest for Space’s International Space Station Experiments for All Ages
Table #17
PATHWAYS: CTE, MM, MSA

Quest for Space provides an automated closed-environment for youth to participate in science, technology, engineering, and mathematics activities onboard the International Space Station. This space exploration platform introduces youth to a future of innovation through engaging project-based learning opportunities.

Danny Kim, CHIEF TECHNOLOGY OFFICER, QUEST INSTITUTE

SESSION ID: 185

Recruiting Highly-Qualified and Diverse STEAM Students into K-12 Teaching
Table #18
PATHWAYS: AE, CTE, LA

Highly-qualified, motivational, and diverse teachers are the key to preparing students for the 21st Century workforce. The panelists are partners in several STEAM teacher preparation and recruitment projects. Best practices, successful strategies and challenges will be discussed.

Kathy Hann, PROFESSOR OF MATHEMATICS, CALIFORNIA STATE UNIVERSITY, EAST BAY
Julie McNamara, ASSISTANT PROFESSOR OF TEACHER EDUCATION, CALIFORNIA STATE UNIVERSITY, EAST BAY
SESSION ID: 47
Don’t Call Them ‘Soft Skills,’ They Will Get You Hired
Table #19
PATHWAYS: AE, CTE, LA

The presenter describes important ‘people skills’ that students must possess to prepare for jobs in the 21st Century. Next, he explains how to teach these skills. Finally, the presenter highlights why these ‘people skills’ are critical to diversity.

Dr. Michael Stanton, PROFESSOR, CALIFORNIA STATE UNIVERSITY, EAST BAY

SESSION ID: 462
Helpful Tips on Starting Up a MakerSpace Course
Table #20
PATHWAYS: AE, GW, MSA

The Maker Movement is here! This roundtable will provide resources for teachers looking to start up a Makerspace course. This will include course proposals, internet resources, “A-G” applications for UC/CSU category “G” science elective credit, and more.

Dean Reese, SCIENCE TEACHER, TRACY HIGH SCHOOL

WE WANT YOUR FEEDBACK!

Please complete session ratings in the app and the post-Symposium survey. For each one completed, you will be entered to win a prize!
INTRODUCTION

Thomas Adams, Ph.D., DEPUTY SUPERINTENDENT TEACHING & LEARNING SUPPORT BRANCH, CALIFORNIA DEPARTMENT OF EDUCATION

In December 2015, Thomas Adams was appointed Deputy Superintendent of the Teaching & Learning Support Branch at the California Department of Education. Previously, he served as Director of the Curriculum Frameworks and Instructional Resources Division, and Executive Director of the Instructional Quality Commission, the advisory body to the State Board of Education on curriculum and instructional materials.

Dr. Adams has played a pivotal role in improving education for our students by developing curriculum frameworks and instructional materials, and overseeing the adoption and implementation of the California Standards in key subjects. He provides local leadership in education as a trustee on the Davis Joint Unified School District Board of Education, and holds a Ph.D. in history from the University of California, Davis.

INTRODUCTION

Joan Bissell, DIRECTOR, TEACHER EDUCATION AND PUBLIC SCHOOL PROGRAMS, CALIFORNIA STATE UNIVERSITY, CHANCELLOR’S OFFICE

Dr. Joan S. Bissell is the California State University (CSU) program director for the Department of Teacher Education and Public School Programs. She provides leadership in the preparation of more than 10,000 new teachers each year on 22 CSU campuses.

Dr. Bissell leads the CSU Mathematics and Science Teacher Initiative, which has nearly doubled the number of new teachers prepared in these critical fields annually. She represents CSU in the 100K in 10 initiative—a national partnership dedicated to preparing 100,000 outstanding STEM teachers in this decade.

Dr. Bissell was elected as a fellow of the American Associate for the Advancement of Science in 2015, and recognized as one of California’s Leading Women in STEM Education in 2012. In 2016, she was named California’s Outstanding K-12 STEM Education Leader and in 2017 Educator Champion for Secondary Linked Learning Reforms. She serves on the board of directors for the Linked Learning Alliance and the Encorps Teachers Program, as well as on the Steering Committee of CA4NGSS. In 2005, Dr. Bissell led the development of CSU Ed.D. Programs—the system’s first doctoral programs.

Dr. Bissell served as dean and professor at the College of Education and Integrative Studies at Cal Poly Pomona. She was the vice chair and director of the doctoral program in educational leadership in the Department of Education at University of California, Irvine. Dr. Bissell also served as assistant vice president for the western region of the American College Testing Program, where she worked to enable California students of diverse racial/ethnic background and incomes to have more, fairer, options for college admissions testing. Before coming to California, she served as vice chair of the Human Development Program and assistant professor at Harvard University Graduate School of Education. She is a nationally recognized expert in program evaluation and her work has included large-scale national studies of the outcomes of preschool, early childhood education and after-school programs, including one of the first national evaluations of the Head Start program.
AFTERNOON KEYNOTE

Keynote Speaker

Tiffany Shlain, Emmy-nominated filmmaker, speaker, and Webby Awards founder

Tiffany Shlain has received over 80 awards and distinctions for her films and work, including being selected on NPR’s list of Best Commencement Speeches and as Newsweek’s “one of the women shaping the 21st Century.” She is also co-founder of The International Academy of Digital Arts & Sciences, Character Day, and 50/50 Day. She has premiered four films at Sundance, including her acclaimed feature documentary Connected: An Autobiography about Love, Death & Technology, which The New York Times hailed as “Examining Everything from the Big Bang to Twitter.” The US State Department has also selected four of her films to represent the U.S. at embassies around the world for their American Film Showcase and she will serve as a film expert for selected envoys in 2017.

Tiffany’s new film 50/50: Rethinking the Past, Present, and Future of Women + Power, premiered live at TEDWomen, at 275 TEDx’s globally, and on Refinery29. It was the centerpiece film for the first annual 50/50 Day which had over 11,000 screenings around the globe all linked together in an online discussion about what it’s going to take to get to a more gender-balanced world. Tiffany's original series, The Future Starts Here, was nominated for an Emmy Award in New Approaches: Arts, Lifestyle, Culture and has over 40 million views to date. Shlain’s films employ her signature style of fast-paced images, colorful animations, and daring and funny insights to encourage us all to think about where we’re headed in our increasingly connected world.

TOPIC: The Adaptable Mind: Flourishing in the 21st Century

What skills do we need to flourish in the 21st Century? Emmy-nominated filmmaker and Founder of the Webby Awards, Tiffany Shlain will bring us on an exciting ride through the past five years of her global initiative Character Day, where schools and organizations around the globe use film, discussion materials, and a dynamic online Global Q&A to engage with conversations about STEAM, STEAM, character development, and more. She’ll finish with a live cinema performance of a short film which asks: as technology is replacing many human tasks and jobs, what are the skills we truly need to flourish in the 21st century?

MUSIC

Tim Griffin, Founder, Griffin Education Solutions

For eighteen years, Tim Griffin taught STEM in LAUSD while living a double life as an award-winning singer/songwriter of mostly educational music for kids. Solid data showed how students were learning and retaining key academic vocabulary and content from singing his songs. So in 2012, Tim resigned his tenure to start a nonprofit organization. Griffin Education Solutions, also known as GriffinEd, is a team of educators, songwriters, and performers dedicated to raising student achievement in the STEM and other subjects through fun educational music. Think “Schoolhouse Rock” and you’ve got the basic idea. It’s all online (www.GriffinEd.org) and all free; most songs are written to specific grade-level standards of the NGSS, Common Core, and the state of California.

With four albums out and more on the way, Tim has performed to great hilarity and edification for the NSTA, CSTA, AAAS, Mensa, and hundreds of schools, libraries, and museums. Laugh and learn with songs about Isaac Newton, the Periodic Table, and that weird thing on your lunch tray.
SESSION ID: 510

GLOBE Mission EARTH Program: Strengthening Science and Empowering Youth
Room: 2000
PATHWAYS: AE, CTE, MSA

Explore ways to engage students in field-based science, using high-quality research practices from the GLOBE Mission Earth program. Discover opportunities to collect environmental data, interact with scientists, carry out local projects, and connect with students from other countries.

Tracy Ostrom, Project Coordinator, College and Career Academy Support Network, University of California, Berkeley
Matt Silberglipt, Senior Research Associate, WestEd

SESSION ID: 30

Engaging Latinx Middle School Boys in a STEAM Curriculum
Room: 2002
PATHWAYS: AE, CTE

This workshop will provide strategies, activities, and dialogue on developing culturally-responsive programming that addresses the needs of Latino boys early on their academic pathway. We will specifically cover how to engage community partners, promote mentorship, and increase access to STEAM.

Jessica Morales-Chicas, Assistant Professor & Program Coordinator of the Verizon Innovative Learning Program for Minority Males Directed by Cal State LA, Cal State Los Angeles
Mauricio Castillo, Associate Professor & Co-P.I. of the Verizon Innovative Learning Program, California State University, Los Angeles

SESSION ID: 264

Integrated, Designated STEAM for All: The KEY to Deeper Learning
Room: 2004
PATHWAYS: AE, MSA

This presentation provides schools and districts with a blueprint to incorporate STEAM across the curriculum through a 7-key essential recipe to positively impact student success. Participants will acquire innovative, interactive, and cross-curricular strategies emphasizing integrated technology and the Engineering Design Process.

Heather Ubrun, Math Teacher, Site STEAM Facilitator, Vista Verde Middle School, Val Verde Unified School District
Esperanza Arce, Principal, Vista Verde Middle School, Val Verde Unified School District

SESSION ID: 106

Citizen Science: Classroom Lessons from the Growing Green Internship Experience
Room: 2006
PATHWAYS: AE, GW, MSA

Learn about successes of the Growing Green Interns’ participation in citizen science with the University of California, Davis Yang Lab Monitoring Milkweed-Monarch Interactions for Learning and Conservation Project, key elements to replicate at your site, and how citizen science helps students access science learning and experience.

Karen Swan, CREEC Coordinator Region 3, Center for Land-Based Learning
Deborah Bruns, Director, Curriculum and Instruction, Yolo County Office of Education
SESSION III PRESENTATIONS

SESSION ID: 515
Blogging in S.T.E.A.M Using Design Thinking
Room: 2007
PATHWAYS: ELL, MM, MSA
In the world of the design thinking process, attendees collaborate, build a sense of community, and inspire each other. Attendees will be given a brief overview of the design thinking process, create their prototype designs, and then blog about it.
Brenda Dizon-Harris, TEACHER, PERRIS UNION HIGH SCHOOL DISTRICT

SESSION ID: 451
Gaming.EDU: Using Game Development to Integrate STEAM Concepts
Room: 2008
PATHWAYS: AE, CTE, GW
Developing and integrating meaningful STEAM lessons into core academic areas can be challenging. This session will explore techniques for using game design as a method to effectively combine STEAM and core academics into comprehensive lessons.
Kenneth Myers, PROJECT LEAD, BE.NEXT GAME DESIGN ACADEMY, MANTECA UNIFIED SCHOOL DISTRICT

SESSION ID: 148
STEAM-tastic Learning Activities for Grades K-6
Room: 2009
PATHWAYS: AE, MM, MSA
Participants will experience that STEAM is an interdisciplinary approach that fuses 21st Century skills (critical thinking, communication, collaboration) with open-ended solutions to challenges of the day. The activities in this workshop are aligned with instructional day and expanded learning standards.
Phil Romig, SCIENCE CURRICULUM SPECIALIST, SACRAMENTO COUNTY OFFICE OF EDUCATION
Mark Drewes, PROJECT SPECIALIST II, SACRAMENTO COUNTY OFFICE OF EDUCATION

SESSION ID: 527
Extreme Relevance: Personalized Learning through Research and Design Thinking
Room: 2010
PATHWAYS: AE, CTE, MSA
This session will address systems of meaningfully infusing the personal curiosities of each student into all disciplines, by providing field-tested learning protocols that result in true learner empowerment! When researching skills meet design thinking, students and teachers LOVE it!
Glen Warren, DIRECTOR OF LITERACIES, OUTREACH, AND LIBRARIES, ENCINITAS UNION SCHOOL DISTRICT; CSLA; AND CUE
Renee Ousley-Swank, SCHOOL LIBRARY TECHNOLOGY CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 379
STEAM Grant Writing 101
Room: 2011
PATHWAYS: AE, GW, MM
Answers to the all important question: How am I going to pay for that? Learn about the procedures and processes necessary for STEAM grant writing!
Jennifer Janzen, SCIENCE COORDINATOR, SANTA CLARA COUNTY OFFICE OF EDUCATION

SESSION ID: 551
"Making" Ideas a Reality: CSU Fab Labs and Makerspaces
Room: 2012
PATHWAYS: AE, LA, MM
In this session, four California State University Fab Lab and makerspace leaders and partners will discuss their experiences and share best practices related to student success and community engagement. They will also offer practical advice for bringing making to your community.
Carlos Ayala, DEAN OF SCHOOL OF EDUCATION, CALIFORNIA STATE UNIVERSITY AT SONOMA

STRANDS
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6. Preparing a 21st Century Workforce

PATHWAYS
CTE Career Technical Education
MM Maker and Makerspaces
EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive
SESSION ID: 467
The Science, Math and Art Behind Preventing a Zombie Apocalypse
Room: 2020
PATHWAYS: MSA

Use the “Zombie Craze” to make STEAM become “undead” in your science and math classrooms! This is not only a hands-on session, but a brains-on session, as well!

Jeff Lukens, RETIRED SCIENCE TEACHER, SIOUX FALLS, SOUTH DAKOTA

SESSION ID: 447
Supporting a Math-ful Home Environment through Parent and Caregiver Workshops
Room: 2022
PATHWAYS: AE, EL, MSA

In this training-of-trainers workshop, we will share and learn strategies for running a fun, hands-on math workshop for parents and caregivers. Participants will walk away with an agenda and plan for easily implementing math workshops at their sites.

Eva Meyers, CO-FOUNDER, SPARK DECKS
Oscar Wolters-Duran, CO-FOUNDER, SPARK DECKS

SESSION ID: 66
Expanding Access to Environmental Education through District Environmental Literacy Plans
Room: 2024
PATHWAYS: AE, LA, MSA

The responsibility of achieving Environmental Literacy cannot rest on one organization alone. ChangeScale is forging partnerships to expand access to environmental education while supporting the vision of the CA NGSS. Come explore strategies for developing district-wide Environmental Literacy plans.

Kirk Anne Taylor, DIRECTOR, CHANGESCALE
Julie Goo, STEAM COACH, CAMPBELL UNION SCHOOL DISTRICT

SESSION ID: 552
Sports & STEAM: Leveraging Kids’ Games to Inspire Learning & Growth
Room: 3000
PATHWAYS: AE, MSA

With a focus on STEAM concepts and life skills, this panel articulates the power of athletics as a means to support educational engagement. Learn from leaders in the field (literally) concerning how to use sports to inspire interest and engagement in academics.

Jesse Lovejoy, DIRECTOR STEAM EDUCATION AND 49ERS MUSEUM, SAN FRANCISCO 49ERS
Ricardo Valerdi, FOUNDER AND DIRECTOR, SCIENCE OF SPORT, SPORTS MANAGEMENT INSTITUTE PROGRAM, UNIVERSITY OF ARIZONA

SESSION ID: 8
How to Host a “Family Code Night” at Your School
Room: 3001
PATHWAYS: AE, EL, ELL

At this free, celebrated school event, featured at the 2016 White House Computer Science for All Summit, K-6 children and their parents pair to do their first hour of coding, together! Everyone loves it, it’s easy, we will show you!

John Pearce, DIRECTOR, FAMILY CODE NIGHT AND MV GATE

SESSION ID: 407
STEAM for the Youngest Teams K-1
Room: 3002
PATHWAYS: EL

Bring your laptop or Chromebook. This is a hands-on session about quality classroom strategies for Chromebook implementation with your youngest learners. You will leave with a solid understanding because you are going to make everything we talk about.

Scott Skidmore, TEACHER ON SPECIAL ASSIGNMENT, ATWATER ELEMENTARY SCHOOL DISTRICT
Anjelica Dillsaver, TEACHER, 1ST GRADE, ATWATER ELEMENTARY SCHOOL DISTRICT
SESSION III PRESENTATIONS

SESSION ID: 237
Yes, Argue! (Like a Scientist): Supporting Student Argumentation from Evidence
Room: 3003
PATHWAYS: AE, EL, MSA
Students need to learn how to argue “like scientists and engineers,” basing claims on evidence and articulating ideas through discussion. K-5 teachers will explore sample lessons and tools for facilitating student argumentation. You decide: Why do ladybugs have spots?
Traci Grzymala, PROGRAM MANAGER, COMMUNITY RESOURCES FOR SCIENCE
Teresa Barnett, EXECUTIVE DIRECTOR, COMMUNITY RESOURCES FOR SCIENCE

SESSION ID: 535
California Science Test Field Test and California Alternative Assessment Pilot
Room: 3004
PATHWAYS: AE, MSA
Participants will learn about the California Science Test, which measures what students know and can do using the CA NGSS, which focus on understanding the concepts across areas such as life science, earth and space science, and physical science.
Linda Hooper, ADMINISTRATOR, CALIFORNIA DEPARTMENT OF EDUCATION
Alex Moos, CALIFORNIA DEPARTMENT OF EDUCATION, EDUCATION PROGRAMS CONSULTANT

SESSION ID: 318
Using Maker Experiences to Accelerate CA NGSS and Integrated ELD Learning
Room: 3005
PATHWAYS: AE, ELL, MSA
Come develop a deeper understanding of how CA NGSS-aligned Maker lessons can be used in conjunction with Integrated ELD strategies to engage and support English learners. Participants will experience a three part model for CA NGSS and language instruction framed around making.
Jenn Guerrero, EL PROGRAM COORDINATOR, SONOMA COUNTY OFFICE OF EDUCATION
Anna VanDordrecht, CURRICULUM COORDINATOR FOR SCIENCE, SONOMA COUNTY OFFICE OF EDUCATION

SESSION ID: 2
A Deep Dive into the California Science Framework
Room: 3014
PATHWAYS: AE, ELL, MSA
In this workshop, participants will dive into the California Science Framework and explore phenomena-based instruction through the perspective of both a student and a teacher and have the experience of being fully engaged in inquiry-based science learning.
Stephanie Gregson, DIVISION DIRECTOR, CURRICULUM FRAMEWORKS AND INSTRUCTIONAL RESOURCES, CALIFORNIA DEPARTMENT OF EDUCATION
Bryan Boyd, EDUCATION PROGRAMS CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

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PATHWAYS
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EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive

#CASTEAM17
WI-FI: CASTEAM17 / casteam17
SESSION III PRESENTATIONS

SESSION ID: 481
Building Afterschool Educators’ Skills through Peer Led Professional Development
Room: 3020
PATHWAYS: AE, LA

Participants will learn about two Power of Discovery, STEM Hubs’ approaches to building the confidence and competence of staff facilitating STEM learning in expanded learning settings through the design and facilitation of peer-to-peer learning in STEM-focused Communities of Practice.

Bruce Simon, ASSOCIATE DIRECTOR, INSTITUTE FOR STEM EDUCATION, CALIFORNIA STATE UNIVERSITY, EAST BAY
Suzanne Hill, PROJECT ASSISTANT, ORANGE COUNTY DEPARTMENT OF EDUCATION

SESSION ID: 397
Hands-on, Minds-on STEM: Engineering, Computational Thinking, and 21st Century Skills
Room: 3022
PATHWAYS: ELL, GW, MSA

Are you seeking an integrated, “A-G” approved STEM experience to challenge and excite your students? Discover a course that empowers all learners to succeed in a project-based environment. Your students can earn university-level engineering credit as early as 9th grade.

Marie Girardot, RECRUITMENT SUPPORT SPECIALIST, THE UNIVERSITY OF TEXAS AT AUSTIN
Doug Wick, SCIENCE AND ENGINEERING TEACHER, BRANSON SCHOOL

SESSION ID: 115
Early Childhood Fab Lab: Evaluation Findings & Lessons Learned
Room: 3024
PATHWAYS: MM

In 2016, the Bay Area Discovery Museum launched the first early childhood Fab Lab, providing young children the opportunity to use digital fabrication tools. Participants will hear about the Fab Lab programming, including findings from an evaluation conducted by WestEd.

Lisa Regalia, ASSOCIATE DIRECTOR, STEM & INFORMAL LEARNING, BAY AREA DISCOVERY MUSEUM
Laura Gluck, RESEARCH ASSOCIATE, WESTED

SESSION ID: 537
Decision Science: Real Life Math for Action
Room: Nook 301
PATHWAYS: EL, ELL, MSA

Teens face challenging decisions every day and some are life-changing. In a lifetime of choices, developing the skills to think through our decisions is essential. Learn, discuss, and apply decision skills to benefit youth in this interactive session.

Chris Spetzler, CEO, DECISION EDUCATION FOUNDATION

SESSION ID: 346
Quality STEAM in Expanded Learning: What, Why, and How
Room: Nook 302
PATHWAYS: AE, MSA

This interactive session answers the questions: “What is STEM?” and “Why is it important to offer quality STEM learning to students?” Participants will have the opportunity to experience STEM learning and explore how the activity connects to multiple academic standards.

Jessica Hay, PROGRAM DIRECTOR, CALIFORNIA AFTERSCHOOL NETWORK

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SESSION ID: 534
The Synergy of Science and English Language Arts
Room: Nook 303
PATHWAYS: EL, ELL, MSA
The science education community is working toward greater inclusion of science in ELA instruction. Science offers a powerful way to fulfill the mandates and mission of ELA. CA NGSS science, particularly inquiry-based, hands-on science activities, provides a potent context for all students, including English language learners.
Burr Tyler, ENGLISH LANGUAGE LEARNER EVALUATION, WESTED

SESSION ID: 542
Team Time
Room: Nook 304
PATHWAYS: LA
Gather your team in this meeting space and plan how you will implement what inspired you or create a presentation to share when you return.
Joy Kessel, EDUCATION PROGRAMS CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION
Marcia Trott, EDUCATION PROGRAMS CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 187
El Rancho Unified School District’s Innovation Labs
Room: Stage
PATHWAYS: AE, MM, MSA
El Rancho Unified School District’s Innovation Labs are flexible learning environments where teaching and learning is creative and engaging. Students explore and experiment across the areas of STEAM. Exponential learning sprints demonstrate how students become critical problem-solvers of real-world problems.
Aurora Villon, SCHOOL BOARD PRESIDENT, EL RANCHO UNIFIED SCHOOL DISTRICT
Jaime Ortiz, PROGRAM MANAGER, HPLE

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Sir Ken Robinson, INTERNATIONALLY ACCLAIMED EXPERT ON CREATIVITY AND INNOVATION AND 2016 CA STEM SYMPOSIUM KEYNOTE

“I found it absolutely worth the time away from the district. Incredible Keynote speakers that left us motivated! The presenters were all friendly and truly interested in helping us move forward...Thank you!”

-STEM SYMPOSIUM ATTENDEE
SESSION ID: 116
Exploring the Meaning and Development of Principal as “Instructional Leader”
Room: 2000
PATHWAYS: LA, MSA

Site administrators are a key leverage point for influencing student academic achievement. Math-in-Common district representatives will describe how they define/execute roles, responsibilities, and expectations for principals and coaches to support all students to access and master math standards.

Rebecca Perry, SENIOR PROGRAM ASSOCIATE, WESTED
Dr. Kristi Kahl, SENIOR DIRECTOR, MIDDLE AND K-8 SCHOOLS, LONG BEACH UNIFIED SCHOOL DISTRICT

SESSION ID: 460
Parent STEAM Nights
Room: 2006
PATHWAYS: AE, CTE, MSA

Working to become a STEAM school, we found our parents needed to better understand STEAM education. Each month, we dedicate an evening to a STEAM activity. We introduce families to aspects of STEAM in a fun and exciting learning environment.

Tracy Buss, 2ND GRADE TEACHER, PARENT STEAM COORDINATOR, CHINO VALLEY UNIFIED SCHOOL DISTRICT
Janet Gasio, TEACHER, CHINO VALLEY UNIFIED SCHOOL DISTRICT

SESSION ID: 419
How Can We Provide Fresh Water to Those In Need?
Room: 2002
PATHWAYS: AE, CTE, MSA

Experience a true hands-on STEAM investigation from the new Smithsonian Science for the Classroom using the 5-E Model and integrating Claim Evidence Reasoning. Using resources from the Smithsonian, the California Water State Board and other California resources, find a solution to water issues.

Sally Dudley, MARKETING MANAGER, CONSULTANTS, CAROLINA BIOLOGICAL

SESSION ID: 409
Sculpture as Design
Room: 2004
PATHWAYS: CTE, MM, MSA

Jude Saleet will explain how the sculptural concepts of proportion, scale, concavity, convexity, planar direction, and volume are still used today in the designing of products.

Jude Saleet, ART TEACH, OAKWOOD HIGH SCHOOL

SESSION ID: 71
Support Equitable STEAM Education via Citizen Science
Room: 2007
PATHWAYS: CTE, GW, MSA

Explore issues of equity and access, while discovering how citizen science projects can engage all students in meaningful data collection and inspire scientific investigation. These integrative experiences develop STEM interest and 21st Century skills.

Jennifer Fee, MANAGER OF K-12 PROGRAMS, CORNELL LAB OF ORNITHOLOGY
Erin Hogeboom, COMMUNITY DEVELOPMENT AND NETWORK STRATEGY MANAGER, NATIONAL GIRLS COLLABORATIVE PROJECT

SESSION ID: 507
Implementing a K-12 Computer Science Curriculum in Your School District
Room: 2008
PATHWAYS: AE, CTE, LA

Mr. Shuster will share his experience developing and implementing a no-cost, K-12 coding culture and continuum in his school district. Attendees are encouraged to bring a laptop or Chromebook in order to participate in sample classroom activities using online tools.

Dan Shuster, MATH, CS TEACHER, SIMI VALLEY UNIFIED SCHOOL DISTRICT
SESSION IV PRESENTATIONS

SESSION ID: 86
Chemistry Content with Art, Animation and Technology
Room: 2009
PATHWAYS: AE
Use art, animation, and a variety of interactive tech tools to teach CA NGSS chemistry content. Representational modeling tools are presented so that previously difficult material comes alive and makes sense to all students.
Julie Smith, SCIENCE DEPARTMENT CHAIR, TEACHER, LENNOX MIDDLE SCHOOL - SCHOOL OF ENGINEERING
Ryan Williams, LENNOX SCHOOL DISTRICT, EDUCATIONAL TECHNOLOGY SPECIALIST

SESSION ID: 529
Coding Across the Curriculum: Integrating CS into Core Academic Courses
Room: 2010
PATHWAYS: AE, MM, MSA
Using Code.org’s App Lab, learn how to build connections between CS and a variety of other subjects, giving students authentic opportunities to learn and apply programming skills in new contexts while simultaneously supporting instruction of subject area standards.
Josh Caldwell, CURRICULUM DEVELOPMENT MANAGER, CODE.ORG

SESSION ID: 308
Getting Started Reaching Engineering in the Classroom Right Away
Room: 2011
PATHWAYS: CTE, LA, MSA
Excited about STEAM but don’t have an engineering background? Inspired but not sure how to get started? This presentation will give you hands-on experience with engineering projects, for any age, and a guide to get started right away!
Katrena Andrist, TEACHER AND ENGINEERING EDUCATION LEADER, THE TECH MUSEUM OF INNOVATION
Magdalena Moore, ADMINISTRATOR, MEADOWS ELEMENTARY SCHOOL

SESSION ID: 556
Building Support for CA NGSS: Tools to Communicate
Room: 2012
PATHWAYS: LA, MSA
Effectively communicating about NGSS to stakeholders is key. But how do you do it? Take home proven tools from the California Alliance for the Next Generation Science Standards (CA4NGSS) to step up as a science (and STEAM) education champion.
Neetu Balram, DIRECTOR OF COMMUNICATIONS, CALIFORNIANS DEDICATED TO EDUCATION FOUNDATION/CALIFORNIA ALLIANCE FOR THE NEXT GENERATION SCIENCE STANDARDS (CA4NGSS)
Jessica Sawko, EXECUTIVE DIRECTOR, CALIFORNIA SCIENCE TEACHERS ASSOCIATION (CSTA)

SESSION ID: 110
Empowering the Next Generation of Leaders with STEAM and Social and Emotional Learning
Room: 2020
PATHWAYS: AE, GW, MSA
In this highly engaging and experiential workshop, learn how to incorporate best practices in Social and Emotional Learning and youth development to create STEAM experiences which empower, connect, and inspire your students to get involved and change the world!
Ryan McCarthy, EXECUTIVE DIRECTOR, CALEAD

SESSION ID: 57
Nature-Inspired Design: The Practice of Biomimicry
Room: 2022
PATHWAYS: MSA
Biomimicry is the process of looking to nature for engineering, design, and science guidance. The presentation will feature case studies and an overview of the process while also leading participants through a hands-on application of biomimetic principles.
Beth Rattner, EXECUTIVE DIRECTOR, BIOMIMICRY INSTITUTE
Gretchen Hooker, YOUTH EDUCATION MANAGER, BIOMIMICRY INSTITUTE

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SESSION ID: 501
How Sweet it is to Make 3D Molecular Models
Room: 2024
PATHWAYS: MM, MSA

Chemistry is full of difficult concepts because it is highly mathematical and abstract. We will use computer simulation and Makerspace tools to help visualize math and make the abstract tangible. We will focus on models of sugars.

Stephen Callahan, EDUCATIONAL TECHNOLOGY COORDINATOR, SAN JOAQUIN COUNTY OFFICE OF EDUCATION
Dean Reese, SCIENCE DEPARTMENT CHAIR, TRACY UNIFIED SCHOOL DISTRICT

SESSION ID: 260
Scaffolding Language for English Learners in Science
Room: 3001
PATHWAYS: AE, ELL, MSA

This workshop breaks down academic language and scaffolds to support English learner student learning of Science. Participants will learn strategies and protocols that help students explain their thinking in Science.

Leslie Wriston, ENGLISH LEARNER PROGRAM SPECIALIST, SAN JUAN UNIFIED SCHOOL DISTRICT
Paula Baucom, SCIENCE PROGRAM SPECIALIST, SAN JUAN UNIFIED SCHOOL DISTRICT, UNIVERSITY OF PHOENIX

SESSION ID: 90
Action Learning through the Trees
Room: 3002
PATHWAYS: MSA

Participants will be immersed in the content, design, and delivery of environment-based learning that uses trees and forests as a window on the world, engaging learners in relevant and crucial California issues.

Sandra Derby, CA PROJECT LEARNING TREE STATE COORDINATOR, UNIVERSITY OF CALIFORNIA, COOPERATIVE EXTENSION
Michael De LaSaux, CALIFORNIA FORESTER, UNIVERSITY OF CALIFORNIA, DIVISION OF AGRICULTURAL AND NATURAL RESOURCES, COOPERATIVE EXTENSION

SESSION ID: 239
Gender-Responsive STEM Programming in Out-of-School Time Environments
Room: 3003
PATHWAYS: AE, GW

In this session, you will learn techniques to engage girls in STEM in your out-of-school time programs. Participants will leave with a guide and practices they can immediately implement to get and keep girls interested in STEM!

Loli Guillen, PROGRAM MANAGER FOR PROFESSIONAL DEVELOPMENT, TECHBRIDGE GIRLS

SESSION ID: 382
Femineer™ Program: A Model for Engaging K-12 Girls in STEM
Room: 3004
PATHWAYS: AE, GW

Cal Poly Pomona’s College of Engineering has developed a unique program to engage girls in STEM. This session will highlight strategies to replicate this model program that inspires and empowers girls from underrepresented backgrounds to pursue STEM majors and careers.

Kristina Rigden, ENGINEERING OUTREACH PROGRAM DIRECTOR, CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA
Nicole Gutzke, PROGRAM COORDINATOR, PROJECT LEAD THE WAY AND WOMEN IN ENGINEERING, CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

SESSION ID: 19
Standing Up for Equity In Mathematics: Policies and Early Indicators
Room: 3005
PATHWAYS: AE, LA

What does it mean to hold our social justice values within a de-tracked math policy over time? Join San Francisco Unified School District in this conversation as we share lessons learned, data and research that guides us, and the questions we still have.

Lizzy Hull Barnes, MATH SUPERVISOR, SAN FRANCISCO UNIFIED SCHOOL DISTRICT
SESSION ID: 530
California State Standards for K-12 Computer Science
Room: 3014
PATHWAYS: AE, MSA
Update of the California Computer Science Standards for grades K-12 by Advisory Committee members: Co-Chairperson Simon, Lopez, and Rich Kick. Learn about the priorities for this work, including equity-access, broadening participation, and examples of Advanced Placement Computer Science Principles curriculum.
Art Lopez, TEACHER, SWEETWATER UNION HIGH SCHOOL
Dr. Beth Simon, FACULTY ADVISOR FOR TECHNOLOGY ENHANCED TEACHING, TEACHING AND LEARNING COMMONS, EDUCATION STUDIES DEPARTMENT/UNIVERSITY OF CALIFORNIA, SAN DIEGO

SESSION ID: 73
Modeling Ecosystem Dynamics and Integrating Environmental Literacy Components
Room: 3020
PATHWAYS: MSA
This hands-on workshop will focus on a high school CA NGSS lesson from the state frameworks (written by the presenters) that shows the connections between the three dimensions of CA NGSS and Environmental Literacy.
Dr. Virginia Oberholzer Vandergon, PROFESSOR, CALIFORNIA STATE UNIVERSITY, NORTHRIDGE
Brian Foley, PROFESSOR, CALIFORNIA STATE UNIVERSITY, NORTHRIDGE, SECONDARY EDUCATION

SESSION ID: 489
Mission to Mars: A Thematic Approach to Middle School Science
Room: 3022
PATHWAYS: MSA
The presentation focuses on a thematic (Quests) Mission to Mars unit geared towards an 8th or 9th grade physical science/physics classes. During this interdisciplinary unit, students engineer solutions to authentic problems associated with colonizing Mars while focusing on Newtonian mechanics.
Zachary Moore, STEM COORDINATOR, LAGUNA BLANCA SCHOOL

SESSION ID: 103
Engineering and Life Science — A Great Combination
Room: 3024
PATHWAYS: MSA
What does engineering have to do with life science? Plenty, it turns out. Leading with an engineering challenge engages students and better prepares them to understand life science concepts. We will share two projects for middle and high school.
Art Lopez, TEACHER, SWEETWATER UNION HIGH SCHOOL
Dr. Beth Simon, FACULTY ADVISOR FOR TECHNOLOGY ENHANCED TEACHING, TEACHING AND LEARNING COMMONS, EDUCATION STUDIES DEPARTMENT/UNIVERSITY OF CALIFORNIA, SAN DIEGO

SESSION ID: 21
Engineering for Good
Room: Nook 301
PATHWAYS: MM, MSA
Develop knowledge of the engineering design process with a media-rich, hands-on, student-centered design challenge for middle school. Discover how to engage students in sharing their own engineering stories and solutions through media-making activities.
Andrea Aust, SENIOR MANAGER, SCIENCE EDUCATION, KQED

SESSION ID: 555
Interdisciplinary STEAM Learning in Advanced Placement Art and CTE Engineering
Room: Nook 302
PATHWAYS: CTE, AE, LA, MSA
Attendees will learn how a successful interdisciplinary relationship was developed through creating integrated projects in Advanced Placement art classes and Career Technical Education engineering classes, which led to higher level of creativity and technical skills. Participants will complete hands-on activities to explore how this might work in their program.
Betsy McKinstry, Director, CTE, COLLEGE AND CAREER, ANTELOPE VALLEY UNION HIGH SCHOOL DISTRICT
Diane Walker, DIRECTOR OF POSTSECONDARY PARTNERSHIPS AND INDUSTRY LIAISON, ANTELOPE VALLEY UNION HIGH SCHOOL DISTRICT
SESSION IV PRESENTATIONS

SESSION ID: 36
Setting Up the Engineering Notebook for Classroom Instruction
Room: Nook 303
PATHWAYS: AE, ELL, MSA
Come to set up the Engineering Notebook for your classroom. Participants will review the California Science Framework for the Engineering Design Process for classroom inclusion. The use of a notebooking pedagogy will catapult your students to success!

Henri Shimojyo, TEACHER SUPERVISOR, GRADUATED SCHOOL OF EDUCATION, UNIVERSITY OF CALIFORNIA AT RIVERSIDE
Yamileth Shimojyo, STEM AND SCIENCE COORDINATOR, RIVERSIDE COUNTY OFFICE OF EDUCATION

SESSION ID: 543
Team Time
Room: Nook 304
PATHWAYS: LA
Gather your team in this meeting space and plan how you will implement what inspired you or create a presentation to share when you return.

Joy Kessel, EDUCATION PROGRAMS CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION
Marcia Trott, EDUCATION PROGRAMS CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 167
Cellular Construction: Modeling Cells as Biological Machines
Room: Stage
PATHWAYS: CTE, MSA
This session demonstrates how to inspire students to be biological tinkerers using the backdrop of cellular engineering, a discipline that strives to re-engineer cells to solve complex problems. Participants will use robot simulators to model cells as biological machines.

Dr. Jessica Allen, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO SCIENCE AND HEALTH EDUCATION PARTNERSHIP
Rebecca Smith, CO-DIRECTOR, SCIENCE AND HEALTH EDUCATION PARTNERSHIP, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

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GW Girls and Young Women
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**SESSION ID: 162**

**Enrolling and Collaborating with Industry Experts**

**Table #1**

**PATHWAYS:** LA

This session addresses how to develop partnerships with industry professionals, bringing real-world context to learning. Participants will examine their own curriculum and projects to identify the “sweet spots” where professionals can be authentically included for guidance, mentorship, and inspiration.

**Kathleen Fredette,** DIRECTOR OF STEAM INITIATIVES, ILEAD SCHOOLS

**Angie Nastovska,** DIRECTOR OF HUMANITIES AND INNOVATION, ILEAD SCHOOLS

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**SESSION ID: 20**

**Integrating STEAM Content in the Primary Grades**

**Table #2**

**PATHWAYS:** AE, EL, MSA

Ideas will be provided, grades K-3, regarding how to engage young learners with STEAM projects. The main focus is to make literacy come alive through STEAM. Samples will be provided on the use of comics, stop-animation, QR-codes and photography.

**Lizbeth Magallanes-Barcenas,** TEACHER, NORTH RIDGE

**Heidi Krueger,** TEACHER, NORTH RIDGE ELEMENTARY SCHOOL, MORENO VALLEY UNIFIED SCHOOL DISTRICT

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**SESSION ID: 175**

**Getting Energized with Engineering!**

**Table #3**

**PATHWAYS:** AE, MM, MSA

In this hands-on challenge-based session, participants will use their knowledge of potential and kinetic energy to design, build and test renewable energy solutions. Participants will walk away with a 5E lesson aligned to the CA NGSS energy and engineering performance expectations.

**Leena Bakshi,** PROGRAM DIRECTOR I, ALAMEDA COUNTY OFFICE OF EDUCATION

**Francisco Nieto,** PROGRAM MANAGER, ALAMEDA COUNTY OFFICE OF EDUCATION

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**SESSION ID: 276**

**From Concept to Creation**

**Table #4**

**PATHWAYS:** AE, EL, MSA

Using the design thinking model of teaching attendees are shown how the process works to bring students from concept to the creation of an object that ties the lesson to Visual and Performing Arts standards and CA NGSS for California Schools.

**Linda Covello,** ART SCHOOL DIRECTOR, COMMUNITY SCHOOL OF MUSIC AND ARTS

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**SESSION ID: 475**

**Transforming STEM Industry Professionals Into Effective Teachers: Successes & Challenges**

**Table #5**

**PATHWAYS:** CTE, LA

In the midst of a STEM teacher shortage, where will schools find teachers who can help students connect academics to work and life? EnCorps will share best practices and lessons learned in successfully supporting STEM professionals’ career transitions into teaching.

**David Taus,** SAN FRANCISCO BAY AREA DIRECTOR, ENCORPS STEM TEACHERS PROGRAM

**Katherine Wilcox,** EXECUTIVE DIRECTOR, ENCORPS

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**SESSION ID: 271**

**Interactive Sculpture Process: STEAM Engine**

**Table #6**

**PATHWAYS:** AE, GW, MM

Experience an interactive STEAM train sculpture and learn how the concepts behind it can be used to develop your own interactive project for your Makerspace or school. Learn ways to integrate the STEAM strands into broader spinoff projects.

**Harry Dill,** TOSA, SARATOGA UNION SCHOOL DISTRICT

**Sandi Yellenberg,** SCIENCE COORDINATOR, SANTA CLARA COUNTY OFFICE OF EDUCATION

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**Rounded Table Sessions**

**#CASTEAM17**

**Wi-Fi:** CASTEAM17 / casteam17
SESSION ID: 330
Design Thinking: Build a Prosthetic Hand
Table #7
PATHWAYS: AE, MM, MSA
Please join us for an example of how to use an integrated, hands-on design thinking project in your middle school science classroom. You will work with others to create a prosthetic hand using the steps of design thinking.
Tristan Green, SCIENCE TEACHER, PACIFIC RIDGE SCHOOL
Alex Frumovitz, SCIENCE TEACHER, PACIFIC RIDGE SCHOOL

SESSION ID: 88
Computer Science Pathways: Designing Solutions and Doing Good
Table: #8
PATHWAYS: AE, GW
This interactive discussion addresses equity-focused pathways in computer science, including Exploring Computer Science and Advanced Placement Computer Science Principles. Both curricula help develop students’ skills, confidence, and motivation using real-world situations in their communities.
Jake Chipps, TEACHER, GRANADA HILLS HIGH SCHOOL

SESSION ID: 83
A Systemic Community Approach to Environmental Literacy
Table #9
PATHWAYS: AE, LA
Participants will engage in learning and discussion about systems approaches to Environmental Literacy for all students as well as reflect on current (or absent) systems for their own community, whether that is a classroom, school, or district.
Mary Borobia Walls, COORDINATOR, CREEC REGION 10
Linda Braatz-Brown, COORDINATOR SCIENCE & ENVIRONMENTAL LITERACY, SAN BERNARDINO COUNTY SUPERINTENDENT OF SCHOOLS

SESSION ID: 459
Today’s Inventors + Real-Life STEAM Investigations = Tomorrow’s Innovators
Table #10
PATHWAYS: AE, EL, MSA
Experience how today’s inventors and hands-on STEAM learning bring science to life for ALL children. Engage in inventor-based explorations. Learn how to inspire and motivate children to use creative and critical problem-solving, while immersed in real-life science investigations.
Christine Jayo, STRATEGIC PROGRAM MANAGER, NATIONAL INVENTORS HALL OF FAME

SESSION ID: 356
Turning Your School into a STEAM Academy
Table #11
PATHWAYS: LA
Attendees will learn how to integrate STEM/STEAM lessons throughout their curriculum. Come see how you can turn your school into a STEAM Academy. Hear how one district converted their school into a STEAM Academy.
Scott Spector, COORDINATOR OF INNOVATION AND ACADEMIC EVENTS, SANTA BARBARA COUNTY EDUCATION OFFICE
Teachers, LA HONDA STEAM ACADEMY, LOMPOC UNIFIED SCHOOL DISTRICT

SESSION ID: 347
How to Teach Kids Coding One-on-One: In-Person and Online
Table #12
PATHWAYS: AE, EL, ELL
What are the most effective strategies to teach students under 12 years of age how to code in a one-on-one setting, in-person and online? In this presentation, you will learn about teaching styles, resources, and personalization strategies that make learning fun and effective.
Tony Diepenbrock, CEO, BLOCKSCHOOL
**SESSION ID: 434**

**Designing and Implementing a Districtwide STEAM Competition**

**Table #14**

**PATHWAYS:** AE, MM, MSA

Our session will help schools implement STEAM in daily activities, monthly school challenges as well as designing and running a districtwide competition. We will provide sample challenges to show how to organize, design, and run a large STEAM competition.

Ashley Donahue, Fourth Grade Teacher, Rundle College Elementary
Andrea Friesen, Vice Principal, Rundle College Elementary

**SESSION ID: 336**

**Two “Must Use” Effective Video Tools: Mystery Hangouts and FlipGrid!**

**Table #15**

**PATHWAYS:** AE, MSA

Step-by-step, we’ll explore two of the most effective, fun, quick, and easy video tools of the year: Mystery Hangouts and FlipGrid. Learn about and participate in live projects with each of these tools to share with your classroom right away!

Christina Whitmire, District Ed Tech Tosa, Oakley Union Elementary School District

**SESSION ID: 137**

**GAME ON!: Preparing & Inspiring a STEAM-Ready Future Workforce**

**Table #16**

**PATHWAYS:** CTE, MSA

The Energy Coalition uses games throughout its programming to reinforce topics and themes addressed in its lessons. During this session, participants will be guided through a variety of games that investigate environmental challenges and design creative solutions for these challenges.

Audrey Knox, Project Manager, The Energy Coalition

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**WE WANT YOUR FEEDBACK!**

Please complete session ratings in the app and the post-Symposium survey. For each one completed, you will be entered to win a prize!
“This event was phenomenal and very informative. I even plan on visiting a district that is a few counties over to see how they teach STEM and how they manage their makerspaces.”

-STEM SYMPOSIUM ATTENDEE
SESSION ID: 138
Engineering and Technology Set the Stage
Room: 2000
PATHWAYS: AE, MM, MSA
Including engineering in the CA NGSS is more than just an excuse to do cool hands-on projects. Discover why with this classroom lesson that set the stage for using engineering as the driving force for doing science.
Jonathan Rhodea, CURRICULUM SPECIALIST, SACRAMENTO COUNTY OFFICE OF EDUCATION
Phil Romig, SCIENCE CURRICULUM SPECIALIST, SACRAMENTO COUNTY OFFICE OF EDUCATION

SESSION ID: 491
Virtual Reality Integrated into Everyday Lessons
Room: 2002
PATHWAYS: AE, CTE, MSA
Teachers and administrators will learn best practices on a systematic and strategic roll out for virtual reality that goes beyond novelty. Access our bank of teacher-created resources with lesson plans that align with virtual reality learning opportunities.
Caryn Mcloughlin, STAFF DEVELOPMENT SPECIALIST, RIVERSIDE UNIFIED SCHOOL DISTRICT
Steve Kong, STAFF DEVELOPMENT SPECIALIST, RIVERSIDE UNIFIED SCHOOL DISTRICT

SESSION ID: 161
Using Data to Improve Practice in Math in Common Districts
Room: 2004
PATHWAYS: AE, LA, MM
Multiple measures in ten Math in Common districts have been used to review and analyze implementation and outcome data over four years. The symposium will showcase classroom observation tools and annual CAASPP data displays that have supported instructional improvement approaches.
Neal Finkelstein, SENIOR RESEARCH SCIENTIST, WESTED

SESSION ID: 241
Palo Alto Unified School District’s Maker Movement: Creativity Cart and Lending Library
Room: 2006
PATHWAYS: AE, EL, MM
Interested in the Maker Movement but unsure where to start? Join us to learn how Palo Alto Unified School District’s Elementary Education Department addressed the Maker Movement through three projects: school Makerspaces/Design Studios, Creativity Carts, and STEAM Lending Library.
Joe Young, MATH & STEAM COACH, TOSA, PALO ALTO UNIFIED SCHOOL DISTRICT
Leslie Faust, LITERACY & STEAM COACH / TOSA, PALO ALTO UNIFIED SCHOOL DISTRICT

SESSION ID: 124
Building Bridges through STEAM within a Makerspace
Room: 2007
PATHWAYS: AE, ELL, MM
Bridge Building through STEAM in a Makerspace. The unit can be taught in a traditional or club setting.
Lisa Ernst, TEACHER, ALICE FONG YU K-8, SAN FRANCISCO UNIFIED SCHOOL DISTRICT

SESSION ID: 307
Teaching Biology and Computational Thinking with Sensor Labs and Dataflow
Room: 2008
PATHWAYS: AE, MM, MSA
Discover how Dataflow, IoT sensors, and open source tools can make scientific inquiry more engaging, hands-on, and accessible. Aligned with CA NGSS and standards for teaching computational thinking, Concord Consortium’s InSPECT laboratories with Dataflow help support students in creating data rich investigations.
Sherry Hsi, SENIOR RESEARCH SCIENTIST, CONCORD CONSORTIUM
Lisa Hardy, RESEARCH ASSOCIATE, CONCORD CONSORTIUM
SESSION ID: 500
Lots ‘O Bots
Room: 2009
PATHWAYS: MSA
Looking for ways to excite your students about curriculum? Look no further! STEAM TOSAs will share lesson planning and implementation incorporating Lego WeDo 2.0, Ozobots, and Dash robots.
Heather Koleszar, STEAM TOSA, UNION SCHOOL DISTRICT
Kaitlin Klein, STEAM TOSA, UNION SCHOOL DISTRICT

SESSION ID: 349
Architectural Engineering for Elementary Students
Room: 2010
PATHWAYS: AE, GW, MSA
This workshop will provide opportunities for participants to experience the Engineering Design Process and explore hands-on STEAM activities to engage elementary students in investigating phenomena, collaborating, and designing innovative solutions as architects.
Jenna Porter, ASSISTANT PROFESSOR, CALIFORNIA STATE UNIVERSITY, SACRAMENTO
Corinne Lardy, ASSISTANT PROFESSOR, CALIFORNIA STATE UNIVERSITY, SACRAMENTO

SESSION ID: 518
Building a K-8 STEAM Program from the Ground Up
Room: 2011
PATHWAYS: LA
From designing a 21st Century Middle School STEM Lab to boot-strapping a K-5 district-wide integrated STEAM program, learn how Union School District is transforming education by integrating STEM/STEAM into everyday instruction.
Andrew Schwab, ASSOCIATE SUPERINTENDENT, LEARNING & INNOVATION, UNION SCHOOL DISTRICT

SESSION ID: 43
Arts, Media, and Entertainment: Where the Arts Meet STEM
Room: 2012
PATHWAYS: CTE
What is the role of the arts in STEAM education? This session will clarify that role by sharing a STEAM Continuum, engaging participants in design thinking, examining how one high school successfully integrated an Arts, Media, and Engineering pathway into a STEM program.
Anne Bown-Crawford, DIRECTOR, INNOVATION DESIGN INSTITUTE, ARCATA HIGH SCHOOL
Jack Mitchell, CALIFORNIA DEPARTMENT OF EDUCATION, EDUCATION PROGRAMS CONSULTANT

SESSION ID: 223
Connecting Physical Phenomena, Mathematics, Through Technology
Room: 2020
PATHWAYS: MM, MSA
Through the use of the inexpensive data collection tool, PocketLab, we will conduct several experiments that connect the CA NGSS with the CA CCSS: Mathematics through technology. Modeling, experimental design and iteration, along with the history of science will be our foci.
Christopher Brownell, PROGRAM DIRECTOR AND ASSISTANT PROFESSOR OF MATHEMATICS EDUCATION, FRESNO PACIFIC UNIVERSITY

SESSION ID: 331
Safe Environments: Importance of Private Spaces in a Collaborative World
Room: 2022
PATHWAYS: LA, MM, MSA
STEAM programs have goals of maximizing collaboration while one third of students have adverse childhood experiences affecting their ability to engage in group learning. This presentation discusses how design and lesson plans can create effective learning environments for all students.
Aaron Buehring, SENIOR INTERIOR DESIGNER, HMC ARCHITECTS
Dr. Gema Godina-Martinez, PRINCIPAL, WASHINGTON STEAM ACADEMY

STRANDS
1. STEAM Across Grades and Disciplines
2. Integrating Environmental Literacy in STEAM Disciplines
3. Design Thinking and Engineering: Where Art Meets Science
4. Supporting STEAM/STEAM through 21st Century Learning Environments
5. Learning Beyond the Classroom
6. Preparing a 21st Century Workforce
SESSION V PRESENTATIONS

SESSION ID: 474
Implementing the CA Next Generation Science Standards: Early Evidence from California
Room: 2024
PATHWAYS: AE, LA
In this workshop we present research findings from a recent statewide survey that looks at districts’ implementation of the CA NGSS. Major challenges and policy solutions are also discussed.
Niu Gao, RESEARCH FELLOW, PUBLIC POLICY INSTITUTE OF CALIFORNIA

SESSION ID: 553
Continuing the Momentum Beyond Hour of Code: Google’s CS First
Room: 3000
PATHWAYS: AE, LA, MSA
Keep the momentum of CS Ed Week going with CS First and other Google computer science education initiatives. Hear from teachers who used the latest CS First Hour of Code activity with their students. You will get the opportunity to try it too!
Amanda Sandler, COMPUTER SCIENCE EDUCATION PROGRAM MANAGER, GOOGLE
Chris Busselle, COMPUTER SCIENCE EDUCATION PROGRAM MANAGER, GOOGLE

SESSION ID: 511
STEAM and Theme: Themes Make STEAM More Accessible and Appetizing
Room: 3001
PATHWAYS: MSA
This hands-on session will examine the benefits and challenges of using themes to organize STEAM curriculum. Participants will be guided through an interactive brainstorming session to generate themes and begin developing their own STEAM-y units and lesson.
Sandee Bisson, MAKER EDUCATOR, THE BRANDEIS SCHOOL OF SAN FRANCISCO
Nicholas Cole-Farrell, DIRECTOR OF TECHNOLOGY & MAKING, THE BRANDEIS SCHOOL OF SAN FRANCISCO

SESSION ID: 123
One, Two, Three, Four… First Graders Love to Explore…with Sound!
Room: 3002
PATHWAYS: AE, EL, MSA
Experience a hands-on, fully integrated set of activities that include elements of science, technology, engineering, mathematics, ELA, social studies, and art. This presentation will showcase lessons facilitated in a first grade classroom that captured the imagination of primary age learners.
Kelly Keeler, STEM CURRICULUM DEVELOPER, LOYOLA MARYMOUNT UNIVERSITY
Rachael Henry, 1ST GRADE TEACHER, PLAYA VISTA VISTA ELEMENTARY SCHOOL

SESSION ID: 296
Earth’s Events Can Occur Quickly or Slowly
Room: 3003
PATHWAYS: AE, EL, MSA
BOOM! CRASH! ROAR! Tsunami! Will you survive? Will your home survive? In this presentation you will investigate, imagine, create, and engineer your way to a safe shoreline. Look into a larger CA NGSS Earth Science-aligned integrated STEAM unit.
Shanon Albertson, TEACHER, LOS ANGELES UNIFIED SCHOOL DISTRICT
Dr. Sherry Mohazab, 2ND GRADE TEACHER, PLAYA VISTA ELEMENTARY, LOS ANGELES UNIFIED SCHOOL DISTRICT

STRANDS
1 STEAM Across Grades and Disciplines
2 Integrating Environmental Literacy in STEAM Disciplines
3 Design Thinking and Engineering: Where Art Meets Science
4 Supporting STEM/STEAM through 21st Century Learning Environments
5 Learning Beyond the Classroom
6 Preparing a 21st Century Workforce

PATHWAYS
CTE Career Technical Education
MM Maker and Makerspaces
EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive
SESSION ID: 120
Unlocking Learning: STEAM as a Lever for English Learner Equity
Room: 3004
PATHWAYS: AE, ELL

Weaving together science and language development can increase students’ academic performance in reading, writing, and science simultaneously. Join The Education Trust-West to discuss innovative approaches that result in high achievement for English learners. Discussion of integrating STEAM for English learners.

Sarah Feldman, DIRECTOR OF PRACTICE, THE EDUCATION TRUST-WEST
Rachel Ruffalo, SENIOR PRACTICE ASSOCIATE, THE EDUCATION TRUST-WEST

SESSION ID: 269
Learning Beyond the Classroom Through a Manufacturing Internship
Room: 3014
PATHWAYS: CTE

Come hear how the North Central Valley STEM Center group helped enhance career and technical education outside of the traditional classroom by developing a paid manufacturing internship for high school students at Rare Part Incorporated.

Bret States, STEM COORDINATOR, SAN JOAQUIN COUNTY OFFICE OF EDUCATION
Michael Cardenas, DIAGNOSTIC MANAGER FOR SUBCRITICAL EXPERIMENTATION, NEVADA NATIONAL SECURITY SITE

SESSION ID: 320
Art & Science Together: Observing and Drawing Nature’s Evidence
Room: 3005
PATHWAYS: MSA

Increase students’ observational skills by experiencing practical steps for making scientific drawings. Explore evidence from nature. Be guided through steps for drawing based on art fundamentals. Leave with a drawing, plus free resources that integrate art, science, environmental education.

Cris Guenter, PROFESSOR OF EDUCATION, CALIFORNIA STATE UNIVERSITY, CHICO
Michael Kotar, PROFESSOR EMERITUS, CALIFORNIA STATE UNIVERSITY, CHICO

SESSION ID: 321
Shake it Up: Blended Learning in Mathematics
Room: 3020
PATHWAYS: AE, MSA

Use blended learning as an innovative approach to personalize student learning, impacting engagement and performance in your math classroom. This session will provide you with the skills to blend/flip lessons, replacing teacher talk time with meaningful student interaction time.

Lindsey Blass, DIGITAL LEARNING INTEGRATION DESIGNER, SAN FRANCISCO UNIFIED SCHOOL DISTRICT

SESSION ID: 364
Biomimicry: Nature Inspired Solutions to Our Most Challenging Environmental Problems
Room: 3022
PATHWAYS: AE, MSA

Through millions of years of evolution, nature has learned to sustainably solve our most pressing environmental problems. Using the structure of bones and their impact on modern architecture, we will use a 5E lesson to introduce the concept of biomimicry.

Winnie Litten, SCIENCE DEPARTMENT CHAIR, OAK PARK UNIFIED SCHOOL DISTRICT
Ellen Chevalier, SCIENCE TEACHER AND NEXTECH, OAK PARK HIGH SCHOOL, OAK PARK UNIFIED SCHOOL DISTRICT

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CTE Career Technical Education
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EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive
SESSION V PRESENTATIONS

SESSION ID: 268

Art + Math + Code + Creativity = Animations
Room: 3024
PATHWAYS: AE, GW, MM

In this hands-on session, attendees will express their creativity and create animations by making original art, manipulating coordinates, shapes and variables in math, and writing code first in block based language (Scratch) and then in text-based (JavaScript and Processing).

Sheena Vaidyanathan, COMPUTER SCIENCE TEACHER AND INTEGRATION SPECIALIST, LOS ALTOS SCHOOL DISTRICT

SESSION ID: 404

Visualizing Innovative Crosscutting Concepts in Design Thinking Projects
Room: Nook 301
PATHWAYS: MSA

This workshop provides clarity about STEAM and Design Thinking. Participants will experience how to teach Crosscutting Concepts, such as structure and function by engineering a spinal cord, designing animal-like claws, and making Pinhole cameras.

Jennifer Munoz, STEAM SCIENCE SPECIALIST K-6, DEL MAR UNION SCHOOL DISTRICT
Paula Intravaia, DESIGN ENGINEER, CARMEL DEL MAR ELEMENTARY

SESSION ID: 45

"STEPping" into 21st Century Learning Environments
Room: Nook 302
PATHWAYS: AE, LA, MSA

STEPCon17 is the STEM/STEAM event in the Inland Empire. Come hear from the organizers how they have partnered for 18 years with the community, businesses, and industry to provide a high-quality event to inspire students toward STEM/STEAM pathways!

Yamileth Shimojyo, STEM AND SCIENCE COORDINATOR, RIVERSIDE COUNTY OFFICE OF EDUCATION
Carlos Gonzalez, CURRICULUM SPECIALIST, CALIFORNIA MESA PROGRAM

SESSION ID: 301

Dive into the 5Es and CA NGSS!
Room: Nook 303
PATHWAYS: MSA

Come explore an innovative 5E lesson sequence that infuses literature into science and engineering! Engage in hands-on activities and an engineering design challenge that will get you dancing in your seats.

Christie Pearce, SCIENCE COORDINATOR, ORANGE COUNTY DEPARTMENT OF EDUCATION
Meredith Casalino, STEM COORDINATOR, ORANGE COUNTY DEPARTMENT OF EDUCATION

SESSION ID: 544

Team Time
Room: Nook 304
PATHWAYS: LA

Gather your team in this meeting space and plan how you will implement what inspired you or create a presentation to share when you return.

Dawn O’Connor, DIRECTOR SCIENCE PARTNERSHIP FOR INSTRUCTIONAL INNOVATION, ALAMEDA COUNTY OFFICE OF EDUCATION

SESSION ID: 257

Resetting Your Makerspace Baseline: Equity & Inclusion Through Community-Centered Making
Room: Stage
PATHWAYS: AE, MSA

The presentation explores how common Makerspace practices and projects unintentionally limit the ability of underrepresented communities to participate and benefit from maker-centered learning, and will discuss strategies for developing more inclusive programming, building on authentic, resonant, relevant, community needs.

Daniella Shoshan, PROGRAM MANAGER, MAKER VISTA, MAKER EDUCATION INITIATIVE
Hadiyah Shabazz, MAKER VISTA LEADER, MAKER EDUCATION INITIATIVE
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SESSION ID: 401
CSforCA: Computer Science for All in California
Room: 2000
PATHWAYS: AE, CTE, MSA
Teachers and administrators will discuss critical issues of Access and Equity for underrepresented students in computer science and the necessary policy changes to ensure all students and teachers have equal opportunities for teaching and learning meaningful computer science education.
Julie Flapan, EXECUTIVE DIRECTOR, ACCESS
Jake Baskin, JAKE BASKIN, CODE.ORG

SESSION ID: 151
ICreate: STEAM Explorations for Expanded Learning, Students, and Families
Room: 2002
PATHWAYS: AE, LA, MM
Engage in a STEAM learning model for Expanded Learning Staff centered on hands-on learning culminating with a family fair. Attendees will engage in activities they will be able to implement immediately using inexpensive materials. Correlations to CA NGSS shared.
Linda Braatz-Brown, COORDINATOR OF SCIENCE AND ENVIRONMENTAL EDUCATION, SAN BERNARDINO COUNTY SUPERINTENDENT OF SCHOOLS
John Duran, EXPANDED LEARNING LEAD, SAN BERNARDINO COUNTY SUPERINTENDENT OF SCHOOLS

SESSION ID: 61
Problem Investigators: Solving Authentic Engineering Problems in First Grade
Room: 2004
PATHWAYS: EL, MM, MSA
Learn about this eight week problem investigation unit for first graders. See how first graders used the Engineering Design cycle to identify issues in the community and work collaboratively in problem investigation teams to address real-world issues.
Laura Nielsen, TEACHER, HILLBROOK SCHOOL
Emily Sleasman, TEACHER, HILLBROOK SCHOOL

SESSION ID: 206
Using Earthquake Proof Towers and Engineering Practices to Teach Models
Room: 2006
PATHWAYS: AE, ELL, MSA
Engineering for All! Using the California Science Framework for Wavelength and Amplitude, you will investigate and experience an Engineering Design Challenge recognizing innovation to overcome failures. Models, vocabulary, sentence frames, collaborative structures, writing and math supports for ELLs will be included.
Shelley Duttarre, DISTRICT SCIENCE LEAD, GREENFIELD UNION SCHOOL DISTRICT
Lisa Webber, STEMCOACH, STEMSCOPES

SESSION ID: 229
Environmental Literacy with CA NGSS & EP&C for Elementary Grades
Room: 2007
PATHWAYS: AE, MSA
Experience an engaging context for integrating science, outdoor learning and literacy with CA NGSS and the EP&C. Session includes hands-on science activity, an engineering challenge, discussion of strategies and outcomes from an Environmental Literacy summer institute.
Joanna Totino, BAY AREA SCIENCE PROJECT DIRECTOR, LAWRENCE HALL OF SCIENCE/UNIVERSITY OF CALIFORNIA, BERKELEY
Betsy Mitchell, PH.D., EXPLORING CALIFORNIA BIODIVERSITY, BERKELEY NATURAL HISTORY MUSEUMS, UNIVERSITY OF CALIFORNIA, BERKELEY, EDUCATION AND OUTREACH COORDINATOR
SESSION VI PRESENTATIONS

SESSION ID: 323
Relationship of ELD Standards to Math and Science Standards
Room: 2008
PATHWAYS: ELL
The presenters will provide an overview of the English Language Development Standards in relation to the CA CCSS for mathematics and science. The presenters will demonstrate how the ELD Standards can support language and subject content learning for English learners.

Elena Fajardo, ADMINISTRATOR, CALIFORNIA DEPARTMENT OF EDUCATION
Gustavo Gonzalez, EDUCATION PROGRAMS CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 189
Dive into STEAM: Engage Students with Inquiry Through Virtual Tours
Room: 2009
PATHWAYS: AE, MSA
In this model lesson, participants will use Google Expeditions, Text Sets, and art to explore an inquiry-based guiding question. Build foundational knowledge and integrate nonfiction text into student learning. Leave with a grade-level appropriate lesson that can be used tomorrow.

Hilary Dito, STEAM COORDINATOR, CONTRA COSTA COUNTY OFFICE OF EDUCATION
Nicholas Zefeldt, INSTRUCTIONAL TECHNOLOGY COORDINATOR, CONTRA COSTA COUNTY OFFICE OF EDUCATION

SESSION ID: 63
Hosting Affordable STEAM Outreach Events and Summer Camps for Girls
Room: 2010
PATHWAYS: EL, GW
We will discuss sample budgets, how to raise funds to offset costs for girl-focused STEAM events, share sample event schedules, detailed outlines of how to successfully plan and prepare events, and share suggestions on how to actively recruit additional support.

Michelle Bunn, DIRECTOR, CALIFORNIA STATE UNIVERSITY, SAN DIEGO, COLLEGE OF ENGINEERING FEMINEER PROGRAM
Jenny Wong-Welch, CALIFORNIA STATE UNIVERSITY, SAN DIEGO STEM LIBRARIAN & DIRECTOR OF BUILD IT, CALIFORNIA STATE UNIVERSITY, SAN DIEGO, LIBRARY & BUILD IT

SESSION ID: 200
Fostering 21st Century Coding Skills with Scratch and App Lab
Room: 2011
PATHWAYS: AE, LA, MSA
The session will introduce educators to the Scratch and App Lab coding platforms. The student presenters will showcase projects that manifest their understanding of standards and concepts across curriculum. They will lead the audience in creating an app using AppLab.

Deepika Srivastava, PROFESSIONAL DEVELOPMENT SPECIALIST, MORENO VALLEY UNIFIED SCHOOL DISTRICT
Vidhi & Varun Srivastava, STUDENTS, REDLANDS UNIFIED SCHOOL DISTRICT

WE WANT YOUR FEEDBACK!

Please complete session ratings in the app and the post-Symposium survey. For each one completed, you will be entered to win a prize!
**SESSION ID: 29**

**Enhancing Science Through Arts Integration**  
Room: 2012  
**PATHWAYS: AE, ELL, MSA**

This hands-on, fast-paced, active workshop allows for creative interaction, while integrating science with performing arts. We will apply our knowledge of scientific cycles and systems and sequences while utilizing critical thinking and collaboration. This lively STEAM experience emphasizes 21st Century learning.

_Betsy Rubino_, K-12 ARTS INTEGRATION SPECIALIST, LOS ANGELES UNIFIED SCHOOL DISTRICT  
_Jessica Williams_, K-12 ARTS INTEGRATION SPECIALIST, LOS ANGELES UNIFIED SCHOOL DISTRICT

**SESSION ID: 324**

**Leveraging Policy and Practice to Advance STEAM Teaching and Learning**  
Room: 2020  
**PATHWAYS: AE, EL, LA**

Panel will discuss how to engage and mobilize local and regional networks to leverage public policy and educational practice to advance STEAM teaching and learning. Emphasis will be placed on how to secure support from STEAM-sector business and industry leaders.

Vincent Stewart, EXECUTIVE DIRECTOR, CALIFORNIA STEM NETWORK, CHILDREN NOW  
Katie Levedahl, DIRECTOR OF EDUCATION, INFORMAL LEARNING AND NATIONAL PARTNERSHIPS, CALIFORNIA ACADEMY OF SCIENCES

**SESSION ID: 38**

**STEM Education: Equity, Social and Emotional Learning in STEM, and Effective Measurement Practices**  
Room: 2022  
**PATHWAYS: AE**

Education equity research has focused on the role that SEL plays in improving student outcomes. However, there is limited understanding of linkages between SEL practices and STEM outcomes for high-achieving, low-income students of color. This session will examine these links.

Sonia Koshy, EVALUATION SPECIALIST, KAPOR CENTER FOR SOCIAL IMPACT  
Frieda McAlear, SENIOR RESEARCH ASSOCIATE, KAPOR CENTER FOR SOCIAL IMPACT

**SESSION ID: 280**

**How to Use Data to STEAM Power Your PreK-K Environment**  
Room: 2024  
**PATHWAYS: EL**

This workshop includes hands-on data reflection, STEAM inquiry experiences with sample recycled materials and alignment of experiences to key STEAM concepts. Teachers will leave with a list of materials, inquiry tools, questions/provocations and key concepts in English and Spanish.

Heidi Mendenhall, CPIN MANAGER, WESTED  
Juoa Lee, OSBOURNE BARRET, TAMARRA
Investigate, Collaborate, & Innovate: Building a California State University Maker Initiative
Room: 3000
PATHWAYS: AE, LA, MM
Panelists will present projects at the California State University campuses: project goals, affordances, challenges, and next steps. Conversation will focus on investigating student learning and assessment, maker and teacher education, interdisciplinary making, making in undergraduate education and making research.
Carlos Ayala, DEAN OF SCHOOL OF EDUCATION, CALIFORNIA STATE UNIVERSITY AT SONOMA

NASA’s Scale of Discovery: Applications from Our Universe
Room: 3001
PATHWAYS: AE
Explore applications of scale and conversions with hands-on, standards-aligned STEM activities like a pocket scroll of the universe. Engage with examples from aeronautics, space, and our universe as you apply distance, time, and size scales to models.
Barbie Buckner, EDUCATION SPECIALIST, NASA ARMSTRONG FLIGHT RESEARCH CENTER

The Halls Are Alive With the Sound of Music
Room: 3002
PATHWAYS: EL, ELL, MSA
Fill your hallways with the sound of Music...and Science. Your first grade students will be singing their way to scientific knowledge through this integrated arts lesson. Experience how the CA NGSS and Visual and Performing Arts can be co-mingled to create STEAMier lessons.
Mary Dagani, STEAM TOSA, CONSULTANT FOR EDUCATIONCLOSET.COM, TEAL COACH, DOWNEY UNIFIED SCHOOL DISTRICT STEAM TEAM
Naomi Griswold, STEAM TOSA, DOWNEY UNIFIED SCHOOL DISTRICT

HALS Toolkit: How Manteca Unified School District Supports the Maker Movement
Room: 3003
PATHWAYS: AE, LA, MM
Need ideas to start a Makerspace? Interested in portable Maker kits? Come join us for a hands-on presentation and see how Manteca Unified School District supports the Maker Movement in 4th-8th grades and in the community.
Kristen Messer, TECHNOLOGY COORDINATOR, MANTECA UNIFIED SCHOOL DISTRICT

Building a STEM-Ready Workforce from the Ground Up
Room: 3004
PATHWAYS: AE, CTE, LA
Why does STEM education matter and how can we make a difference? This presentation will give the “Why” and “How” STEM is creating a Workforce ready for the 21st Century and can change the labor market of a region.
Ward Andrus, DIRECTOR, STOCKTON UNIFIED SCHOOL DISTRICT
Pete Gallegos, TEACHER, HARRISON ELEMENTARY SCHOOL

Science Teacher/STEAM Teacher: What’s the Difference?
Room: 3005
PATHWAYS: AE, LA
Do you know the difference between a STEAM teacher and a Science Teacher? Come join us to collaborate, find out the research-based instructional strategies necessary to support STEAM/STEM outcomes, and build consensus with others about a pathway for STEAM/STEM certification.
Jodi Marchesso, DISTRICT STEM COACH, PASADENA UNIFIED SCHOOL DISTRICT
Deborah Tucker, INDEPENDENT SCIENCE EDUCATION CONSULTANT

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STRANDS
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6 Preparing a 21st Century Workforce

PATHWAYS
CTE Career Technical Education
MM Maker and Makerspaces
EL Early Learning
ELL English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive
SESSION VI PRESENTATIONS

SESSION ID: 448

[Un]Seen
Room: 3014
PATHWAYS: CTE, MM

This session shares how high school photo students are challenged to see and record the world around them in unusual ways. By merging technology, science, and art, participants will also get to view and capture the mysterious world around us.

Ricardo Rodriguez, PHOTO & VIDEO ART AND 10TH GRADE DEAN, FLINTRIDGE PREPARATORY SCHOOL

SESSION ID: 472

Incorporating Robotics into the 6-12 Mathematics Curriculum
Room: 3020
PATHWAYS: MSA

See how Manteca Unified School District is leveraging the Maker's Movement by incorporating robotics into their mathematics curriculum. You will receive “hands-on” training on how to incorporate the Raspberry Pi, sensors, robots, and 3D printed parts into a mathematics lesson.

Doug Obrigawitch, MATHEMATICS DEPARTMENT CHAIR, MANTeca UNIFIED SCHOOL DISTRICT
Steve Unterholzner, TEACHER, MANTeca UNIFIED SCHOOL DISTRICT

SESSION ID: 135

Integrating Environmental Literacy in STEAM Disciplines
Room: 3022
PATHWAYS: MSA

How can teachers engage students in Environmental Literacy, global competence, and design thinking? Join us for an overview of Teaching for Sustainable Communities, a K-12 program preparing students for 21st Century issues, skills, and dispositions through interdisciplinary environmental studies.

Emily Schell, EXECUTIVE DIRECTOR, CALIFORNIA INTERNATIONAL STUDIES PROJECT
Michelle Mazzeo, REGIONAL DIRECTOR, CALIFORNIA INTERNATIONAL STUDIES PROJECT

SESSION ID: 431

Scratch Off: Interactive Technology Exploration and Student Showcase
Room: 3024
PATHWAYS: EL, MM, MSA

Come learn how to showcase student work and ignite family interest in coding by hosting an interactive technology-infused event and competition. Participants will explore hands-on activities and leave with a wealth of resources to host your own community “Scratch Off!”

Gina Whitcomb, TOSA - TECHNOLOGY, ANAHEIM ELEMENTARY SCHOOL DISTRICT
Christie Pluhar, CURRICULUM SPECIALIST - TECHNOLOGY, ANAHEIM ELEMENTARY SCHOOL DISTRICT

SESSION ID: 180

Beyond the Screen: A Hands-On Approach to Computational Thinking
Room: Nook 301
PATHWAYS: AE, CTE, MSA

A strong education in computer programming begins away from a screen with computational thinking. The approach we will discuss enables students to break a problem down and approach the solution logically, and thus, prepare students to better engage computer programming.

Jeffrey McDaniel, COMPUTER SCIENCE LECTURER, UNIVERSITY OF CALIFORNIA AT RIVERSIDE
Carlos Gonzalez, DIRECTOR, UNIVERSITY OF CALIFORNIA AT RIVERSIDE MESA PROGRAMS
SESSION VI PRESENTATIONS

**SESSION ID: 238**
Engaging in and Celebrating Making with Underserved Girls
Room: Nook 302
**PATHWAYS**: AE, GW, MM
Learn how to engage underserved youth in the meaningful process of Making! Participants will learn about different approaches to encourage Making, experience a Maker project, and reflect on ways to share student Making with the broader community.

Chanel Hall, PROGRAM MANAGER FOR PROFESSIONAL DEVELOPMENT, TECHBRIDGE GIRLS

**SESSION ID: 338**
Forestry Challenge: Connecting Math and Science to Hands-on Forest Experiences
Room: Nook 303
**PATHWAYS**: CTE, MSA
Learn and practice hands-on forestry data collection and analysis using tree rounds and foliage samples which will be brought to the presentation room. These skills are delivered at the Forestry Challenge, a program for high school students in technical forestry.

Diane Dealey Neill, EXECUTIVE DIRECTOR, FORESTRY EDUCATORS INCORPORATED

**SESSION ID: 545**
Team Time
Room: Nook 304
**PATHWAYS**: LA
Gather your team in this meeting space and plan how you will implement what inspired you or create a presentation to share when you return.

Dawn O’Connor, DIRECTOR SCIENCE PARTNERSHIP FOR INSTRUCTIONAL INNOVATION, ALAMEDA COUNTY OFFICE OF EDUCATION

**SESSION ID: 170**
Organized Chaos in 21st Century Classrooms: A Multidisciplinary CA NGSS Approach
Room: Stage
**PATHWAYS**: ELL, MM, MSA
Discover how to integrate CA NGSS across the curricula using the 5E Model to amplify interactive learning, collaboration, and critical thinking. Elementary educators will experience innovative methods to provide rigorous, engaging experiences for the diverse needs of their 21st Century students.

Krystal Valdenegro, TEACHER, ANAHEIM ELEMENTARY SCHOOL DISTRICT
Carlos Hernandez, TEACHER, ANAHEIM ELEMENTARY SCHOOL DISTRICT

**SESSION ID: 95**
Puppet-Theater Engineers
Table #1
**PATHWAYS**: MSA
Engage as a puppet-theater engineer by first conducting a series of investigations to figure out how light interacts with different materials, and then applying what you learned to create shadow scenery for a puppet show.

Sophia Lambertsen, PROFESSIONAL LEARNING SPECIALIST, LAWRENCE HALL OF SCIENCE

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LA Leadership and Administration
MSA Making Standards Come Alive
SESSION ID: 454
Science the “Stuff”: Recreating Scenes from The Martian
Table #2
PATHWAYS: MSA
Engineering students recreated the hexadecimal signaling device featured in the movie The Martian. Learn how hexadecimal can be used for communication and how to incorporate student-developed projects like this into the classroom.

Aaron Whitfield, PLTW ENGINEERING TEACHER, HIGHLAND HIGH SCHOOL

SESSION ID: 102
Designing like Engineers: Middle School Force and Motion Engineering Internship
Table #3
PATHWAYS: MSA
Experience the design cycle with hands-on and digital activities from an innovative middle school science and engineering unit. Take on the role of engineering interns to design an emergency supply drop pod for delivering humanitarian aid packages in disaster stricken locations.

Suzanna Loper, CURRICULUM DIRECTOR, LEARNING DESIGN GROUP, LAWRENCE HALL OF SCIENCE

SESSION ID: 302
E-Girl
Table #4
PATHWAYS: AE, GW
Cal Poly Pomona’s College of Engineering has developed a unique outreach course and program to engage girls in engineering. This session will highlight strategies to replicate this model program that inspires and empowers girls from underrepresented backgrounds to pursue STEM.

Monica Palomo, ASSOCIATE PROFESSOR, CAL POLY POMONA
Rianne Okamoto, ENGINEERING STUDENT, CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

SESSION ID: 483
Girl-Power: Redefining the Face of STEAM
Table #5
PATHWAYS: GW
This presentation will feature the importance of involving girls in STEAM activities including successful tips and techniques that have been successful. Stories of girls who have benefitted by their participation and doors that have been opened to them.

Nancy McIntyre, STAFF, ROBOTICS EDUCATION AND COMPETITION FOUNDATION

SESSION ID: 508
Learning Walks and Lesson Study for New Teacher Growth
Table #6
PATHWAYS: AE, LA, MSA
How good is “good enough” in STEAM instruction? Explore how a Teacher Induction program brings new and experienced teachers together to collect, analyze, evaluate, and reflect on evidence of teaching and learning to raise expectations for diverse students.

Katrine Czajkowski, PROGRAM MANAGER, SWEETWATER UNION HIGH SCHOOL DISTRICT
Alexandra Martinez, MATH TEACHER & INDUCTION MENTOR, SWEETWATER UNION SCHOOL DISTRICT

SESSION ID: 279
Mission College STEMLink Project: A Collaboration Model
Table #8
PATHWAYS: AE, GW, LA
A synopsis of the role and collaboration of the Mission College STEMLink Project group, their various activities, student outcomes, and how improved access to STEM opportunities correlates to advances in opportunities and equity through aligned objectives.

Inez Barragan, PROJECT DIRECTOR, MISSION COLLEGE HSI STEMLINK
Dr. Omar Murillo, DIRECTOR, MISSION AANAPISI

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SESSION ID: 22
Planning the Ultimate High School Makerspace: A Collaborative Evolution
Table #9
PATHWAYS: LA, MM
Learn how Portola High School’s new Makerspace, design labs, and collaboration rooms were planned and are now being used to support a culture of exploration and creativity. Share ideas for planning and building the ultimate high school Makerspace.

Kevin Wilkeson, PRINCIPAL, HMC ARCHITECTS

SESSION ID: 150
Policy, Preparation, Perception: California Math/Science Teachers and Students with Disabilities
Table #10
PATHWAYS: AE, LA
This presentation will present findings from first stage of a research project that surveyed math and science teachers in one teacher education program regarding their preparation for working with students with disabilities. Recommendations for teacher education programs will be discussed.

Jacob Kirksey, PhD CANDIDATE, UNIVERSITY OF CALIFORNIA, SANTA BARBARA
Michael Gottfried, ASSOCIATE PROFESSOR, UNIVERSITY OF CALIFORNIA, SANTA BARBARA

SESSION ID: 291
Blinky Lights: Visualizing Motion
Table #11
PATHWAYS: MSA
Come learn how small LEDs blinking at 100 Hz are used to show motion over time. Students photograph motions to model: constant velocity, acceleration, rotation, torque, 2D projectiles, etc. The lights are sturdy and easy to use with all levels.

Bree Barnett Dreyfuss, TEACHER, AMADOR VALLEY HIGH SCHOOL

SESSION ID: 361
5, 4, 3, 2, 1, (K) Blast Off
Table #12
PATHWAYS: MSA
Get inspired by a school-wide effort to create vertically aligned PBLs focused around a common theme. Learn how to mimic the success of a purposeful school-wide showcase and leave with strategies and ideas to implement at your own site.

Jessica Wagner, KINDERGARTEN TEACHER, JOHN MCCANDLESS STEM CHARTER SCHOOL
Kaci McCoy, THIRD GRADE TEACHER, JOHN MCCANDLESS STEM CHARTER SCHOOL, LINCOLN UNIFIED SCHOOL DISTRICT

SESSION ID: 143
Micro-Credentials: Personalized Recognition for Educators Putting Skills into Practice
Table #13
PATHWAYS: AE, LA
STEAM educators are not typically recognized for all of their unique skills and competencies. Digital Promise has developed a micro-credential ecosystem that formally recognizes educators for over 300 demonstrable skills, regardless of when or where the learning occurred.

Robert Bajor, TECHNICAL PROJECT MANAGER, DIGITAL PROMISE
## Session ID: 522

**Code, Code, Code Your Bot Gently Down The STEAM!**

**Table #14**  
**PATHWAYS:** MSA

Coding is cool, but how do you integrate it into the CA CCSS? Ain’t nobody got time for that! That is why we did it for you. Learn lesson plans that integrate coding with the CA CCSS and use in your classroom tomorrow.

**Kyle Myers**, TEACHER ON SPECIAL ASSIGNMENT, FULLERTON SCHOOL DISTRICT

## Session ID: 243

**The Maker Educator Certificate Program**

**Table #15**  
**PATHWAYS:** MM

The Maker Educator Certificate Program is designed for people seeking to lead maker activities in schools, libraries, and other organizations. This presentation will provide a program overview, including plans to scale the program throughout California.

**Dan Blake**, DIRECTOR, INNOVATION & PARTNERSHIPS, SONOMA COUNTY OFFICE OF EDUCATION

## Session ID: 127

**A Performance Assessment Toolkit for Supporting Students’ Three-Dimensional Reasoning**

**Table #16**  
**PATHWAYS:** MSA

Wondering about CA NGSS classroom assessment? In this interactive session, we will practice concrete strategies for assessing three-dimensional science learning. Participants will receive multiple assessments and related tools to help shift classroom assessment practices.

**Jill Wertheim**, RESEARCH ASSOCIATE, STANFORD UNIVERSITY  
**Sara Dozier**, GRADUATE STUDENT, STANFORD UNIVERSITY

## Session ID: 351

**Visualize the CA NGSS in Elementary Classrooms**

**Table #17**  
**PATHWAYS:** MSA

CA NGSS ALIVE!! Three dimensional learning that can be incorporated in classrooms, grades K-5. Students design, build, and test their prototypes, and redesign for optimal performance. Using the Science and Engineering Practices, students will formulate and discuss their understandings.

**Lakshmy-Uma Krishnan**, SCIENCE SPECIALIST, TORREY HILLS SCHOOL

## Session ID: 27

**Lemon Ice: Investigating Phases of Matter**

**Table #19**  
**PATHWAYS:** MSA

Lemon Ice will give participants an opportunity to examine how students can experiment with colligative properties in a fun way! The activity is for the elementary, middle, and high school levels. Bring your team and explore chemistry across the grades.

**Jenelle Ball**, CHEMISTRY TEACHER, CHICO HIGH SCHOOL AND AACT

## Session ID: 358

**Inch by Inch and Drop by Drop: Pre-K Measurement Roundtable Discussion**

**Table #20**  
**PATHWAYS:** EL, ELL, MSA

Participants will become familiar with the knowledge and skills needed to build understanding of both standard and non-standard measurement in the Preschool-TK classroom through fun and engaging interactions and strategies. The California Preschool Learning Foundations and the CA Science Framework will be showcased.

**Debbie Supple**, DIRECTOR, BAY REGION 4 CA PRESCHOOL INSTRUCTIONAL NETWORK  
**Eloisa Mendoza-Hinds**, ENGLISH LEARNER LEAD, BAY REGION 4 CA PRESCHOOL INSTRUCTIONAL NETWORK

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**Strands**

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**Pathways**

- **CTE**  
- **MM**  
- **EL**  
- **ELL**  
- **AE**  
- **GW**  
- **LA**  
- **MSA**
MONDAY, DECEMBER 11 • 10:35 A.M. - 12:05 P.M. • LEVEL 3
GENERAL SESSION AND KEYNOTE

WELCOME

Shelly Masur, CEO OF CALIFORNIANS DEDICATED TO EDUCATION FOUNDATION

INTRODUCTION AND PANEL MODERATION

Blair Blackwell, MANAGER, EDUCATION AND CORPORATE PROGRAMS, CHEVRON

Blair Blackwell is the Manager of Education and Corporate Programs at Chevron Corporation, a position she has held since December 2012. In this role, Blackwell is responsible for leading Chevron’s education focused social investment initiatives in the United States. Blair serves on the Partner Advisory Council for 100Kin10, a network of partners designed to fuel the next generation of innovators and problem solvers by providing America’s classrooms with 100,000 excellent STEM teachers as well as the Advisory Council of Engineer Girl. Blair has over 15 years of experience with the private sector, nonprofit organizations and international organizations in Africa, the Balkans, Central Asia and the United States. She earned a bachelor’s degree in Slavic Languages and Literatures from Princeton University, and is a Board Member of Princeton in Asia.

Keynote Speaker

Tracy Fullerton, DIRECTOR OF THE USC GAMES PROGRAM

Tracy Fullerton is a game designer, professor and director of the USC Games program. Her research center, the Game Innovation Lab, has produced several influential independent games, including Cloud, flOw, Darfur is Dying, The Misadventures of P.B. Winterbottom, The Night Journey, with artist Bill Viola, and Walden, a game. Tracy is the author of “Game Design Workshop: A Playcentric Approach to Creating innovative Games,” a design textbook used at game programs worldwide, and holder of the Electronic Arts Endowed Chair in Interactive Entertainment. Prior to USC, she designed games for Microsoft, Sony, MTV, among others. Tracy’s work has received honors including an Emmy nomination, Indiecade’s “Sublime Experience,” “Impact,” and “Trailblazer” awards, the Games for Change “Game Changer” award, and the Game Developers Choice “Ambassador” Award.

TOPIC: Everyone Plays: Growing an Inclusive Game Design Community

Game Design is a collaborative practice, involving both creative expression and technological execution. While a diverse group of young people are attracted to game design, not all have yet found their voices in this exciting field. As Director of the USC Games program, professor Tracy Fullerton has worked hard to build not only the number one game design program in the country, but also a diverse and inclusive community of practice. The output of this community has included many new voices in the field who have gone on to change the kinds of games we play and the way we make them.
Keynote Speaker

**Gokul Krishnan, PhD. EMMY-NOMINATED FILMMAKER, SPEAKER, AND WEBBY AWARDS FOUNDER**

Gokul Krishnan, PhD, is a learning scientist, mechanical engineer, healthcare innovator, and STEM Research Associate at WestEd. He is the founder of Project M@CH (Makerspace at Children's Hospital) and the creator of the "Maker Therapy" approach. Krishnan designed and constructed the world’s first mobile Makerspaces, which help to address the needs of chronically ill patients at Monroe Carell Jr. Children’s Hospital at Vanderbilt. His inspirational “think-outside-the-box” attitude towards learning in an unconventional setting like a children's hospital has contributed to frequent media exposure (e.g., interviews with CBS Evening News, NPR's “All Things Considered”, Fast Company, Popular Mechanics), numerous awards (e.g., the White House’s “Honorary Maker” Award), and several prominent speaking engagements (e.g., Cannes Lion Health, Children’s Miracle Network Hospitals, Cognizant Women Empowered Executive Forums). With the help of the Maker Therapy model, Krishnan is on a mission to create a more hopeful world for children living with chronic illnesses.

**TOPIC: The World’s First Makerspace in a Children’s Hospital**

Cancer patients at Lucile Packard Children’s Hospital Stanford now have access to the world’s first Makerspace in a children’s hospital setting and it’s giving them an opportunity to create solutions to problems that may impact them throughout their treatment. The Makerspace is setting patients up to be part of the next big culture of innovation in healthcare. They’re on the front lines receiving medical treatment. Why can’t they be the next big innovators and entrepreneurs?
Keynote Speaker

Carmen Medina

Carmen, a retired Senior Federal Executive with 32 years’ experience in the Intelligence Community, is a recognized national and international expert on intelligence analysis, strategic thinking, diversity of thought, and innovation and intrapreneurs in the public sector. She is the co-author of the new book: Rebels At Work: A Handbook for Leading Change from Within and of the landmark Deloitte University Press paper on Diversity’s New Fronter: Diversity of Thought and the Future of the Workplace. Her story as a heretic and change agent at CIA is featured in Wharton School professor Adam Grant’s new bestseller Originals: How Non-Conformists Move the World.

From 2005-2007 Carmen was part of the executive team that led the CIA’s Analysis Directorate; in her last assignment before retiring she oversaw the CIA’s Lessons Learned program and led the Agency’s first effort to address the challenges posed by social networks, digital ubiquity, and the emerging culture of collaboration. She was a leader on diversity issues at the CIA, serving on equity boards at all organizational levels and across Directorates. She was the first CIA executive to conceptualize many IT applications now used by analysts, including online production, collaborative tools, and Intellipedia, a project she personally green-lighted; as a senior executive, she began using in 2005 social networking and blogs to reach her diverse workforce.

Upon her retirement from CIA, she received the Distinguished Career Intelligence Medal. From 2011—2015, Carmen was a member of Deloitte Federal Consulting where she served as senior advisor and mentor to Deloitte’s flagship innovation program, GovLab.

Carmen describes herself as Puerto Rican by birth and Texan by nationality. She likes to garden and cook things that she has grown. You can follow her on Twitter @milouness and visit her two blogs: recoveringfed.com and rebelsatwork.com.

TOPIC: The Science and Art of Diverse Thinking

To really have the impact our society needs, experts in STEAM disciplines need to be heard. This can be difficult when you find yourself a minority voice in a large organization. To harness the power of different thinking, we need to present unique ideas effectively and develop more powerful conversational habits. Carmen Medina draws on her 32-year career as a heretic at the Central Intelligence Agency to empower everyone to be a more effective catalyst for thinking differently.
SESSION VII PRESENTATIONS

SESSION ID: 77
Supporting STEM and STEAM Learning with the School Facilities Program
Room: 2000
PATHWAYS: CTE, LA, MSA

A panel of CDE representatives presents the latest on Proposition 51 facilities funding, followed by break-out discussions for a deeper dive into career technical education, best practices and research, and flexible learning environments for STEM and STEAM learning.

Molly Stitt, Education Programs Consultant, California Department of Education
Juan Mireles, Director, School Facilities and Transportation Services Division, California Department of Education

SESSION ID: 128
Design Challenges & Engineering Feats!
Room: 2002
PATHWAYS: EL, GW, MSA

Come join in a hands-on session that demonstrates how design challenges dovetail with a STEAM approach. Students are actively engaged in using a variety of easily available materials. Imagine how you can use the materials!

Belle Akers, First Grade Teacher, Convent of the Sacred Heart

SESSION ID: 246
Nature Journaling as a Cross-Subject Catalyst for Environmental Literacy
Room: 2004
PATHWAYS: AE, ELL, MSA

Nature Journaling is a hands-on approach to develop Environmental Literacy for every California student. Nature journals develop the scientific practices of observation, interpretation, and communication while contextualizing cross-disciplinary knowledge and skills from sciences, mathematics, and creative and English language arts.

Rosanna Ayers, Coordinator, Science, STEAM, Merced County Office of Education
Michelle Gilmore, Outreach Manager, Southern Sierra Critical Zone Observatory, University of California, Merced

SESSION ID: 377
Room: 2006
PATHWAYS: AE, GW, MM

Take home ideas for your classroom in this session featuring teachers from the Global Learning Studios network of classrooms collaborating to empower students to design and make solutions to the biggest problems facing the world today.

Josh Weisgrau, Program Director, Maker Learning, Digital Promise Global
Lucy Rivera, Makerspace Teacher, Leadership Public School, Hayward Unified School District

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SESSION ID: 171
Information Literacy Across Disciplines Using the Model School Library Standards
Room: 2007
PATHWAYS: AE, MSA
Recent events have renewed attention to the critical need for information literacy. Join us to revisit the Model School Library Standards and consider how all content areas can help develop the digital skills needed to succeed in the 21st Century.

Sherry Chapman, EDUCATION PROGRAMS ASSISTANT, CALIFORNIA DEPARTMENT OF EDUCATION
Jennifer Howerton, EDUCATION PROGRAMS ASSISTANT, CALIFORNIA DEPARTMENT OF EDUCATION

SESSION ID: 244
Design Thinking, Engineering, and Innovation: A K-8 Model
Room: 2008
PATHWAYS: LA, MM, MSA
Double Peak School will share their story of building a brand new K-8 school’s Innovation Program with an emphasis on design thinking, making in the Makerspace, engineering, technology, and computer science. Attendees will leave with lessons and resources!

Christine Dixon, INNOVATION COORDINATOR TOSA, DOUBLE PEAK K-8 SCHOOL, SAN MARCOS UNIFIED SCHOOL DISTRICT
Steve Baum, PRINCIPAL, DOUBLE PEAK K8 SCHOOL

SESSION ID: 439
SAPA: Science As Performing Arts
Room: 2009
PATHWAYS: MSA
Concepts of science performed with a SAPA approach to teaching, because “having an education” is like scientific knowledge. It is what you do with it that matters. How students learn something is as important as what they are learning.

David Hanley, SCIENCE ENTERTAINER, ADJUNCT INSTRUCTOR, MUSEUM DOCENT, UNIVERSITY OF LA VERNE, BUENA VISTA MUSEUM OF NATURAL HISTORY AND SCIENCE
Jill Hanley, ASSISTANT DIRECTOR, STOCKDALE CHRISTIAN DAY CARE

SESSION ID: 60
Using Environmental Literacy to Inspire STEAM Careers Through Standards-Based Instruction
Room: 2010
PATHWAYS: AE, CTE, MSA
The environment is an authentic and engaging context that is deeply embedded in CA NGSS. CA NGSS calls for STEAM focused, hands-on environmental learning experiences for all students. Learn from educators about how to implement Environmental Literacy.

Karen Cowe, PROJECT DIRECTOR OF THE ENVIRONMENTAL LITERACY STEERING COMMITTEE, CEO OF TEN STRANDS, ELS C, TEN STRANDS
Rebecca Vyduna, DIRECTOR, SAN MATEO COUNTY OFFICE OF EDUCATION, STEM CENTER

SESSION ID: 432
STEAM with Arduino
Room: 2011
PATHWAYS: MM, MSA
See how STEAM can come alive with the addition of the Arduino Microcontroller to infuse coding, science, math and elements of engineering design.

Ascension Reyes, TECHNOLOGY RESOURCE TEACHER, DE ANZA MAGNET SCHOOL
Marco Arellano, STEM COORDINATOR, EL CENTRO ELEMENTARY SCHOOL DISTRICT

SESSION ID: 188
Tools for Engaging Girls in STEM
Room: 2012
PATHWAYS: GW
Join statewide STEM leaders and practitioners who have the ingredients for success. Come away with innovative opportunities to spark girls’ interest.

Lupita Cortez Alcala, COMMISSIONER, CALIFORNIA COMMISSION ON THE STATUS OF WOMEN & GIRLS
Beth Broome, SENIOR ADVISOR TO THE PROVOST, UNIVERSITY OF CALIFORNIA, DAVIS

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SESSION VII PRESENTATIONS

SESSION ID: 424
Tubes, Tape, Imagination: Starting and Sustaining a Future Ready Lab
Room: 2020
PATHWAYS: LA, MM, MSA
Considering starting a STEAM Lab? Learn from our experience the steps to take from ideation to implementation. What worked, what didn’t, and what can you take back to do tomorrow?
Jennifer Harrison, PRINCIPAL, TUSTIN UNIFIED SCHOOL DISTRICT
Traci DiLellio, TEACHER, TUSTIN UNIFIED SCHOOL DISTRICT

SESSION ID: 521
Talk Numbers to Me: The Ratio Table
Room: 2022
PATHWAYS: AE, EL
The Ratio Table is a powerful tool for students to shift from additive-thinking to multiplicative; master the distributive-property, partial products and quotients, proportional reasoning with real-world problems, crafting multiple solutions; and providing proofs of students’ own conjectures.
Christina Lincoln-Moore, EQUITY AND ACCESS CHAIR, CALIFORNIA MATHEMATICS COUNCIL-SOUTH

SESSION ID: 251
Empowering Empathy with Environment and Engineering: Raptors and Wind Turbines
Room: 2024
PATHWAYS: MSA
The session details the development and implementation of a successful CA NGSS unit for fourth grade classrooms that incorporates Environmental Literacy, engineering, discourse, problem-solving and emphasizes the importance of empathy in STEM education through the lens of wild animal survival stories.
Michele Korb, ASSOCIATE PROFESSOR, SCIENCE EDUCATION, CALIFORNIA STATE UNIVERSITY, EAST BAY
Bruce Holaday, DIRECTOR, WILDLIFE ASSOCIATES

SESSION ID: 384
Making Elementary CA NGSS Real with Citizen Science Projects
Room: 3000
PATHWAYS: AE, EL, MSA
Learn how to boost your STEAM education classroom and integrate the CA NGSS by involving your students in citizen science projects.
Rebecca Cihak, TRAINER, EDUCATOR, INSTRUCTIONAL LEADERSHIP CORPS, ROCKLIN UNIFIED SCHOOL DISTRICT

SESSION ID: 394
Guided Investigations: Where Discovery Becomes Productive
Room: 3001
PATHWAYS: AE, MSA
Merge discovery, productive struggle, meaningful discourse and explicit instruction to maximize engagement, focus, and learning. Work with and hear about lessons that utilize analyzing physical data to create models and make predictions leading to deeper understanding of important math concepts.
Dean Ballard, DIRECTOR OF MATHEMATICS, CORE INC.

SESSION ID: 470
CA NGSS, Expanded Learning, and Partnering with the School Day
Room: 3002
PATHWAYS: MSA
Experience STEAM from a traditional, experiential, and inquiry-based lens. Learn how Expanded Learning Programs plan and implement STEAM lessons in the hours school is not in session. Enter the discussion about school day and Expanded Learning partnerships.
CynDee Zandes, EXPANDED LEARNING DIVISION CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION
Melissa MacDonald, EXPANDED LEARNING DIVISION CONSULTANT, CALIFORNIA DEPARTMENT OF EDUCATION

STRANDS
1 STEAM Across Grades and Disciplines
2 Integrating Environmental Literacy in STEAM Disciplines
3 Design Thinking and Engineering: Where Art Meets Science
4 Supporting STEM/STEAM through 21st Century Learning Environments
5 Learning Beyond the Classroom
6 Preparing a 21st Century Workforce

PATHWAYS
CTE Career Technical Education
MM Maker and Makerspaces
EL Early Learning
ELLA English Language Learners
AE Access and Equity
GW Girls and Young Women
LA Leadership and Administration
MSA Making Standards Come Alive

#CASTEAM17 | WI-FI: CASTEAM17 / casteam17
Leveraging Corporate Partnerships for CS Expansion within Districts

**Room: 3003**

**PATHWAYS:** AE, LA, MSA

Join a discussion with two district representatives who are making computer science education a reality. They will share strategies and partnerships to clear hurdles, like recruiting teachers from industry and credentialing issues. Students will share the importance of their experience.

**Bryan Twarek**, COMPUTER SCIENCE PROGRAM ADMINISTRATOR, SAN FRANCISCO UNIFIED SCHOOL DISTRICT

**Sam Berg**, COMPUTER SCIENCE COORDINATOR, OAKLAND UNIFIED SCHOOL DISTRICT

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Trans-Disciplinary STEAM: Reading, Writing, Experimenting, Researching & Reflecting

**Room: 3004**

**PATHWAYS:** AE, ELL, MSA

This workshop is trans-disciplinary, hands-on, and project-based. It incorporates literacy, collaboration, digital citizenship, and STEAM in the Core Content areas. It models how STEAM can be the vehicle for learning in other areas such as ELA, AVID, SLA, and History.

**Kristie Steinlicht**, STEAM TEACHER, VACAVILLE UNIFIED SCHOOL DISTRICT, ANACAPA MIDDLE SCHOOL

**Heather Carr**, LIBRARY-MEDIA TEACHER, ANACAPA MIDDLE SCHOOL

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Sports and STEAM: Inspiring and Inclusive

**Room: 3005**

**PATHWAYS:** AE, GW, MSA

Experience the Chevron STEM Zone through videos and discussions and sports-themed computer models that emphasize engineering design and CA NGSS Science and Engineering Practices. CSU future teachers facilitate STEM Zone activities with 3rd-8th grade students when they attend the interactive exhibits.

**K. Virginia Lehmkuhl-Dakhwe**, UNIVERSITY STEM EDUCATION OFFICER, CALIFORNIA STATE UNIVERSITY, SAN JOSE

**Aaminah Norris**, ASSISTANT PROFESSOR (TEACHING CREDENTIALS), CALIFORNIA STATE UNIVERSITY, SACRAMENTO

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Building Effective Advocacy to Support STEM Education

**Room: 3020**

**PATHWAYS:** AE, LA

In this interactive workshop participants will learn about effective advocacy and communication practices and utilize knowledge gained to develop an advocacy goal and key messages for their unique context to support STEM education in their school or community.

**Michael Gilligan**, VICE PRESIDENT, STRATEGIC INITIATIVES, ACHIEVE

**Teresa Eliopoulos**, SENIOR ASSOCIATE, POLICY AND PRACTICE, ACHIEVE
SESSION VII PRESENTATIONS

SESSION ID: 453
A Proposal for Dummies: Creating a STEAM Magnet School
Room: 3022
PATHWAYS: AE, LA, MSA

A great initiative needs a great proposal. What happens when you galvanize a disenfranchised community to embrace a STEAM Magnet? Twenty-three proposals were denied by the Board of Education, but this one was accepted.

Dr. Acacia Warren, Adjunct Faculty for Teacher Education Program, California State University, Dominguez Hills

SESSION ID: 524
Invent, Create! Robotics and Career Excitement
Room: 3024
PATHWAYS: CTE

A panel of presenters will discuss multiple models for using robotics in education so that students gain technical skills with real-world applicability. The session also includes activities to engage audience members in solving programming challenges with robots.

Stephen Adams, Professor, Educational Technology, California State University, Long Beach
Stephen Glass, Principal, West Covina High School

SESSION ID: 538
Power Up! Embedding Power Skills and Entrepreneurship in Your Program
Room: Nook 301
PATHWAYS: AE, LA, CTE

Add power skills and entrepreneurship to your CTE program to increase student engagement and broaden access and equity.

Dr. Vera Jacobson-Lundeberg, CTE Coordinator, San Mateo County Office of Education

SESSION ID: 55
Building STEM Sisters
Room: Nook 302
PATHWAYS: GW

We are the founders of STEM Sisters at John McCandless STEM Charter. Join us to learn how you can build a program at your school to bridge the gender gap in STEAM so our girls feel they are equally represented.

Justine Sares, Teacher, John McCandless STEM Charter School, STEM Sisters
Kimberly Vocker, Teacher, John McCandless STEM Charter School

SESSION ID: 121
Do You Know it When You See It? CCSS-Math Implementation
Room: Nook 303
PATHWAYS: AE, LA, MSA

Participants will understand how to create/utilize a measurement tool to gauge the degree to which teachers are shifting practices to reflect the CCSS: Mathematics, and best practices and lessons learned for utilizing that tool.

Rebecca Perry, Senior Program Associate, WestEd
Vicky Armstrong, Director of Curriculum, Dinuba Unified School District

SESSION ID: 546
Team Time
Room: Nook 304
PATHWAYS: LA

Gather your team in this meeting space and plan how you will implement what inspired you or create a presentation to share when you return.

Neal Bottom, Fellow, California Department of Education
SESSION ID: 438

The Big IDEA: Playmakers for the 21st Century
Room: Stage
PATHWAYS: MM, MSA

In this session Mr. Pavao will lead you through a process to implement where students Inquire, Design, Engineer, and Act on ideas that will shape their future. The practices learned in this session are vital for students’ futures.

Matthew Pavao, PRINCIPAL, BURLINGAME SCHOOL DISTRICT
Sean Kuiper, TEACHER, BURLINGAME SCHOOL DISTRICT

WE WANT YOUR FEEDBACK!

Please complete session and Symposium surveys. For each survey completed, you will be entered to win a prize!

CLOSING • 1:30 - 2:30 P.M.

California STEAM Symposium Team Time
Room: Nook 304

The 2017 California STEAM Symposium inspired your team to put innovative ideas into action. Take advantage of having your team gathered in one place and commit to those ideas before you return. The STEAM Symposium is able to provide a limited number of conference facilities, supplied with internet access, meeting resources, and experts in areas such as CA NGSS implementation, LCAP planning, Collaboration in Common, and how to start a STEAM program or computer science program in your school or district. We recommend that a region, county, district, or school leader organizes your group. Go to Nook 304 and draft your plans today.
“This conference has been great every year! It is my #1 recommendation for the teachers and principals of the STEM magnet schools I work with to attend.”

-STEM SYMPOSIUM ATTENDEE
We appreciate and recognize the following individuals and organizations for their contributions to the success of the 2017 California STEAM Symposium:

**California Department of Education Administrative Team**

- Tom Torlakson, State Superintendent of Public Instruction
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- Trish Boyd Williams, Member, California State Board of Education
- Veronica Aguila, Division Director, English Learner Support Division

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- Monique McWayne, Administrator, STEM Office, California Department of Education
- Paula Evans, Education Programs Consultant, STEM Office, California Department of Education
- Julia Agostinelli, Education Programs Consultant, Professional Learning Support Division, California Department of Education
- Lupita Cortez Alcalá, Chair, California Commission on the Status of Women and Girls
- Nancy Kirshner-Rodriguez, Executive Director, California Commission on the Status of Women and Girls

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- Michele Lambert
- Mirsa Lopez
ACKNOWLEDGMENTS

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Amy Zschaber, VAPA/STEAM COORDINATOR, STANISLAUS COUNTY OFFICE OF EDUCATION
SAFETY TIPS

We know you will enjoy all San Francisco has to offer—from its unsurpassed beauty to its myriad world-famous attractions and activities. However, in any urban setting, no city or town is exempt from mishap. We offer suggestions to ensure your stay during the Symposium is enjoyable and safe.

Travel Smart

Don’t leave valuables, purses and especially IDs in meeting or hotel rooms or vehicles when you are not present.

When you leave Moscone Center West, remove your name badge and ribbons. Similarly, leave any tote bags in your hotel room. These are signs you are from out of town and might be an easy target.

There is safety in numbers. Find a buddy or a group, and periodically check on each other and agree on departure times.

Plan your route in advance; consult maps indoors before leaving your hotel. Locate places on your route where you can seek help.

Always remain alert to your surroundings and people nearby. Leave an area if it appears unsafe. Don’t walk and text or catch up on emails.

Ask directions from service providers, hotel desk staff, telephone or power company employees, police or traffic officers. Avoid asking strangers on the street.

Remember, alcohol consumption diminishes awareness.

Active Shooter

In the event of an active shooter incident outside the hotel or convention center, the Safety and Security staff will declare a lockdown and will secure all entrances to the hotel. Officers will be posted at the entrances to inform occupants of the situation and to ensure that occupants do not leave the building.

In the event of an active shooter incident inside the property:

1. Evacuate: If there is an accessible escape path, attempt to evacuate the premises.
2. Hide out: If evacuation is not possible, find a place to hide where the active shooter is less likely to find you.
3. Take action against the active shooter: As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter.

Earthquake Procedures

Try to get at least 15 feet away from a window so you are not cut by flying glass. Never run outside during the earthquake.

If you are in the hallway or open area, sit down against the wall and cover your head and neck with your hands. Remain there until shaking stops.

Never take elevators during the earthquake.

Do not use any open flames such as candles - the risk of gas explosion is high at this time.

If inside a breakout room, duck, cover & hold:

- Duck under a sturdy desk or table.
- Cover your head and as much of your body as you can.
- Hold onto the table; if it moves, remember to move with it, keeping yourself covered as you go.

Be prepared for aftershocks.

Reporting an Emergency/Moscone West Procedures

Report all emergencies immediately. Call 511 on any white House phone located on each floor in Moscone West.

For fire or evacuation emergencies, use a pull station located adjacent to each emergency stairway.

In the case of medical emergencies, Moscone West schedules medical personnel during all event hours. The medical staff is responsible for treating medical emergencies and serves as a liaison to emergency care agencies; medical staff should be notified of all injuries. All non-emergency injuries should be directed to one of the Health Offices. First Aid is located on Level 1.

Once emergencies have been reported to the appropriate officials, please visit the STEAM Registration Desk (Lobby Level) or Information Desk (Level 2) to alert the STEAM Symposium management team so we may assist you with appropriate next steps or follow up.

Useful Phone Numbers

Police, Fire and Emergency personnel: 911
Police: 415-553-0123
Fire Department: 415-558-3200

3-1-1 connects residents, business owners, and visitors with highly trained Customer Service Representatives with general government information and services. Through 311, you can file a taxi complaint or compliment or report a lost item.
## Featured Exhibitors

**Booth #** | **Company**
--- | ---
412 | Fresno Pacific University
704 | Anaheim Ducks Hockey Club
601 | ArtsAttack
401 | California Commission on the Status of Women and Girls
603 | Carolina Biological Supply
602 | Courage
700 | Comcast
708 | California Science Teachers Association
701 | CSU, Office of the Chancellor
705 | HP, Inc.
706 | Impact Science Education
709 | National Science Teachers Association
703 | Octave Systems Inc
208 | Office Depot/Modern Learning Classroom
707 | Project Lead the Way
600 | Robot Mesh
105 | www.vulcode.com
501 | zSpace

## Additional Exhibitors

**Booth #** | **Company**
--- | ---
314 | Advanced Technologies Consultants
400 | AIRWOLF 3D
312 | American College of Education
604 | Amplify
118 | Aspire Public Schools
116 | AUVSI/RoboNation
310 | Black Girls CODE
308 | Buzzmath
94 | California Casualty Auto and Home Insurance
503 | California Community Colleges
204 | California Creations
112 | California Mathematics Council
305 | Carnegie Learning, Inc.
99 | Chibitronics
110 | College of St. Scholastica
108 | CPPM
98 | CraftBot
97 | Cubit
91 | Decision Education
513 | Delta Education
106 | Dramatic Results
104 | Ednovate
417 | ELB US Inc.
511 | Engineer Your World from The University of Texas
419 | Engineering is Elementary
211 | ExploreLearning
103 | FACES Math
213 | Fisher Science Education
215 | Frey/CPQ
218 | Get More Math
92 | Girls Who Code
120 | Houghton Mifflin Harcourt
217 | iDESGN Solutions
320 | iFLY Indoor Skydiving
415 | Imagination Heals
121 | IntelaMetrix, Inc.
413 | KaBOOM!
106 | Kendall Hunt Publishing Company
201 | KinderLab Robotics
200 | Klein Educational Systems
421 | KGEd
409 | Learn Fresh Education Company
509 | Learning A-Z
101 | Lectrify
100 | Magnitude.io
95 | MIND Research Institute
219 | MiniOne Systems
407 | Mobile CSP, University of San Francisco
405 | Mouse California, A Program of Aspiranet
317 | Nasco
605 | National Geographic Learning/Cengage Learning
403 | National Inventors Hall of Fame
418 | NatureBridge
111 | NEXMAP
416 | Northeastern University
216 | Ohana Learning Series
414 | Pacific Oaks College
515 | Paton Group
519 | Paton Group
209 | Paxton/Patterson
207 | Pearson
301 | Piper, Inc.
411 | Point Bonita YMCA
410 | Project Cornerstone
96 | Real Journey Academies
408 | Science is Elementary
404 | Scientific Adventures for Girls
407 | SheHeroes
402 | Silicon Valley Education Foundation
420C | Southern Science Supply
93 | Spark Decks
109 | Square Root Academy
203 | STEM Jobs Magazine
205 | STEMfinity
220 | STEMscopes CA-NGSS
505 | Studentnest Foundation
318 | Studica Inc.
90 | TEALS
302 | Texas Instruments, Inc.
102 | The Engineer Factory, A Project of Community Partners
304 | The Exploratorium Teacher Institute
114 | The KYA Group
119 | The Quest Institute
221 | TPS Publishing Inc. and CeMaST, The Quest Institute
102 | Texas Instruments, Inc.
106 | Dramatic Results
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