

California Council on Science and Technology

Council MEETING

*Susan Hackwood
CCST Executive Director*

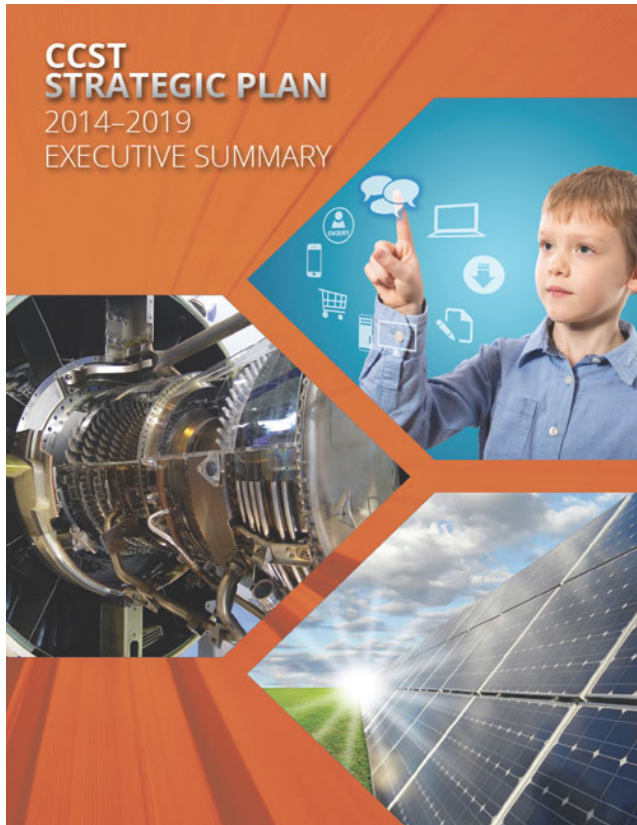
October 16, 2014

Summary of CCST Activities

- ✧ Annual Report
- ✧ Strategic Planning process completed
- ✧ 6th class of S&T Policy Fellows selected
- ✧ Water Action Team
- ✧ California's Energy Future – Policy
- ✧ Well stimulation report for BLM (completed)
- ✧ Well stimulation report for SB4 (in process)
- ✧ Cal TAC report
- ✧ CCST trips to DC

Strategic Planning

- ✧ In 2013, CCST launched strategic planning processes for both CCST and the CCST Science and Technology Policy Fellowship program
- ✧ Reports produced in consultation with stakeholders, compiled by Debenham Consulting
- ✧ Board to consider final drafts



Strategic priorities overview

- ✧ BOARD: Governance and fiduciary management; oversee implementation of plan
- ✧ COUNCIL: Proactive translator of science, representing scientific expertise, identifying issues needing study
- ✧ S&T Policy Fellows: ensure that expert S&T advice is part of policymaking
- ✧ CAL TAC: Voice of master teachers in policymaking process on best practices in STEM education

Defining our mission

CCST catalyzes leading experts in science and technology to engage with policy makers to ensure California's continued leadership in science, technology, innovation, and STEM education.

Our top strategic priority in all that we do is to ensure that California policy is increasingly informed by the best objective, evidence-based science and that scientists and policymakers are linked in high-quality interactions.

*2013-14 Class of Fellows
(Year 5)*



Left to Right: Nathan Phillips, Brandon Gaytán, Alexis Erwin, Sarah Brady, Brie Lindsey, Toni Lee, Karen Morrison, David Ernest Garcia, Alia Schoen, Colin Murphy

California Science+Technology+Policy Fellowships

Nathan Phillips resumed professorship at Boston University

Sarah Brady accepted position in Assembly Member Bonilla's office

Toni Lee has accepted a position with a startup biotech company in Southern California

Colin Murphy accepted position with NextGen Climate

Alexis Erwin is now a AAAS Fellow working for US AID

Karen Morrison accepted position with CalRecycle



Six Fellows have already accepted employment in new positions

2014-15 Fellows (Year Six)

- **Debra Cooper**
 - PhD in Neuroscience, Emory University
 - BS in Psychology, Duke University
- **Angela Doerr**
 - PhD in Ecology, UC Davis
 - BS, Duke University and MBA, American Military University
 - Active duty in the Navy for 8 years
 - Lieutenant Commander, Navy Reserves
- **Vivian Ericson**
 - PhD in Molecular and Cellular Physiology, Stanford University
 - BS in Cell and Developmental Biology, UC Santa Barbara
- **Laurie Harris**
 - PhD in Wildlife Epidemiology, UC Davis
 - BS in biology and DVM, Purdue University
- **Christine Hochmuth**
 - PhD in Cell and Molecular Biology, University of Rochester
 - MS in Biology, University of Rochester
 - MS and BS in Biological Sciences, SUNY Brockport
 - BS in Biology, Ohio State University
- **Andrew Kosydar**
 - PhD in Biology, University of Washington
 - BS Wildlife Biology and BA in French, University of Montana
- **Jane Mantey**
 - PhD in Biomedical Sciences, Meharry Medical College, Nashville, TN
 - BS in Biology, University of Maryland, Eastern Shore
 - Vanderbilt University Scientist-In-The-Classroom Partnership teaching fellow, 3rd, 4th, and 8th grades
- **Shannon Muir**
 - PhD in Biomedical Sciences, UC San Diego
 - MS in Pharmacology, Tulane University
 - BS in Psychobiology, UC Los Angeles
- **Estevan Santana**
 - PhD in Microbiology, Ohio State University
 - BS in Biology, Ohio State University
- **Scott Sellars**
 - PhD in Civil Engineering, UC, Irvine
 - MS in Civil Engineering, UC Irvine
 - MA in Climate and Society, Columbia University in New York City
 - BS in Meteorology, University of Utah in Salt Lake City

2013-14 FELLOWS



2012-13 FELLOWS



2011-12 FELLOWS



2010-11 FELLOWS



2009-10 FELLOWS

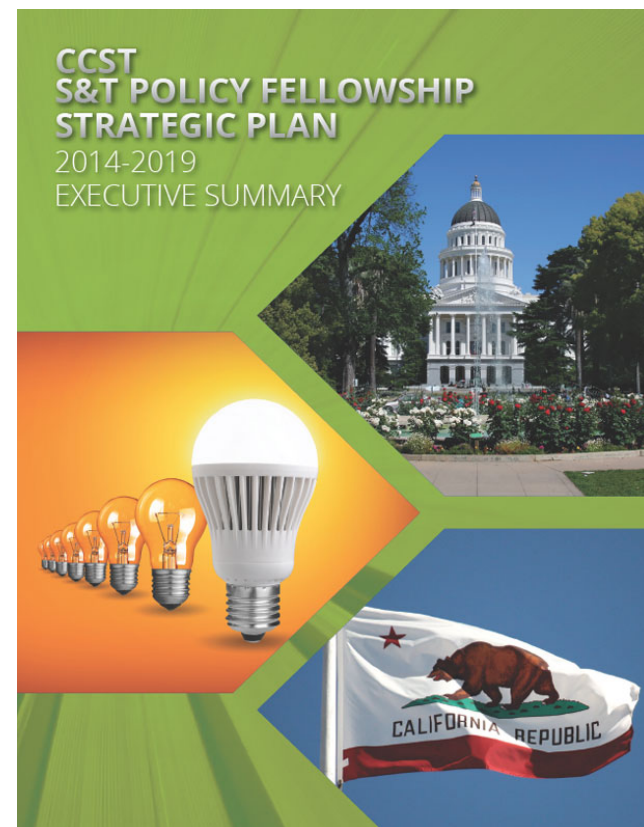


Alumni Fellows

- ✧ Doug Brown continues to coordinate grant to support development & operation of a formal S&T Policy Fellows Alumni Network
- ✧ July newsletter well received
- ✧ Five alumni working in DC area, discussed plans for first 'chapter' of former Fellows outside CA
- ✧ February 2015 targeted for event in State Capitol

Strategic Planning

- ✧ Program is thriving
- ✧ Current goals are to maintain current legislative program for additional 5 years and expand to Executive branch
- ✧ Currently funded through 2016 (Year 7)
- ✧ Renewing funders for years 5-10:
 - ✧ *GBMF - \$1M*
 - ✧ *Heising Simons - \$333K*
 - ✧ *John Morgridge - \$500K*
- ✧ New funders for years 5-10:
 - ✧ *Anonymous - \$100K (received)*
 - ✧ *T. Geballe - \$5K (received)*
 - ✧ *Corey Goodman - \$50K (pledged)*
 - ✧ *Charles Harper - \$100K (pledged)*



California's Water Future

Report released on April 9

Road map of innovations in science and technology to improve management of California's water system over multi-year cycles of drought and surplus

Complements DWR's California Water Action Plan



Science and Technology Innovation for California's Water Future

- ✧ Report has 12 broad conclusions and 5 top priorities
- ✧ Number one key priority: create an integrated data management system where all sources and all uses of water are measured
- ✧ Proposed data portal where all federal, state, local agencies provide data on water sources, uses, and other demographics
- ✧ In June, Julie Meier Wright and Karl Longley visited DC to present findings

California's Energy Future – Policy

- ✧ Describes technology and policy requirements needed for California to reduce emissions to 80% below 1990 levels by 2050
- ✧ CEF project chair Jane Long and others on CEF and CEF-P committees regularly asked to comment on study in media
- ✧ Energy session at AAAS annual conference will be held in Feb. 2015, will include results from CCST and other studies



**An Independent Review of
Scientific and Technical
Information on
Advanced Well Stimulation
Technologies in California**

Review of Well Stimulation Technologies

- ✧ Purpose of assessment was to synthesize and assess the available scientific and engineering information associated with well stimulation technologies in California
- ✧ Report did not make policy recommendations
- ✧ Addresses three major questions:
 1. What is past, current, and potential future practice in well stimulation technologies?
 2. Where might these technologies allow expanded production of oil onshore in CA?
 3. What are potential direct environmental hazards of these specific technologies in CA?

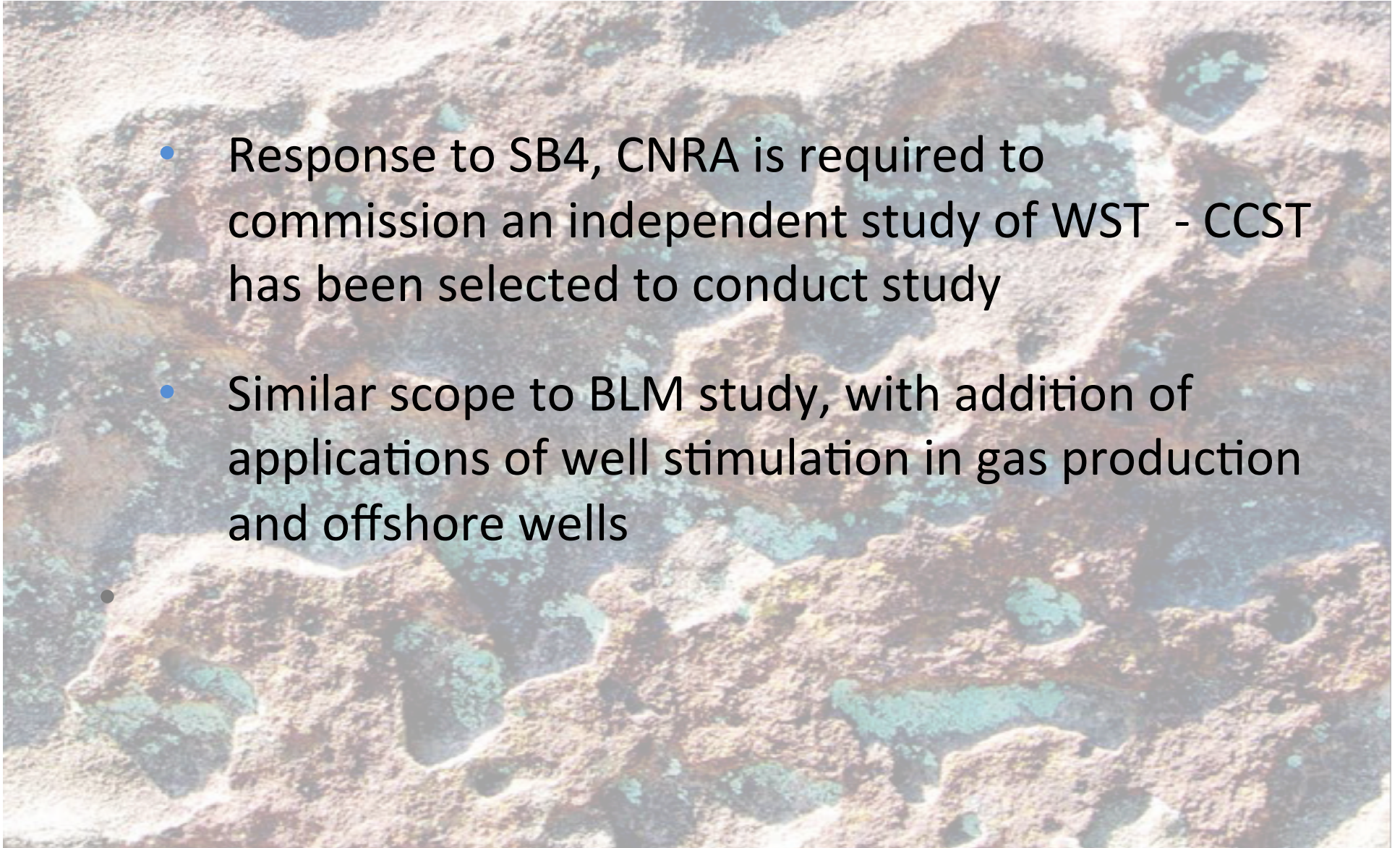
WST Release and Dissemination

- ✧ Report was publicly released on August 28, 2014
- ✧ Authors held series of briefings with U.S. Dept of Interior, U.S. Bureau of Land Management, California executive branch, members of U.S. Congress, Congressional staffers, staffers in the State legislature, staff of the National Academy of Science, and the U.S. Environmental Protection Agency
- ✧ Briefings also held for Congressional Delegation and CA Institute for Policy Research in DC on September 9
- ✧ Considerable media coverage
- ✧ Immediate outcome: BLM announced it was planning to resume oil and gas leasing in CA

Second Assessment of Well Stimulation Technologies



- Response to SB4, CNRA is required to commission an independent study of WST - CCST has been selected to conduct study
- Similar scope to BLM study, with addition of applications of well stimulation in gas production and offshore wells



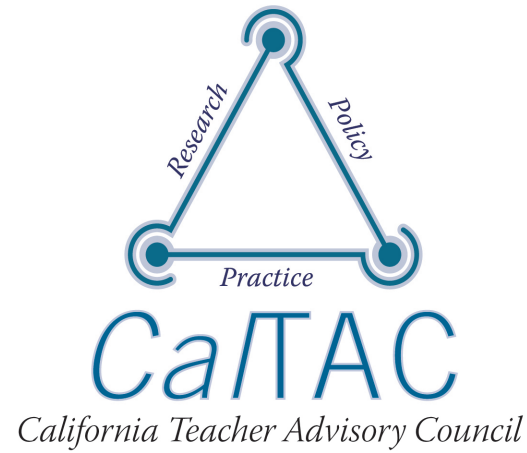
SB4 Well Stimulation Assessment

✧ Report will be issued in three volumes:

1. Past, Present and Future Applications of Well Stimulation Technology in California
2. Environmental Impacts of Well Stimulation Technology in California
3. Case Studies with Selected Evaluations of Environmental and Public Health Risk

SB 4 Assessment

- ✧ Lawrence Berkeley National Laboratory contracted to work on project
- ✧ Subcontractors include Pacific Institute; Physicians, Scientists, and Engineers for Healthy Energy; Adam Brandt (Stanford); Amro Hamdoun (Scripps Institute); Donald Gautier (USGS)
- ✧ Volume I is completed and has sent out for peer review; scheduled public release in January 2015
- ✧ Volumes II and III will go out for peer review in early 2015 and will be made public by July 2015



The vanguard of quality STEM
education



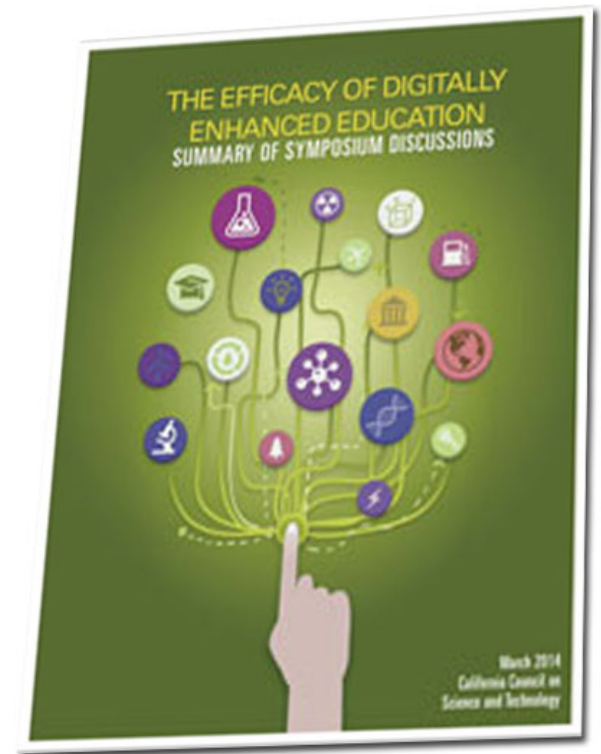
California Teacher Advisory Council

Refining Cal TAC's Action Plan

- ✧ Monitoring and developing tools to measure the efficacy of digitally enhanced education (funded by the Stuart Foundation, completed in August)
- ✧ Outreach and sustainability to include expanding Cal TAC membership, convening workshops, exploring a Distinguished Educators Fellows program
- ✧ Partnerships to include exploring Cal TAC teachers' appointments as adjunct faculty at CSU and/or CCC

Efficacy of Digital Teaching And Learning II

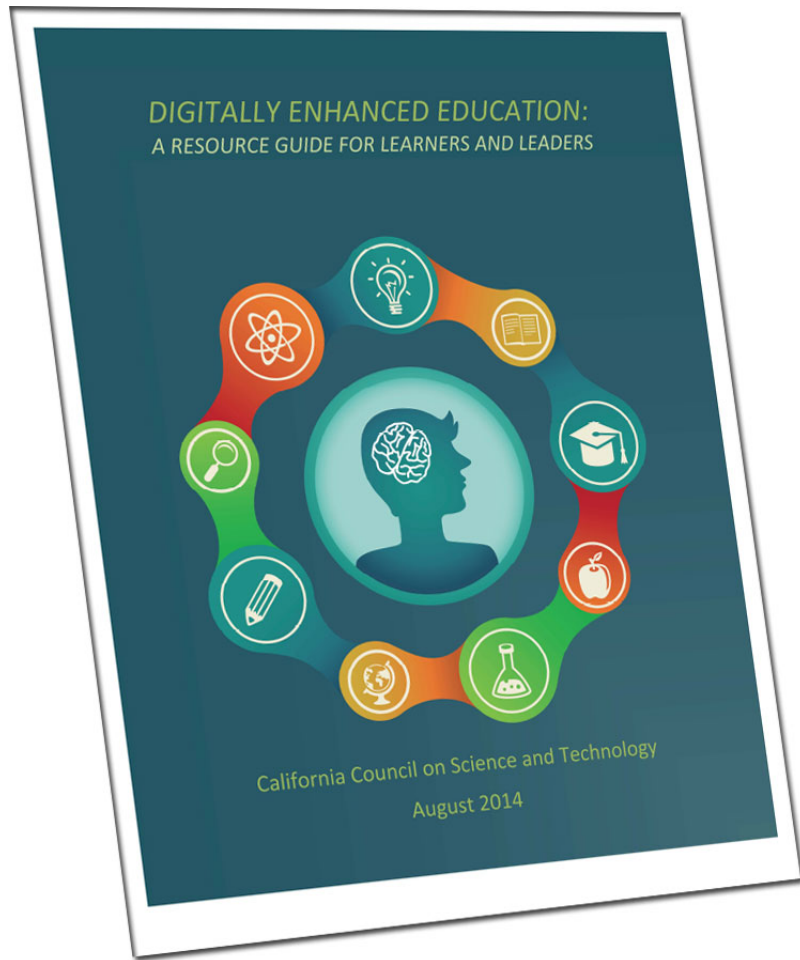
- ✧ Report released on March 27, summarizing symposium in October 2013
- ✧ Report offers recommendations to decision makers on developing sound, research-based approaches to implementation of digitally enhanced education
- ✧ Cal TAC members briefed leaders in DC in June about symposium report



Cal TAC activity in D.C.

- ✧ June 3-4: Workshop on Successful Out of School STEM Learning
- ✧ June 5-6: Convocation on One Year After Science's Grand Challenges in Education – Professional Empowerment of STEM teachers through Education Policy and Decision Making





DEE: A Resource Guide for Learners and Leaders

Released August 2014

“QUICK” assessment developed for on-the-spot use

QUICK Assessment For Educational Digital Resources		
PRINCIPLE	EVIDENCE	MY RATING
QUALITY OF THE RESOURCE	<p>The resource:</p> <ul style="list-style-type: none"> Is valid and reliable Functions as described Is well designed, easy to use, and works properly Provides materials that are comprehensive and easy to understand 	
USER-FRIENDLY	<p>The material:</p> <ul style="list-style-type: none"> Is accessible to all students Offers a variety of ways for students to use the materials Has a range of cognitive demands appropriate for my students 	
INTEREST OF STUDENT CAPTURED AND MAINTAINED	<p>The material:</p> <ul style="list-style-type: none"> Holds my students' interest Invites creativity and innovation Encourages self-direction 	
CCSS & NEXT GENERATION SCIENCE STANDARDS (NGSS) ALIGNMENT	<ul style="list-style-type: none"> The material directly addresses the content and practices of the CCSS and NGSS standards Assessments are clearly aligned to CCSS/NGSS performance expectations 	
KNOWLEDGE AND SKILLS CONTENT	<p>The content:</p> <ul style="list-style-type: none"> Is purposeful and directly related to my students' learning Promotes deeper thinking, understanding, and reasoning Is engaging, clearly written and accurate Clearly identifies the main ideas and purpose of the lesson 	

RATING SCALE:
 California Council on Science and Technology's (CCST) Cal TAC QUICK Assessment was designed as a tool for teachers who wish to rapidly assess the potential of a digital resource. Some may wish to indicate the extent to which the resource addresses the Principles and Evidence by making a simple check or other mark while others may be more comfortable with a scoring rubric such as:

- 3: Excellent potential
- 2: Solid potential in most areas
- 1: Mixed potential
- 0: Little or no potential

There is no single way to use the QUICK. We encourage teachers to experiment with this tool and its rating strategy to discover what works best for them.

Partnerships/collaborations

- ✧ GOORU online library of common core based lessons
- ✧ Common Sense Media/Graphite – Discussions underway with Graphite to feature Cal TAC members as reviewers of apps, games and other resources
- ✧ California State University – CCST and Cal TAC exploring possible appointment of selected Cal TAC teachers as CSU adjunct faculty
- ✧ Center for the Future of Teaching and Learning/WestEd – Cal TAC members hope to participate in “Digital Learning Collaborative” at Stanford University’s Design School





California Teacher Advisory Council

Sustainability

- ✧ Funding requested to significantly expand reach and role of Cal TAC members and alumni to:
 - ✧ Increase Cal TAC membership
 - ✧ Connect selected member and alumni to the education and policy communities through establishment of Cal TAC Education Policy Fellows
 - ✧ Impact culture of teaching profession
 - ✧ Convene state-level thought partners to inform teachers' professional development
 - ✧ Inform policies that strengthen teachers' skills and knowledge of STEM
 - ✧ Strengthen preparation and retention of STEM teachers by working with CTC



Next meeting Feb 18-19, Sacramento

<http://ccst.us>



CCST STEM Education Committee

✧ Key areas of emphasis:

1. Identify specific opportunities by which CCST can contribute to quality of science and math education
2. Advise on implementation of education curricula and common core standards
3. Advise and contribute to use of advanced technology in delivering academic instruction
4. Advise and contribute to use of DEE to upgrade skills and enhance economic opportunities for Californians