

California Online Mathematics Education Times (COMET)
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California Mathematics Project: <http://www.cmpso.org>

California Online Mathematics Education Times (COMET) is an electronic news bulletin providing STEM-related news from California and across the nation, as well as information about professional events and opportunities, current educational issues, and online resources.

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ARTICLES & ANNOUNCEMENTS (CALIFORNIA FOCUS)

(1) Next Generation Science Standards Systems Implementation Plan Approved

Source: California Department of Education

URL:

www.cde.ca.gov/pd/ca/sc/documents/scienceimplementationplan102714.pdf

At its November 13 meeting, the California State Board of Education (SBE) approved the “**Next Generation Science Standards (NGSS) Systems Implementation Plan for California.**” This informative document is available for download from the website above.

“This plan lays out what the state, districts, and the community can do to ensure that the exciting new science standards are implemented smoothly,” stated State Superintendent of Public Instruction Tom Torlakson. “These standards will provide all students with a deeper understanding of science so they are better prepared for college and careers, including jobs in the high-technology fields,” said Torlakson.

During the SBE meeting, districts were encouraged to include the NGSS in LCAP (Local Control and Accountability Plan) Priority 2 and to support teachers in building the NGSS Science and Engineering Practices into their current science curriculum.

Jessica Sawko, Executive Director of the California Science Teachers Association (CSTA), stated that she appreciates the recommendation “to research best practices for making time for science, especially in grades K-5. That’s a critical component to realizing the vision of science for every student every day of every year.” She encouraged the SBE to support as many professional learning opportunities for teachers as possible to help the teachers implement the new science standards.

For more information, please visit www.cde.ca.gov/nr/ne/yr14/yr14rel112.asp and www.cde.ca.gov/be/ag/ag/yr14/agenda201411.asp (see SBE Agenda Item 7).

(2) Achieve Releases Classroom Sample Assessment Tasks for Next Generation Science Standards

URL: www.nextgenscience.org/classroom-sample-assessment-tasks

Achieve recently announced the release of **Classroom Sample Assessment Tasks for middle and high school grades**. These sample tasks, written by secondary science and mathematics teachers, provide examples of how content and practices from both the Next Generation Science Standards (NGSS) and the Common Core State Standards (CCSS) in Mathematics can be assessed together in classrooms. Achieve convened the educators who developed the tasks as part

of Achieve's ongoing work to provide resources to states in support of NGSS adoption and implementation.

Each task focuses on a specific context or storyline and includes multiple components that work together to partially or fully assess a bundle of chosen standards (i.e., a group of related standards from the NGSS and CCSS). The purpose of these sample tasks is to provide some **examples of how to meaningfully integrate the NGSS and CCSS in authentic ways in the context of classroom assessment**. Although the tasks were originally developed to integrate CCSS-Mathematics and the NGSS, CCSS-ELA/Literacy alignments were also added in response to requests from states and educators to support work across disciplines.

Educators are encouraged to modify these tasks for their needs and to provide Achieve's Science Team with feedback for task improvement. The released tasks are drafts and will be revised to incorporate user feedback. Achieve anticipates releasing revised drafts of the tasks as well as the first round of Classroom Sample Assessment Tasks for elementary grades in the coming months.

To aid educators in their own task development, the front matter of the Classroom Sample Assessment Tasks provides information about the tasks' development process so additional tasks can be created to assess a bundle of both math and science standards.

“We are very pleased to make these sample tasks available to educators and look forward to seeing continued integration of the NGSS and CCSS,” said Stephen Pruitt, Senior Vice President at Achieve. “There is tremendous opportunity for teachers and curriculum designers to bundle standards from different content areas to bring about deeper cross-disciplinary student understanding. We hope these tasks will be a starting point for ongoing conversations among educators in different disciplines.”

The Classroom Sample Assessment Tasks can be accessed at www.nextgenscience.org/classroom-sample-assessment-tasks

(3) STEM Leaders Honored with National Medal of Science and National Medal of Technology and Innovation

URL: <http://phys.org/wire-news/178292869/president-obama-presents-the-national-medals-of-science-national.html>

At a White House ceremony held on November 20, President Obama presented the National Medal of Science and National Medal of Technology and Innovation to individuals who have made outstanding contributions to science and engineering. The awards are the nation's highest honors for achievement and leadership in advancing the fields of science and technology.

“The story of these trailblazers reflects our bigger American story of constant

transformation,” President Obama said. “They represent the spirit that has always defined the American people, one of restless searching for the right solution to any problem, an inclination to dream big dreams, and an insistence on making those dreams come true.”

Among the 10 individuals honored with the **National Medal of Science** were five from California. Below are their affiliations and brief bios provided by the National Science Foundation:

Bruce Alberts – An internationally-renowned biochemist and Professor Emeritus at the University of California, San Francisco. In addition to his research in the field of DNA replication, he is an avid proponent of improving science and mathematics education and international scientific cooperation.

David Blackwell (1919-2010) – A towering figure in the fields of probability, statistics, and the mathematical sciences. He was a professor emeritus of mathematics and statistics at the University of California, Berkeley.

Alexandre J. Chorin -- An applied mathematician known for his contributions to computational fluid mechanics. He is a professor of mathematics at the University of California, Berkeley, and a senior scientist at the U.S. Department of Energy's Lawrence Berkeley National Laboratory.

Thomas Kailath -- An electrical engineer known for his contributions to the information and system sciences. He is currently the Hitachi America Professor of Engineering, Emeritus at Stanford University.

Judith P. Klinman -- A physical-organic chemist renowned for her work on enzymes. She is currently a professor of chemistry and of molecular and cell biology at the University of California, Berkeley.

Three of the nine individuals receiving the **National Medal of Technology and Innovation** were from California: **Eli Harari** (SanDisk Corporation), **Thomas Fogarty** (Fogarty Institute for Innovation), and **Arthur D. Levinson** (Calico; Apple Inc.).

(4) CSET Passing Scores for Examinations that were Revised to Align with Common Core

Source: California Commission on Teacher Credentialing

URL (Item 3E): www.ctc.ca.gov/commission/agendas/2014-10/2014-10-agenda.html

URL: www.ctc.ca.gov/commission/agendas/2014-12/2014-12-2K.pdf

At its October meeting, the California Commission on Teacher Credentialing (CTC) adopted **minimum passing scores** for the two subtests of the CSET (California Subject Examinations for Teachers) **Multiple Subjects examination** that were revised to align with the Common Core State Standards. Among other

subjects, Subtest I assesses languages arts content knowledge, and Subtest II assesses mathematics and science knowledge.

The two revised subtests were **first administered on 11 August 2014**. The passing rate for teacher candidates taking the CSET: Multiple Subjects between August 11 and September 6 was 74% for each subtest. The Commission approved the passing scores with the condition of “revisiting the passing scores with the appropriate data within the next six months.”

For Single Subject, the agenda for the February 2015 CTC meeting is expected to include an action item to set a passing score for the revised CSET: Mathematics examination that was recently updated to align with the Common Core State Standards for Mathematics. **The first administration of the updated CSET: Mathematics examination will be 29 December 2014.**

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Related news:

(a) CTC to Consider Authorization in Computer Science

URL: www.ctc.ca.gov/commission/agendas/2014-12/2014-12-2K.pdf

Also proposed for the February 2015 CTC meeting agenda is an information/action item to discuss “the potential establishment of a **supplementary authorization in the area of Computer Science.**”

(b) Linked Learning Recognition of Study to be Discussed at Next CTC Meeting

URL: www.ctc.ca.gov/commission/agendas/2014-12/2014-12-3C.pdf

At its meeting next week, CTC will discuss Linked Learning and the possibility of establishing a Recognition of Study (ROS) in Linked Learning when resources allow. “The Recognition of Study would provide a Commission-issued confirmation that an individual has had more in-depth and/or specialized preparation within a specific topic addressed within teacher preparation.” If the ROS in Linked Learning is approved in concept next week, it would open the door to the possibility of establishing an ROS in other areas (e.g., middle grades education).

(5) Mathematics and Science Teacher Misassignment Rates Drop Considerably

Source: California Commission on Teacher Credentialing

URL (Item 5A): www.ctc.ca.gov/commission/agendas/2014-12/2014-12-agenda.html

At next week’s meeting of the California Commission on Teacher Credentialing, Roxann Purdue and Angel Lopez will present a report prepared for the

Governor and Legislature that includes data collected by County Offices of Education regarding teacher assignments at the state's lowest performing schools (those ranking in deciles 1, 2, and 3 of the 2009 Base API).

The report shows a significant reduction in instructional misassignments (educators assigned to classes for which they do not hold an appropriate authorization) between 2011-12 and 2012-13. **In science, the number of misassignments dropped from 594 to 234 (- 61%), and in math, the number dropped from 396 to 177 (- 55%).**

However, disaggregated data contained in the report appendix shows that nearly three times as many districts with misassigned teachers in 2011-12 showed increases in the number of misassigned teachers in 2012-13 compared with the number of districts that showed decreases. The County of Los Angeles dropped from 6942 to 3384 misassigned teachers during this time period, considerably affecting the overall state results. **Without the data for Los Angeles County, the state would have shown an increase in teacher misassignments from 2011-12 to 2012-13.**

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Related report:

Annual Report Card on California Teacher Preparation Programs for the Academic Year 2012-2013

Source: California Commission on Teacher Credentialing

URL: www.ctc.ca.gov/commission/agendas/2014-10/2014-10-3D.pdf

At last month's CTC meeting, the **Annual Report Card on Teacher Preparation Programs for 2012-13** was presented. Required by Title II of the 2008 Reauthorization of the Higher Education Act, this report includes a description of credentialing requirements to teach in California public schools as well as...information on teacher preparation programs, including pass rate data for all examinations used by the state for credentialing purposes."

Following are some of the findings reported:

- The Title II teacher preparation program enrollment data indicate a **steady decline in teacher candidates over the past five years**, from 42,245 in 2008-09 to 19,933 in 2012-13, a cause for concern as the number of teacher retirements increases.

- Of those completing a teacher preparation program, over **50%** completed the program at a California State University (**CSU**) campus, **40%** at a private/independent institution, **7%** at a University of California campus, and **3%** at a district intern program.

- The average age of those completing a credential program in 2012-13 was **31.4 years** (SD=8.9 years), approximately 2.9 years younger than the average age of

program completers two years ago.

For complete information, visit the website above.

(6) Facilitator Training Will be Held Next Month in Hayward for the CCSS-M Professional Learning Module

Contact: Ann Park: apark@math.ucla.edu

In 2012, the California Mathematics Project (CMP), in collaboration with the California Department of Education (CDE), California Association of Mathematics Teacher Educators (CAMTE), the Curriculum and Instruction Steering Committee (CISC), and the California Mathematics Council (CMC), developed the **6-unit Professional Learning Module (PLM) for the K-12 Standards for Mathematical Practice** that is now available on the California Department of Education's Brokers of Expertise website:

www.myboe.org/portal/default/Content/Viewer/Content?action=2&scId=306591&scild=10395

CMP held successful 2-day facilitator trainings for this module during 2014 and has scheduled another **facilitator training for January 26-27, 2015 in Hayward, CA**. This workshop will provide a detailed overview of how potential leaders and professional development providers can facilitate a session or series of sessions using this PLM. Participants will closely examine the module, the instructional guide for facilitators, and materials available for use with the module.

For more information, please visit <http://plm.cmpso.org/>

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ARTICLES & ANNOUNCEMENTS (NATIONAL FOCUS)

(1) Higher Education Leaders Commit to STEM Education Initiatives at Yesterday's White House College Opportunity Day of Action

Source: The White House

URL: www.whitehouse.gov/the-press-office/2014/12/04/president-and-first-lady-s-call-action-college-opportunity

Yesterday (12/4/2014) President Obama, Vice President Biden, and the First Lady joined college presidents and other education leaders from around the nation at the **second White House College Opportunity Day of Action**, where organizations announced over **600 new actions to help more students prepare for and graduate from college**. Summit participants were challenged to commit to a new action in one of four areas: building networks of colleges focused on promoting completion, creating K-16 partnerships around college readiness, investing in high school counselors as part of the First Lady's Reach Higher initiative, and increasing the number of college graduates in STEM fields.

In the STEM area, the following impact/ goal was identified: Tens of thousands more students will be on a pathway to obtain degrees in science, technology, engineering, and mathematics (STEM), and more than 10,000 excellent K-12 teachers will complete college with expertise in STEM fields, marking progress towards the President's goals to graduate an additional 1 million STEM graduates and prepare 100,000 excellent K-12 STEM teachers over a decade.

At the Summit, more than 110 individual colleges, universities, non-profit and philanthropic organizations made new commitments to **increase STEM degree access, preparation, and completion for students from low-income and underserved backgrounds, women, and minorities underrepresented in STEM fields.** The commitments combine new goals with reforms like transitioning from lectures to active and inquiry-based learning, increasing student access to hands-on research in the first two years of college, providing mentors and internships to connect learning to career fields, and engaging future K-12 teachers in STEM courses so they are trained to prepare and inspire the next generation of STEM innovators.

For more information about the Summit and sample institutional commitments, visit the website above.

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Related Article:

Regarding the "M" in STEM

Source: The National Science Foundation

URL:

www.nsf.gov/news/news_summ.jsp?cntn_id=133534&org=NSF&from=news

Coinciding with yesterday's White House College Opportunity Day of Action, the National Science Foundation (NSF) announced that it is inviting **research proposals for design and development work to pilot innovations with high impact potential for helping students learn the mathematics generally taught in the first two years of both two-year and four-year postsecondary institutions.** In addition, NSF is inviting proposals to plan and execute conferences in 2015 on using research to improve student success in the mathematics generally taught in the first two years of college.

An excerpt from NSF's press release follows:

In an American culture that suggests that some people are "just no good at math," it's easy to forget that an understanding of mathematics is an essential gateway to college completion and to achievement in science, technology and engineering. Yet, many students enter college poorly prepared in mathematics. Consider that:

= When incoming community college students are tested for their mastery of

math, 60-70 percent of them are assigned to developmental mathematics courses.
= Beyond that, only 5 percent of students actually pass developmental mathematics courses.
= And 80 percent of the students who place into developmental mathematics do not complete any college-level course within three years.

The result is that deficits in mathematics can be a barrier to college access and completion, and can be particularly challenging for students from underrepresented groups and first-generation college students. In addition, students who arrive at college interested in science, technology, engineering and mathematics (STEM) and STEM-related careers may find themselves abandoning STEM in their first two years of study.

These opportunities are being shared by NSF with the research community by means of a Dear Colleague Letter available at www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf15026

“An understanding of mathematics is a crucial foundation for college completion and any future study in the STEM disciplines,” said Joan Ferrini-Mundy, who leads NSF's Education and Human Resources directorate. “We are eager to get ideas that can help students persist and succeed in mathematics.”

(2) Special Report: Common Core Math in Practice

Source: *Education Week* – November 2014

URL: www.edweek.org/ew/collections/common-core-math-report-2014/index.html

Education Week has produced a special report examining “**how the Common Core State Standards are changing instruction in mathematics**. It explores how schools and teachers are adjusting their practices and shows where there are gaps in support and understanding.”

Visit the website above to link to the following articles:

- Common Core Redoes the Math
- Approach to Fractions Seen as Key Shift in Common Standards
- Fractions by Grade Level Under the Common Core
- Under Common Core, Teachers Band Together to Build Math 'Coherence'
- Common Core Math Standards Put New Focus on English Learners
- In Light of Common Core, Ed. Schools Look to Transform Math-Teacher Prep
- In Transition to Common Core, Some High Schools Turn to 'Integrated' Math

- Math-Exam Performance Tasks Ratchet Up Expectations, Anxiety
 - Q&A: Behind the Math Standards (aims, effects, and criticism)
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(3) K-8 Mathematics Teachers are Invited to Develop Instructional Materials to Share with a National Audience

Source: Laura Coscarelli - lauracoscarelli@learnzillion.com**URL:**
<https://learnzillion.com>

LearnZillion is seeking 200 teachers, academic coaches, and administrators to become part of the organization's 2015 "**Dream Team**," a cadre of talented K-8 mathematics educators who will become part of a nationwide online community devoted to **developing and sharing resources and videos of K-8 mathematics instruction** based on the Common Core State Standards. Examples of LearnZillion's free digital math curricular materials are available at https://learnzillion.com/free_resources A stipend of \$2000 is available for participants.

For more information and to apply, please visit
https://learnzillion.com/how_to_apply

(4) EBSCO Seeks Contributors for a Mathematics Reference Publication

Source: Thomas Walzer -mathematics@golsonmedia.com

EBSCO is planning to publish a **new reference work about mathematics** in 2015 and is currently seeking academic editorial contributors with expertise in and interest in writing on topics such as the following: absolute value, angles, binary pattern, congruence, cosine, exponentiation, geometric series, perimeter, prime numbers, set notation, statistics, triangles, and whole numbers.

Compensation for each article, which will be reviewed for editorial content and academic consistency, is \$35 for a 500-word article, \$50 for a 1000-word article, and \$70 for a 1500-word article. Authorship will be included in the article byline.

New article assignments are currently being made. If interested in this publication opportunity, please send your resume or a brief summary of your background in mathematics or related fields to Thomas Walzer at mathematics@golsonmedia.com The list of available articles and guidelines will then be sent to you. The deadline to submit articles for publication in *EBSCO Research Starters: Mathematics* is 10 January 2015.

(5) Webinars Next Week: Astronomy Resources from NASA, NASA

Engineering Design Challenges

URL: <https://paragon-tec.adobeconnect.com/admin/show-event-catalog>

* NASA Educator Professional Development is presenting a **free 60-minute webinar for teachers of grades 6-12** on 9 December 2014 from 2-3 p.m. PST. Participants will learn about a **multitude of astronomy resources** (educator guides, lesson plan sets, multimedia, and websites). Discussion of possible uses and modifications of materials for individual classrooms will be an integral part of this webinar.

* A second webinar will be held on 11 December 2014 from 1:30-2:30 p.m. PST. This webinar will focus on **NASA engineering design challenges and the engineering design process.**

Visit the website above for more information and to register for the webinars.

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Related article:

Future Engineers 3D Printing in Space Challenges

Source: NEON (NASA Educators Online Network)

NASA and the American Society of Mechanical Engineers (ASME) have partnered to launch the **Future Engineers 3D printing in Space Education Challenge for students in grades K-12**. Students are challenged to use their creativity and imagination to **design a space tool that could be printed on a 3D printer** aboard the International Space Station. For more information, visit www.futureengineers.org/

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