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Informational /Issues Update (Federal/State/Regional/County/Committees)

Articles in this Brief (4.26.13)

Local Focus:

Dan Meyer: June 17 & 18th. Registration Closed. Filled to capacity!

Math 1 Support Group: August 1st, 9:00am-2:00pm. \$10 cover charge for lunch. High School Math 1 teachers will come together to share resources and discuss Math 1. This support group plans to continue through the year. All are welcome. Representatives from the following districts are currently signed up on OMS: Salinas UHSD, Carmel, Monterey, Pacific Grove, Soledad.

Math Framework Focus Groups: All are invited to attend!

- Grades 6-8 May 1st, 4:00-6:00 MCOE Room D
- Grades 3-5 May 16th, 4:00-6:00 MCOE Room 8
- Grades TK-2 May 22nd, 4:00-6:00 MCOE Room D

Mathletics 2013 - May 11, 2013 - Registration Closes today!

Custom District Trainings

Regional Math Meetings

California Focus:

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National Focus:

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(2) Teachers' Gestures Boost Math Learning

State Focus

(1) Draft Mathematics Framework Released for Public Comment

Contact: Deborah Franklin, Curriculum Frameworks Unit, California Department of Education: 916-319-0442; dfrankli@cde.ca.gov.

URL: www.cde.ca.gov/nr/ne/yr13/yr13rel47.asp

URL (FW): www.cde.ca.gov/ci/ma/cf/mathpublicreview.asp

The draft *Mathematics Framework for California Public Schools, Kindergarten through Grade Twelve* was released yesterday for public comment. Superintendent of Public Instruction Tom Torlakson stated, "This draft *Math Framework* is an important step on California's path toward the Common Core State Standards (CCSS), which provide a practical way to prepare children for the challenges of a constantly changing world by learning step-by-step the practical skills they need for

career and college," Torlakson said. "I'm looking forward to feedback from the public as we put these standards to work remodeling our education system."

Framework chapters can be downloaded from www.cde.ca.gov/be/cc/cd/draftmathfwchapters.asp, and the online survey can be accessed at <http://surveys.cde.ca.gov/siam/surveylanding/interviewer.asp>. The survey, which will be available online through 17 June 2013, does not require a response to every question or comments on every chapter. Comments that exceed the allotted word limit may be emailed to mathframework@cde.ca.gov. The public comments will be presented to the Instructional Quality Commission this summer for review and for possible inclusion into the final *Mathematics Framework*. The State Board of Education is expected to take action on the final version of the *Mathematics Framework* later this year.

An excerpt from page 4 of the Introduction to the draft *Mathematics Framework* follows below:

"The development of these standards [was] informed by international benchmarking and began with research-based learning progressions detailing what is known about how students' mathematical knowledge, skills, and understanding develop over time. The progression from kindergarten standards to standards for higher mathematics exemplifies the three principles of focus, coherence, and rigor that are the basis for the CCSSM.

"The standards stress not only procedural skills, but also conceptual understanding, to ensure that students are learning and absorbing the critical information they need in order to succeed at higher levels and can apply their learning in increasingly complex situations.

"The CCSSM include two types of standards: Eight Mathematical Practice Standards (the same at each grade level) and Mathematical Content Standards (different at each grade level). These standards address both 'habits of mind' that students should develop to foster mathematical understanding and expertise, and also skills and knowledge -- what students need to know and be able to do. The standards also call for mathematical practices and mathematical content to be connected as students engage in mathematical tasks..."

(2) Forum on Grade 8 Algebra and the Common Core State Standards

Source: Silicon Valley Education Foundation (SVEF)

URL: <http://svefoundation.org/svefoundation/howeare/CommonCoreVideo.php>

Last month, the Silicon Valley Community Foundation and Microsoft sponsored a forum in Mountain View entitled, "Grade 8 Algebra and the New Common Core Standards: Getting the Facts Straight!" The forum sought to address pressing questions such as the following:

- How does algebra at Grade 8 align with the new Common Core State Standards?
- How should districts handle math acceleration at the middle school level?

Panelists included the following individuals:

- Manny Barbara, Vice President of Advocacy and Thought Leadership at the Silicon Valley Education Foundation
- Phil Daro, an expert on the development of the Common Core State Standards
- Bill Honig, retired California Superintendent of Public Instruction and Chair of the Instructional Quality Commission
- Jacki Horejs, Superintendent of Union School District
- Mary Perry, Education Consultant and former Deputy Director of EdSource
- Ze'ev Wurman, Silicon Valley executive and former participant on the State Academic Content Standards Commission

An archived video of this panel discussion is available at <http://svefoundation.org/svefoundation/whoweare/CommonCoreVideo.php>

(3) University of California Releases Statement Supporting Both Integrated and Traditional High School Mathematics Pathways

Source: Bill Jacob, Chair, Board of Admissions and Relations with Schools, UC Faculty Senate

URL:

<http://senate.universityofcalifornia.edu/committees/boars/BOARSonCCSSMathCourseDevelopment.pdf>

The University of California (UC) and the California State University (CSU) systems both use "a-g" subject requirements (high school courses in defined categories) as a condition of admission. High school courses must be certified by UC and appear on the school's a-g list in order for high school students to use the courses to satisfy a-g subject requirements when applying for admission to a UC or CSU campus (see www.ucop.edu/agguide/)

BOARS (Board of Admissions and Relations with Schools) is the committee of the UC Faculty Senate that sets admissions policy for UC and sets the criteria for a-g course approval, a power delegated to the Senate by the UC Regents. Yesterday the Chair of BOARS, Bill Jacob, wrote that BOARS had formally reiterated its support for integrated sequences of mathematics courses and that courses (traditional or integrated) must be aligned with the CCSS for Mathematics—CCSSM (see <http://senate.universityofcalifornia.edu/committees/boars/BOARSonCCSSMathCourseDevelopment.pdf>)*.

Jacob also noted that high schools will need to complete the Mathematics Subject template available online at www.ucop.edu/agguide/a-g-requirements/c-mathematics/index.html when courses are updated to align with the CCSSM. He stressed that applications for area 'c' approval must address all of the Standards for Mathematical Practice and show that the Practices are addressed in a balanced way in the courses as a condition for approval by UC.

* Excerpt from the "Statement on High School Mathematics Curriculum Development under the Common Core State Standards":

"The Board of Admissions and Relations with Schools (BOARS) recognizes the significant changes that high schools across the state must make in their mathematical curricula as they implement the Common Core State Standards for Mathematics (CCSSM), and seeks to support schools in this important effort. Developing a coherent mathematics curriculum that is fully consistent with the CCSSM will involve much more than simply reordering topics to be covered. As courses and curricula are developed, schools will be guided by the Model Course Pathways in Mathematics that were published as an appendix to the CCSSM, and by state frameworks that are being developed currently.

"Four Model Course Pathways are offered in the appendix to the CCSSM, two that involve the traditional Algebra 1, Geometry, Algebra 2 sequence most often found in US schools, and two that involve an integrated sequence of three courses, each of which includes elements of algebra, geometry, probability, and statistics. Such an integrated sequence is more common in the rest of the world.

"Consistent with past policy and practice for course approval, BOARS reiterates its full support for either the integrated pathways or the traditional pathways, as stated in the A-G Guide's section on Mathematics ('c'). It is BOARS' expectation that courses developed in accordance with either sequence will receive subject area 'c' approval provided that they satisfy the course requirements for area 'c' presented in the A-G Guide and that they support students in achieving the Standards of

Mathematical Practice given in the CCSSM:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

"BOARS looks forward to the full implementation of curricula based on the Common Core State Standards in both Mathematics and English Language Arts in California's schools."

(4) Next Generation Science Standards (NGSS) Released; Three Public Meetings on the NGSS will be Held in California Over the Next Two Weeks

Sources: Achieve, Inc., California Department of Education, National Science Teachers Association

URL: <http://www.nextgenscience.org/final-next-generation-science-standards-released>

URL (CDE): www.cde.ca.gov/nr/ne/yr13/yr13rel44.asp

On April 9, Achieve, Inc. (nonprofit organization based in Washington, DC) released the final draft of the *Next Generation Science Standards* (NGSS). The NGSS were developed through a collaborative, state-level process. California joined twenty-five other lead states and their broad-based teams in working together for two years with a 41-member writing team (www.nextgenscience.org/writing-team) and partners (www.nextgenscience.org/partners) to develop the standards. The NGSS identify science and engineering practices and subject matter content that all K-12 students should master in order to be fully prepared for college, careers, and citizenship. The NGSS were built upon a vision for science education established by *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*, produced by the National Research Council (NRC) in 2011.

"We applaud the completion of the Standards," said Helen Quinn, Chair of the NRC committee that produced the Framework report and Professor Emerita of Physics at Stanford University. "They represent a key step in bringing the science education vision put forward by our Framework closer to realization in classrooms across the country."

David Evans, Executive Director of the National Science Teachers Association, was quoted in *U.S. News & World Report* (<http://tinyurl.com/cz8ynop>): "The way I imagine that it might play out is that there will be more hands-on time for students. There will be deeper investigations into the smaller number of ideas, and perhaps even a better opportunity for students to formulate some of the experiments themselves."

Bruce Alberts, who is Editor-in-Chief of *Science* and served two six-year terms as President of the National Academy of Sciences, stated, "As emphasized in the Framework, an active learning of scientific practices is critical, and takes time. A focus on these practices, rather than on content alone, leads to a deep, sustained learning of the skills needed to be a successful adult, regardless of career choice," said "We must teach our science students to do something in science class, not to memorize facts."

California State Superintendent of Public Instruction Tom Torlakson stated, "In the next decade, the number of jobs requiring highly technical skills is expected to outpace other occupations. These Next Generation Science Standards will help students achieve real-world practical skills so they can help maintain California's economic and technological leadership in the world."

Three public meetings will be held throughout California over the next two weeks to accept public

comment on the NGSS (see below). These comments, together with feedback from a panel of science experts, will be considered by the State Board of Education. Then in the fall, the State Board is expected to consider state adoption of the NGSS.

The public may also submit comments by Webinar at the second public meeting listed below; by email to NGSS@cde.ca.gov; by mail to 1430 N Street, Room 4309, Sacramento, CA, 95814-5901; or by fax to 916-323-2833.

Public Meetings:

* **Date:** Monday, 29 April 2013; 3-5 p.m.

Location: Sacramento County Office of Education, 10474 Mather Boulevard, Mather, CA 95655

Contact: Phil Romig, Curriculum Specialist, K-12 Curriculum and Intervention/Science
916-228-2275

* **Date:** Tuesday, 30 April 2013; 3-5 p.m.

Location: Santa Clara County Office of Education, 1290 Ridder Park Drive, San Jose, CA 95131-2304

Contact: Sandi Yellenberg, Coordinator, Science --- 408-453-6692

Webinar: <http://connect2.sccoe.org/cde-ngss/>

* **Date:** Tuesday, 2 May 2013; 3-5 p.m.

Location: Riverside County Office of Education, 3939 Thirteenth Street, Riverside, CA 92501

Contact: Yamileth Shimojo, Coordinator, Instructional Services -- 951-600-5658

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Related Items:

(a) Webinar: "Introducing the Next Generation Science Standards"

Source: National Science Teachers Association (NSTA)

URL: http://learningcenter.nsta.org/product_detail.aspx?id=10.2505/9/WSNGSS13_Apr16.2

The National Science Teachers Association (NSTA) has a Web site dedicated to the NGSS at www.nsta.org/about/standardsupdate NSTA has also produced a number of useful Web seminars about the NGSS. The latest, "Introducing the Next Generation Science Standards," was held this past Tuesday (4/16/2013) and is currently archived at the Web site above.

(b) California and the Next Generation Science Standards

Visit www.nextgenscience.org/california and www.cde.ca.gov/pd/ca/sc/ngssintrod.asp to learn more about California's involvement in the development of the NGSS and for NGSS updates.

(5) Seven California State University Campuses Receive Grant Support to Develop Programs Aligned with the NGSS to Prepare Future K-6 Teachers

Source: California State University (CSU) Chancellor's Office

URL: http://teachingcommons.cdl.edu/CSUNGSScommunity/campus_grants/index.html

Seven California State University (CSU) campuses (Cal Poly San Luis Obispo, CSU Bakersfield, CSU Chico, CSU Fresno, CSU Fullerton, CSU Sacramento, San Diego State) recently received funding to support the development of models of undergraduate course reforms for preparing future elementary teachers in science that conform to the *Next Generation Science Standards* and *A Framework for K-12 Science Education*. The models will be shared with faculty across the CSU system next year. The goals of these programs are to enhance the science confidence, competence, knowledge, and excitement of future elementary teachers. For more information, copies of the proposals, and project contacts, please visit the Web site above.

(6) Chamber of Commerce Develops Information Flyer to Inform Business Community about the Smarter Balanced Assessment System

Source: California Department of Education

URL: www.cde.ca.gov/re/cc/index.asp?tabsection=5

The American Chamber of Commerce Executives, in collaboration with the Smarter Balanced Assessment Consortium, developed an informational flyer to inform the business community about the Smarter Balanced assessment system. This flyer is available at

www.cde.ca.gov/re/cc/documents/sbacacceflyer.pdf

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Related Topic:

Smarter Balanced Assessment Consortium FAQs

Source: California Department of Education

Frequently asked questions (FAQs) about the Smarter Balanced Assessment Consortium (SBAC) student assessments can be found at www.cde.ca.gov/ta/tg/sa/sbac-faqs.asp

(7) Smarter Balanced Practice Tests

Source: The California Department of Education (CDE) Smarter Balanced Update - 15 April 2013

URL: www.cde.ca.gov/ta/tg/sa/smarterbalanced.asp

On 29 May 2013, Smarter Balanced will release a set of computer-based Practice Tests for grades 3 through 8 and grade 11. For each grade, a Practice Test will be available in both English language arts (ELA) and mathematics. The Practice Tests will include an array of item types, including selected response, constructed response, and performance tasks, and will be built using test blueprints similar to those for the operational tests. The Practice Tests will be publicly available on the Smarter Balanced Web site and will be accessible until the implementation of the operational Smarter Balanced assessments in the 2014-15 school year.

Additional information about Smarter Balanced is available on the CDE Smarter Balanced Web page at www.cde.ca.gov/ta/tg/sa/smarterbalanced.asp and on the Smarter Balanced Assessment Consortium's Web site: www.smarterbalanced.org

National Focus

(1) "A U.S. Makeover for STEM Education: What It Means for NSF and the Education Department" by Jeffrey Mervis

Source: *ScienceInsider* - 18 April 2013

URL: <http://news.sciencemag.org/scienceinsider/2013/04/a-us-makeover-for-stem-education.html>

URL (OSTP): www.whitehouse.gov/sites/default/files/microsites/ostp/2014_R&Dbudget_STEM.pdf

A proposed reshuffling of federal STEM (science, technology, engineering, and mathematics) education programs in the United States would move the Department of Education (ED) and the National Science Foundation (NSF) to the head of the class. Their new status would be a major change for the federal government, which now spends nearly \$3 billion on 226 STEM education programs run by a dozen agencies.

Many of those programs were created to address a specific problem or at the behest of Congress to serve a specific constituency. However, the resulting fragmentation has hampered efforts to coordinate and assess the impact of the government's investment. The proposed realignment, part of the President's 2014 budget request to Congress, would slice the overall number of programs in half by slashing the education activities of mission agencies such as NASA, the National Oceanic and

Atmospheric Administration, and the National Institutes of Health.

The reorganization unveiled last week surprised science educators, legislators, and even other federal officials. While the upcoming debate in Congress is likely to focus on whether some of the programs targeted for elimination should be preserved, the broader issue is the wisdom of creating two executive branch heavyweights in STEM education. Under the proposal, ED would oversee federally funded activities to improve elementary and secondary school (K-12) science education, while NSF would lead the way in undergraduate and graduate STEM education. (The Smithsonian Institution was given \$25 million to expand its activities in informal, or nonclassroom, science education.) The realignment is designed to tap into ED's extensive ties to, and experience working with, local schools as well as NSF's expertise in funding high-quality STEM education activities.

The administration has targeted 78 programs for elimination, and an additional 49 would be consolidated. But it has also proposed 13 new programs, and its 2014 budget request of \$3.1 billion for all STEM education activities would be 7% higher than what was spent in 2012.

Yesterday, presidential science adviser John Holdren told the House of Representatives science committee that the reorganization would also "leave intact" programs aimed at attracting underrepresented groups into STEM fields. "There has been a very serious effort to preserve the programs that most leverage the unique assets of the mission agencies, including programs that reach women and other underrepresented groups in STEM," Holdren explained during a hearing on the administration's overall 2014 request for research.

To learn more about the proposed reorganization, *ScienceInsider* spoke last week with top officials at each agency. Joan Ferrini-Mundy is head of NSF's education directorate, and James Lightbourne oversees graduate education within the directorate. *ScienceInsider* also exchanged e-mails with Camsie McAdams, ED's senior adviser on STEM education. [Visit <http://news.sciencemag.org/scienceinsider/2013/04/a-us-makeover-for-stem-education.html> to read edited transcripts of these interviews.]

(2) Teachers' Gestures Boost Math Learning

Source: Michigan State University; **Contact:** Kimberly Finn: kfenn@msu.edu

URL: <http://msutoday.msu.edu/news/2013/teachers-gestures-boost-math-learning/>

URL (Abstract): <http://onlinelibrary.wiley.com/doi/10.1111/cdev.12097/abstract>

Students perform better when their instructors use hand gestures -- a simple teaching tool that could yield benefits in higher-level math such as algebra.

A study published in *Child Development* provides some of the strongest evidence yet that gesturing may have a unique effect on learning. Teachers in the United States tend to use gestures less than teachers in other countries.

"Gesturing can be a very beneficial tool that is completely free and easily employed in classrooms," said Kimberly Finn, study co-author and assistant professor of psychology at Michigan State University (MSU). "And I think it can have long-lasting effects."

Finn and Ryan Duffy of MSU and Susan Cook of the University of Iowa conducted an experiment with 184 second-, third- and fourth-graders in Michigan elementary classrooms.

Half of the students were shown videos of an instructor teaching math problems using only speech. The others were shown videos of the instructor teaching the same problems using both speech and gestures.

The problem involved mathematical equivalence (i.e., $4+5+7= __+7$), which is known to be critical to later algebraic learning. In the speech-only videos, the instructor simply explains the problem. In the other videos, the instructor uses two hand gestures while speaking, using different hands to refer to the two sides of the equation.

Students who learned from the gesture videos performed better on a test given immediately afterward than those who learned from the speech-only video.

Another test was given 24 hours later, and the gesture students showed improvement in their performance while the speech-only students did not. The gesture group also showed stronger transfer to different problem types.

While previous research has shown the benefits of gestures in a one-on-one tutoring-style environment, the new study is the first to test the role of gestures in equivalence learning in a regular classroom.

The study also is the first to show that gestures can help students transfer learning to new contexts -- such as transferring the knowledge learned in an addition-based equation to a multiplication-based equation.

Fenn noted that U.S. students lag behind those in many other Western countries in math and have a particularly hard time mastering equivalence problems in early grades.

"So if we can help them grasp this foundational knowledge earlier," she said, "it will help them as they learn algebra and higher levels of mathematics."