Connecticut State Department of Education Academic Office

Math E-Alert

From the Academic Office

Bureau of Curriculum, Instruction and Assessment

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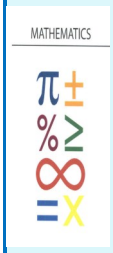
Congratulations

The White House has just announced the 2013 Presidential Award for Excellence in Mathematics and Science Teaching recipients. Connecticut is proud to recognize Jackie Corricelli as the awardee for mathematics Grades 7-12. Jackie is a high school teacher with the West Hartford Public Schools.

What is Rigor?



The Connecticut Core Standards requires that rigor be implemented into daily instruction. However, this is a term that has many definitions. Barbara Blackburn defined rigor as creating an environment in which each student is expected to learn at high levels, each student is supported so that he or she can learn at high levels, and each student demonstrates learning at high levels (Blackburn, 2008). It is also important to think of rigor as a way to understand content that is complex, ambiguous, and challenging (Strong, Silver, and Perini, 2001).

Educators have relied on Bloom's Revised Taxonomy to determine the type of tasks students would complete in order to deepen their understanding. Beginning with the remembering and moving towards creating, the "action words" of the taxonomy describe the cognitive processes by which thinkers encounter and work with knowledge. More recently, educators have moved beyond the "what" to the "how" through Webb's Depth of Knowledge (DoK). Webb's DoK centers on the thinking process, not just the product. Understanding that both are based on research about student thinking to extend student learning, Karen Hess developed a Cognitive Rigor Matrix by applying Webb's DoK to Bloom's Revised Taxonomy. Hess superimposed the two existing models for describing rigor in the classroom to categorize the level of abstraction of questions and activities in education (Hess 2014). The goal in using these models for curriculum development and lesson planning is to enable students to acquire the rigorous skills and knowledge needed for post-secondary education. These matrices are available at http://www.cde.state.co.us/sites/default/files/documents/educatoreffectiveness/downloads/implementation%20resources/dok-math-sci.pdf.

Remember that rigor does not mean harder, it means more complex. We don't need to give more problems or use numbers that have no contextual relevance. Instead we need to make instruction more complex by choosing more cognitively demanding tasks. Taking a closer look at classroom instruction through the lens of Hess's Cognitive Rigor Matrix allows teachers to ensure that their lessons align with the rigor expected in the CCS.

Model Curriculum Update

The Model Curricula for Geometry and Algebra 2 is nearing completion and units are being posted at http://ctcorestandards.org/?page_id=1025, as well as on the Connecticut Technical High School System Moodle page at http://sde-cthsMoodle.cthss.cen.ct.gov/Moodle/course/category.php?id=50. In order to access the Moodle materials, teachers can log in as a guest and use "csde" as the password. Each curriculum consists of eight units and is aligned to the Connecticut Core Standards and provides guidance on ways to enrich or scaffold learning to meet the needs of a diverse student population.

The Geometry curriculum uses the transformational approach as specified in the Common Core. The topics covered in the Model Geometry Curriculum include transformation, congruence, polygons, similarity, trigonometry, circles and other conics, three dimensional geometry, and applications of probability. Algebra 2 builds on the concepts mastered in Algebra 1 and Geometry to deepen students understanding of mathematics. The focus of this curriculum is on functions. The functions covered in Algebra 2 include inverse, quadratic, polynomial, rational, power, exponential, logarithmic, and trigonometric. Additional topics covered are inferential statistics and matrices.

Training on both, the Geometry and Algebra 2 curriculum are set to take place this summer. The trainings will consist of three hours of instruction on each unit of the curriculum. For more information about dates, times and locations or to register please visit http://ctcorestandards.org/?page_id=9632.

Professional Learning

Knowles Science Teaching Foundation (KSTF) Teaching Fellows Program: This program is designed to support high school science and mathematics teachers from the onset of their careers. It provides stipends, funds for professional development, grants for teaching materials and opportunities for leadership and mentoring. Additionally, KSTF supports National Board candidates by offering financial assistance and participation in a one-year program that includes one-on-one and group meetings, as well as writing support. **The application period for 2016 Teaching Fellowships is April 13–November 1, 2015.**

CSDE Professional Development: The CSDE continues to offer a variety of professional development opportunities both, face-to-face and on demand to meet the needs of Connecticut educators. Please check out the latest offering on the CTCoreStandards.org Web site.

Online Professional Learning Modules: The CSDE, in partnership with Public Consulting Group (PCG), is offering free online learning modules to support the implementation of CCS English Language Arts and Mathematics standards. Available on Pepper, PCG's interactive and collaborative professional learning platform, these modules are self-paced, collaborative and engaging. Math module 1 is a focus on the practice standards and module 2 is on the content standards.

Algebra 2 and Geometry Model Curricula: In-depth training on the Geometry Model Curriculum will take place from August 3-6, at Gateway Community College and from August 10-13, at Central Connecticut State University. The training on the Algebra 2 Model Curriculum will be from July 27-30, at Gateway Community College and from August 3-6, at Central Connecticut State University. Each four-day session will provide three hours of training on each unit of the model curriculum. All sessions will run from 9 a.m. to 4 p.m.

Summer Teacher Training for Computer Science: Trainings for the Code.org K-5 Curriculum and StarLogo will be offered at all of the RESCs this summer. The Code.org full-day workshops will cover courses 1-3 and offer supplies needed to teach the courses. Courses blend online, self-guided and self-paced tutorials with "unplugged" classroom activities that require no computer. StarLogo training is a fun, hands-on, half-day workshop for middle school teachers interested in learning how to program 3D games and/or science simulation models using StarLogo Nova, a free online educational software tool with a graphical programming interface.

The What, the How and the Why of Smarter Balanced Interim Assessments: These one-day workshops are designed to support Grade 3-8 classroom teachers, instructional specialists, coaches, ELA and mathematics department chairs, and interested administrators to become familiar with the Smarter Balanced Interim Assessments. Participants will learn how to administer the Interim Assessments, score student responses, interpret student scores and use reports to support instruction.

Opportunities for Students

Perennial Math: Invite your students in Grades 3—8 to join this online math competition. The goal is to stimulate enthusiasm for problem solving. As students meet the challenges of the competitions, creativity and strategies for problem solving will grow. There are 4 tests per year and awards are given at the individual and team level. For more information, please visit http://perennialmath.com/.

ACM/CSTA Cutler-Bell Prize: This is a new award aimed at recognizing talented high school students in computer science. The ACM/CSTA Cutler-Bell Prize in High School Computing seeks to promote and encourage the field of computer science, as well as to empower young and aspiring learners to pursue computing challenges outside of the traditional classroom environment. The application for this award is scheduled to open August 1, 2015. More information can be found at http://csta.acm.org/Advocacy_Outreach/sub/Cutler-BellPrize.html.

Stay Up to Date

The Math E-Alert is a great way to stay up to date on the latest math information. The E-Alert will now be posted to the CTCoreStandards.org mathematics page around the 15th of every other month. If you still wish to receive the Math E-Alert electronically, please contact Jennifer Michalek at jennifer.michalek@ct.gov to have your name added to the distribution list.

Do not respond to this e-mail. This alert is provided for your information only. Please contact jennifer.michalek@ct.gov with questions.