Rigor, Relevance & Best Practice Newsletter

SECONDARY EDUCATOR EDITION

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Preparing Today's Students for Tomorrow's Challenges

Northeast Regional Center
Collaboration among the Education Service Agencies of Apache, Coconino and Navajo County

CCESA

Connections Between Practices in AZCCRS Math, ELA and the Proposed Science Standards

May Issue, Vol. VIII

The Arizona College and Career Ready Standards aren't just changing instruction in math and English language/arts, new NSTA survey data suggest. They're also finding their way into a lot of science classrooms.

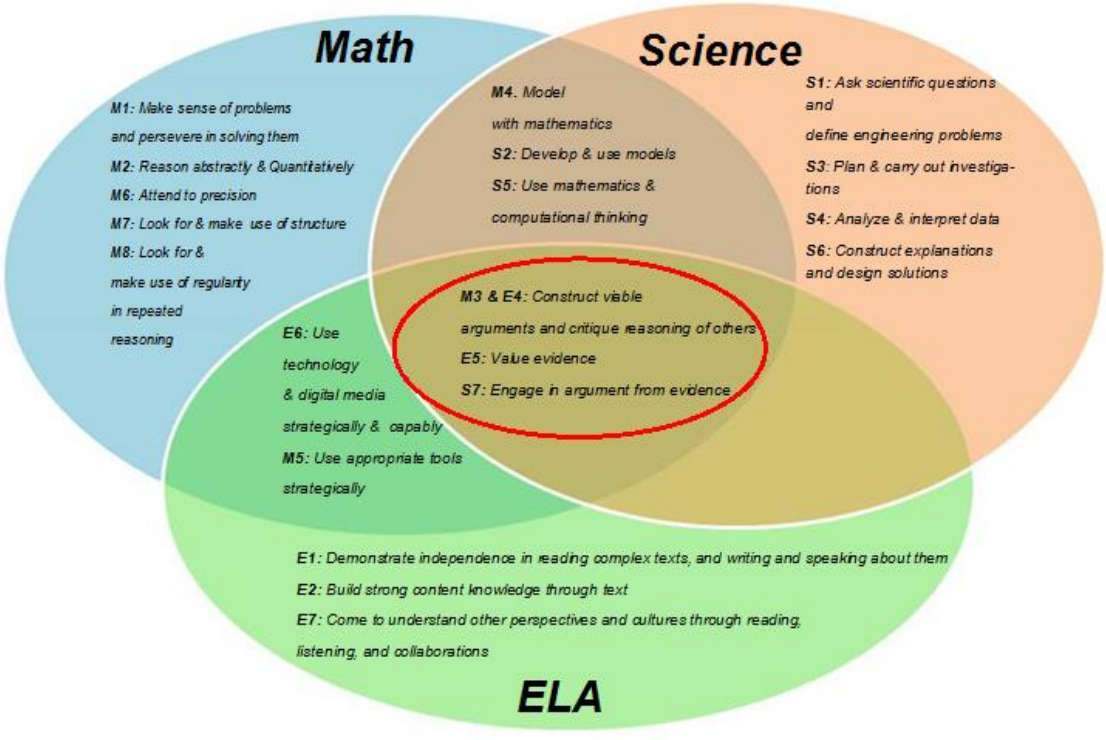
What's Common?

ALL the standards (math, ELA and the proposed science standards) require that teachers focus more attention on disciplinary practices.

Practices in Different Disciplines

Math	Science	English Language Arts
M1. Make sense of problems & persevere in solving them.	**S1**. Asking questions (for science) & defining problems (for engineering).	**E1.** They demonstrate independence.
M2. Reason abstractly & quantitatively.	S2. Developing & using models.	**E2.** They build strong content knowledge.
M3. Construct viable arguments & critique the reasoning of others.	**S3.** Planning & carrying out investigations.	**E3.** They respond to the varying demands of audience, task, purpose, & discipline.
M4. Model with mathematics.	**S4.** Analyzing & interpreting data.	**E4.** They comprehend as well as critique.
M5. Use appropriate tools strategically.	**S5.** Using mathematics, information & computer technology, & computational thinking.	**E5.** They value evidence.
M6. Attend to precision.	**S6.** Constructing explanations (for science) & designing solutions (for engineering).	**E6.** They use technology & digital media strategically & capably.
M7. Look for & make use of structure.	**S7.** Engaging in argument from evidence.	**E7.** They come to understanding other perspectives & cultures.
M8. Look for & express regularity in repeated reasoning.	**S8.** Obtaining, evaluating, & communicating information.	

There's a common core in all of the standards documents (ELA, Math, and Proposed Science). At the core is: reasoning with evidence; building arguments and critiquing the arguments of others; participating in reasoning-oriented practices with others.



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Resources

Here are a few links containing additional information, including details on what each child will be expected to know and do in each grade and tips for parents:

http://ccesa.az.gov/

http://www.azed.gov/standards-development-assessment/parcc-assessment/

http://www.azed.gov/standards-development-assessment/parcc-assessment/

http://parcconline.org/

www.corestandards.org

www.pta.org/parentsguide

http://ww.azed.gov/standards-practices/files2012/05/rttt-implementation-plan-2-6-12.pdf

http://www.parcconline.org/samples/item-task-prototypes

www.theteachingchannel.org/

PARCC Computer-Based Sample Test Questions

PARCC (Partnership for the Assessment of Readiness for College & Careers) has released sample test questions on the technology platform that students will use when taking the field test this spring.

Teachers, students, parents and others can engage with the sample items using computer-based tools such as drag-and drop, multiple select, text highlighting, and an equation builder. PARCC has also released online tutorials that demonstrate how students will navigate the test; how to use the computer-based tools; and features that make the test more accessible for all students, including those with disabilities and English learners.

To get a true understanding of the range of rigor, item types and functionalities, users should try test items in more than just one grade, as each grade level does not have all item types. The sample items will not be scored.

Local teachers report that field tests given in April in ELA are heavily based on writing. Students read three different passages and write responses to prompts citing evidence from all three passages to support their claims.

Information from the PARCC Website at **http://www.parcconline.org/computer-based-samples.**

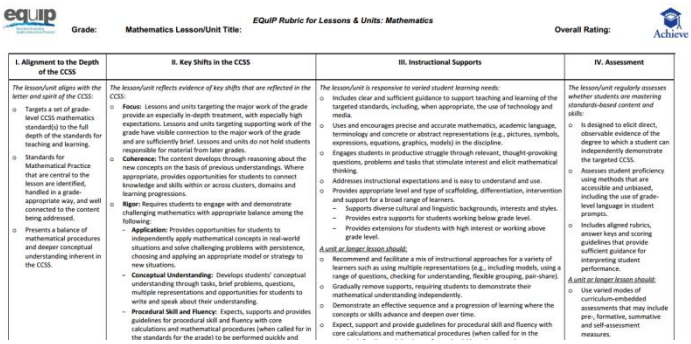
Research Questions Common-Core Claims by Publishers

This is an excerpt from: Herold, B., & Molnar, M. (2014). Research questions common-core claims by publishers. EdWeek, 33(23), 1, 12- 1

Statements from publishers that traditional instructional materials are aligned with the Common Core State Standards are largely a "sham," according to a prominent researcher who conducted one of two for the coming reviews of classroom textbooks. The jury is still out, though, on the new wave of digital curricula hitting the market. The findings highlight a new threat to the successful implementation of the common core, as well as a major challenge for districts in the 46 states and the District of Columbia that have adopted versions of the standards. The studies "reaffirmed what we had been hearing from our [textbook] working group," especially in mathematics, said Carrie Heath Phillips, a program director for the Council of Chief State School Officers, in Washington, which has helped spearhead the new standards. Ms. Phillips downplayed the impact that misaligned textbooks will have on states' efforts to implement the new standards, but said the new studies "may be an eye-opener" for districts. "It's buyer beware," she said.

Snake Oil Salesmen

Hoping to boost their share of a $9 billion annual market, many publishers now boast that their textbooks are "common-core aligned" and so can help spur the dramatic shifts in classroom instruction intended by the new standards for English/language arts and math. But in a Feb. 21 presentation of his research at a seminar in Los Angeles hosted by the Education Writers Association, William Schmidt, a professor of statistics and education at Michigan State University in East Lansing, dismissed most purveyors of such claims as "snake oil salesmen" who have done little more than slap shiny new stickers on the same books they've been selling for years. Mr. Schmidt, who also co-directs the university's Education Policy Center, and his team recently analyzed about 700 textbooks from 35 textbook series for grades K-8 that are now being used by 60 percent of public school children in the United States. Of those that purported to be aligned with the new standards, he said, some were "page by page, paragraph by paragraph" virtually identical to their old, pre-common-core versions. both print and digital instructional materials to consider.



EQuIP Rubric for Lessons & Units: Mathematics

Grade: Mathematics Lesson/Unit Title: Overall Rating:

I. Alignment to the Depth of the CCSS	II. Key Shifts in the CCSS	III. Instructional Supports	IV. Assessment
The lesson/unit aligns with the letter and spirit of the CCSS: ○ Targets a set of grade-level CCSS mathematics standard(s) to the full depth of the standards for teaching and learning. ○ Standards for Mathematical Practice that are central to the lesson are identified, handled in a grade-appropriate way, and well connected to the content being addressed. ○ Presents a balance of mathematical procedures and deeper conceptual understanding inherent in the CCSS.	*The lesson/unit reflects evidence of key shifts that are reflected in the CCSS:* ○ **Focus:** Lessons and units targeting the major work of the grade provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades. ○ **Coherence:** The content develops through reasoning about the new concepts on the basis of previous understandings. Where appropriate, provides opportunities for students to connect knowledge and skills within or across clusters, domains and learning progressions. ○ **Rigor:** Requires students to engage with and demonstrate challenging mathematics with appropriate balance among the following: – **Application:** Provides opportunities for students to independently apply mathematical concepts in real-world situations and solve challenging problems with persistence, choosing and applying an appropriate model or strategy to new situations. – **Conceptual Understanding:** Develops students' conceptual understanding through tasks, brief problems, questions, multiple representations and opportunities for students to write and speak about their understanding. – **Procedural Skill and Fluency:** Expects, supports and provides guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and	*The lesson/unit is responsive to varied student learning needs:* ○ Includes clear and sufficient guidance to support teaching and learning of the targeted standards, including, when appropriate, the use of technology and media. ○ Uses and encourages precise and accurate mathematics, academic language, terminology and concrete or abstract representations (e.g., pictures, symbols, expressions, equations, graphics, models) in the discipline. ○ Engages students in productive struggle through relevant, thought-provoking questions, problems and tasks that stimulate interest and elicit mathematical thinking. ○ Addresses instructional expectations and is easy to understand and use. ○ Provides appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners. – Supports diverse cultural and linguistic backgrounds, interests and styles. – Provides extra supports for students working below grade level. – Provides extensions for students with high interest or working above grade level. *A unit or longer lesson should:* ○ Recommend and facilitate a mix of instructional approaches for a variety of learners such as using multiple representations (e.g., including models, using a range of questions, checking for understanding, flexible grouping, pair-share). ○ Gradually remove supports, requiring students to demonstrate their mathematical understanding independently. ○ Demonstrate an effective sequence and a progression of learning where the concepts or skills advance and deepen over time. ○ Expect, support and provide guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the	*The lesson/unit regularly assesses whether students are mastering standards-based content and skills:* ○ Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS. ○ Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts. ○ Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient guidance for interpreting student performance. *A unit or longer lesson should:* ○ Use varied modes of curriculum-embedded assessments that may include pre-, formative, summative and self-assessment measures.

EQuIP Rubric

If you have been working with units or multi-day lesson plans but wondering if they are actually aligned to the CCSS, Achieve has updated a rubric that will help classroom teachers understand if their efforts are aligned. The rubric is very telling with regards to the exact point or area of the unit or multi-day lesson that may need support. Ideas and supporting tools such as a PowerPoint and User Guide with many helpful links itemized specifically for each dimension are outlined in these tools.

A lesson template is available in different versions to allow teachers to create plans and also has a descriptive piece that defines the template. Check for updates regularly.

Go to http://www.azed.gov/azccrs/educatortoolbox/ to view the EQuIP rubric.

Educators Evaluating Quality Instructional Products

Principles to Actions: A new release from NCTM and a must read for anyone involved in mathematics education

On April 9, 2014 the National Council of Teachers of Mathematics (NCTM) released its latest publication, *Principles to Actions: Ensuring Mathematical Success for All*. (117 pages)

The primary purpose of *Principles to Actions* is to fill the gap between the development and adoption of the CCSSM and other standards (AZCCRS) and the enactment of practices, policies, programs and actions required for their widespread and successful implementation. "CCSSM provides guidance and direction, and helps focus and clarify common outcomes. But CCSSM does not tell teachers, coaches, administrators, parents, or policymakers what to do at the classroom, school, or district level or how to begin making essential changes to implement these standards. Moreover, it does not describe or prescribe the essential conditions required to ensure mathematical success for all students.

To fully understand the guiding principles and the teaching practices the entire document should be read closely. Action steps are outlined for stakeholders at every level: state, district and school. The teaching practices potentially will impact the evaluation of teachers of mathematics in their schools or districts.

Below are the updated Principles that constitute the foundation of *Principles to Actions.*

Guiding Principles for School Mathematics
Teaching and Learning. An excellent mathematics program requires effective teaching that engages students in meaningful learning through individual and collaborative experiences that promote their ability to make sense of mathematical ideas and reason mathematically.
Access and Equity. An excellent mathematics program requires that all students have access to a high-quality mathematics curriculum, effective teaching and learning, high expectations, and the support and resources needed to maximize their learning potential
Curriculum. An excellent mathematics program includes a curriculum that develops important mathematics along coherent learning progressions and develops connections among areas of mathematical study and between mathematics and the real world.
Tools and Technology. An excellent mathematics program integrates the use of mathematical tools and technology as essential resources to help students learn and make sense of mathematical ideas, reason mathematically, and communicate their mathematical thinking.
Assessment. An excellent mathematics program ensures that assessment is an integral part of instruction, provides evidence of proficiency with important mathematics content and practices, includes a variety of strategies and data sources, and informs feedback to students, instructional decisions, and program improvement.
Professionalism. In an excellent mathematics program, educators hold themselves and their colleagues accountable for the mathematical success of every student and for their personal and collective professional growth toward effective teaching and learning of mathematics.

Mathematics Teaching Practices

Of particular interest to current teachers of mathematics are the 8 Mathematics Teaching Practices which "provide a framework for strengthening the teaching and learning of mathematics. The list identifies these eight Mathematics Teaching Practices, which represent a core set of high-leverage practices and essential teaching skills necessary to promote deep learning of mathematics."

Mathematics Teaching Practices
Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.
Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships

No doubt this document will create conversation, and possibly action and policy change from educational leaders. Don't be the last to know and understand NCTM's newest research-informed recommendation for action.

Copies of the book are available from the NCTM bookstore

paperback $28.95($23.16 for members) paperback edition

ebook PDF $4.99 ($3.99 for members) ebook

Update on Arizona's Science Standard and Planning for 2014-15

Lacey Wieser, Director of K-12 Science and Social Studies, ADE

Retrieved from ASTA 2014

As the 2013-14 school year winds down, many of you are thinking forward to next year and may have professional development or curriculum work planned for this summer. A big question the Science Team at the ADE receives is "What is happening with the standards and how should I plan for next year?"

We currently do not have a firm timeline for when Arizona's State Board of Education will consider adopting new science standards. During the 2014-15 school year, Arizona's current Science Standards will still be in effect and the Science AIMS will still be administered Spring 2015 for grades 4, 8, and high school biology.

Although Arizona's science standards aren't changing for next year, this does not mean that you must continue teaching the way that you did when the standards were first adopted in 2004. We strongly encourage you to begin to shift your instruction to align to the vision of the Framework for K-12 Science Education. This change in instruction involves teaching at the intersection of the three dimensions: science and engineering practices, crosscutting concepts, and the core disciplinary ideas. Additionally, formative or classroom assessments of students should focus more on the students' abilities to perform at the intersection of these three dimensions, rather than for each dimension in isolation.

As you consider how you will modify your curriculum or instruction, think in terms of how to make better connections for your students.

• How can you make better connections between the content objectives (within and between Strands 4, 5, and 6) so they build deeper conceptual understanding for your students?

• How can you teach the current objectives in Strand 1 (inquiry processes) and expand them to the complexity of the eight science and engineering practices in the Framework.

• How can you then connect these eight practices to the content objectives (in Strands 4, 5, and 6) in our current standard?

• How can you use these practices to connect to the application objectives (in Strands 2 and 3) and the crosscutting concepts?

• How can you embed the AZCCRS Literacy Standards in Reading and Writing to develop a deeper content understanding and support the practices of constructing explanations, developing and using models, engaging in arguments from evidence, and obtaining, evaluating and communicating information in science?

• How can the performance expectations of the Next Generation Science Standards guide these changes towards making better connections?

Consider using the ADE curriculum analysis document posted on our website to help you analyze your lessons. If you are a K-5 teacher, you will find specific curriculum analysis documents aligned with our current science standard and topics to make your analysis easier. You have your work cut out for you. Moving science education to a deeper, more meaningful level with the constraints of our current standards and classroom resources is a challenge.

The ADE knows that we have a deep pool of talent in this state willing to rise to this challenge. As we all move forward together, the ADE has two different ways for you to get more involved in the process. We encourage you to apply to serve on a Resource Development and/or Review Team or to apply to serve on a Standards Development/ Review team. Each of these teams are important for helping us move closer to new science standards in Arizona.

AZCCRS Summer Courses

June 30th Socratic Seminar K-12
July 1st Opinion/Argument Writing K-3
July 10th Close Reading K-12
July 14th-17th Teaching Reading Effectively
July 18th Progression of Fractions 3-6
July 19th Progression of Number & Operations in Base 10 K-5
July 24th-25th Explanation and Argument Writing 4-12
July 28th-Aug 1st Structured English Immersion
July 28th Writing in the Mathematics Classroom 3-8
July 29th EQuIP
July 30th-31st Phase 1 ELA for Teachers
Aug 1st Progression of Ratios & Proportional Reasoning 6-8

Register for all classes at:
https://www.surveymonkey.com/s/Summer2014Reg