



# **Thurgood Marshall College Fund Teacher Quality & Retention Program Online Workshop February 23, 2016**

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# The CCSS Requires Three Shifts in Math

1. **Focus:** Focus strongly where the standards focus.
2. **Coherence:** *Think* across grades, and *link* to major topics.
3. **Rigor:** In major topics, pursue *conceptual understanding*, procedural skill & *fluency*, and *application*.



# Focus

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- Move away from "mile wide, inch deep" curricula identified in TIMSS.
- Learn from international comparisons.
- Teach less, learn more.
- “Less topic coverage can be associated with higher scores on those topics covered because students have more time to master the content that is taught.”

– Ginsburg et al., 2005



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# Traditional U.S. Approach

K

12

Number and  
Operations



Measurement  
and Geometry



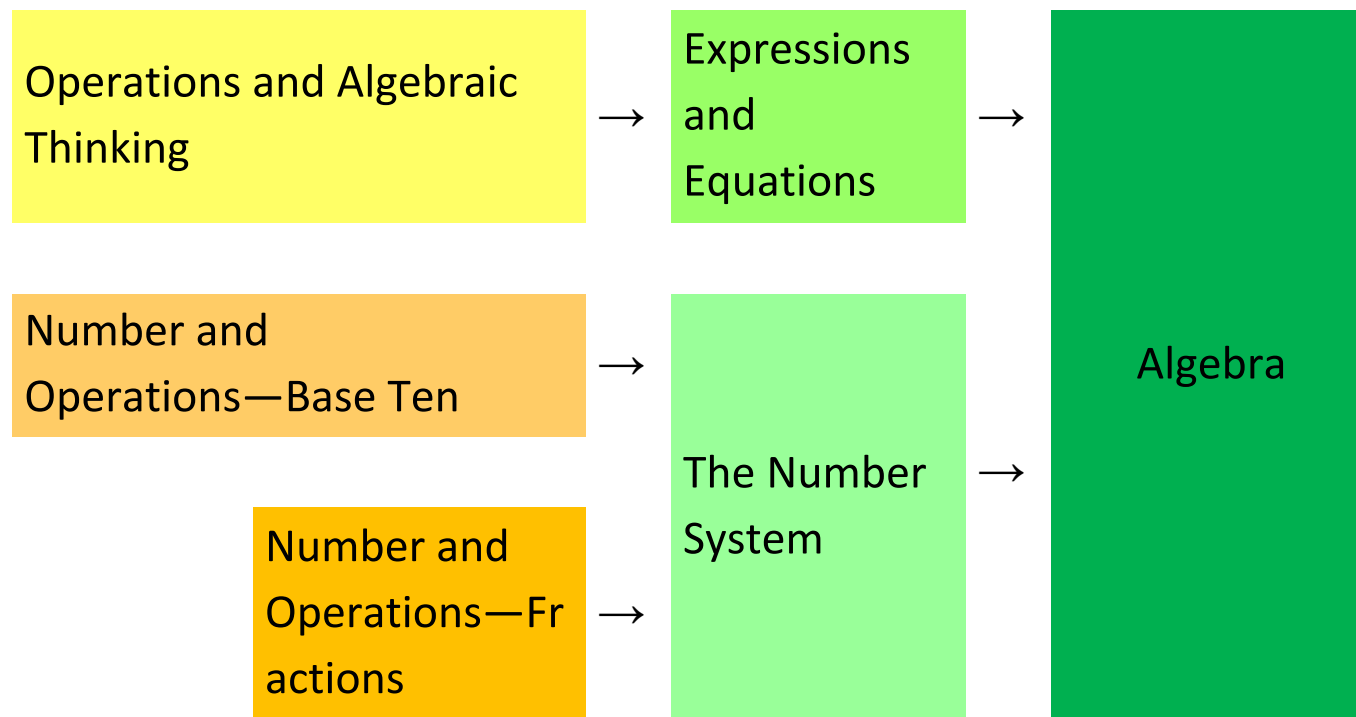
Algebra and  
Functions



Statistics and  
Probability



# Focusing attention within Number and Operations



K 1 2 3 4 5 6 7 8 High School

# Priorities in Mathematics

Grade	Focus Areas in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
K–2	Addition and subtraction, measurement using whole number quantities
3–5	Multiplication and division of whole numbers and fractions
6	Ratios and proportional reasoning; early expressions and equations
7	Ratios and proportional reasoning; arithmetic of rational numbers
8	Linear algebra and linear functions

# Rigor

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- The CCSSM require a balance of:
  - Solid conceptual understanding
  - Procedural skill and fluency
  - Application of skills in problem solving situations
- Pursuit of all three requires equal intensity in time, activities, and resources.





# Solid Conceptual Understanding

- Teach more than “how to get the answer” and instead support students’ ability to access concepts from a number of perspectives
- Students are able to see math as more than a set of mnemonics or discrete procedures
- Conceptual understanding supports the other aspects of rigor (fluency and application)



# Fluency

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- The standards require speed and accuracy in calculation.
- Teachers structure class time and/or homework time for students to practice core functions such as single-digit multiplication so that they are more able to understand and manipulate more complex concepts



# Application

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- Students can use appropriate concepts and procedures for application without prompting.
- Teachers provide opportunities at all grade levels for students to apply math concepts in “real world” situations, recognizing this means different things in K-5, 6-8, and HS.
- Teachers in content areas outside of math, particularly science, ensure that students are using grade-level-appropriate math to make meaning of and access science content.



# What Does this Look Like In Practice?

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- You should have watch the math video prior to the online meeting and completed the IPG using evidence from the video.
- Be ready to talk about the video and it's connection to CC. Be ready to defend if the classroom lesson you observed was a “good to go” CC Classroom, and if not what would you change and why.



# Integrating ELA shifts to the Classroom

- Think about the lesson you are currently teaching.
- Identify what you are asking the students to write and read.
- Discussion – how does that really relate to integration of CC into your classroom.
- Share with group



# Questions, questions, questions

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## Cognitive rigor matrix

- Create 3-5 scaffolded questions prior to the class so that you can make sure you push the students thinking in a progression that would allow success.
- Make sure to additionally “teach” the students how to question higher by asking them to clarify their questions, add detail, etc.



# OLD vs NEW

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- How to identify if the test are aligned to CCSS or are of the “set and get” variety.
- Microsite will be used for the discussion on test items.



# Formative and Summative

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- Using the matrix and our discussion on formative and summative assessments determine what they following question are formative or summative.



# Example 1

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## Journal

- Ask the students to record their thoughts and feelings about how they are progressing in the class. They can also share feelings about particular assignments or indicate areas in which they may be experiencing difficulties in the classroom, either with the material, the teacher, or their classmates.



# Example 2

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## Four Corners

- This is a great way to encourage dynamic movement while learning multiple-choice questions. Designate each corner of the classroom to represent A, B, C, and D. Students go to the corner that they believe corresponds with the correct answer.



# Example 3

- **Part 1** (35 minutes) You will read three sources, taking notes on what you read, and answer three questions about the sources in preparation for writing an informational essay about invasive plants. **Steps you will be following:** 1. Read an article, a fact sheet, and a blog entry. 2. Answer three questions about the sources. 3. Plan and write your essay **Directions for beginning:** You will now read three sources about invasive plants: an article, a fact sheet, and a blog. Take notes because you may want to refer back to your notes while writing your essay. You can refer back to any of the sources as often as you like.



# Suggestions for Smarter Balance Like Questions – Just FYI

- <http://www.ode.state.or.us/search/page/?id=3747>



# Formative vs Summative

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- What do you want to get out of the assessment/
- Will you be changing your teaching or instruction based on the student's response?
- Will you be allowing the student to revisit and respond to your suggestions for improvement?



# Questions and Answers!

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