Let's Focus on Focus

Professional Development on the Instructional Shift of Focus

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While viewing the video, consider the following:

What are the three instructional shifts in Common Core Mathematics Standards?

Why is each shift important?

How will these shifts impact your curriculum, instruction, and assessment?

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The CCSS Requires Three Shifts in Mathematics

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

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Shift 1:
What is Focus?

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Shift #1: Focus Strongly where the Standards Focus

- Significantly narrow the scope of content and deepen how time and energy is spent in the math classroom.
- Focus deeply on what is emphasized in the standards, so that students gain strong foundations.

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Focus

- Move away from **"mile wide, inch deep"** curricula identified in TIMSS.
- Learn from international comparisons.
- Teach less, learn more.

➓ “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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Engaging with the shift: What do you think belongs in the major work of each grade?

Grade	Which two of the following represent areas of major focus for the indicated grade?		
K	Compare numbers	Use tally marks	Understand meaning of addition and subtraction
1	Add and subtract within 20	Measure lengths indirectly and by iterating length units	Create and extend patterns and sequences
2	Work with equal groups of objects to gain foundations for multiplication	Understand place value	Identify line of symmetry in two dimensional figures
3	Multiply and divide within 100	Identify the measures of central tendency and distribution	Develop understanding of fractions as numbers
4	Examine transformations on the coordinate plane	Generalize place value understanding for multi-digit whole numbers	Extend understanding of fraction equivalence and ordering
5	Understand and calculate probability of single events	Understand the place value system	Apply and extend previous understandings of multiplication and division to multiply and divide fractions
6	Understand ratio concepts and use ratio reasoning to solve problems	Identify and utilize rules of divisibility	Apply and extend previous understandings of arithmetic to algebraic expressions
7	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers	Use properties of operations to generate equivalent expressions	Generate the prime factorization of numbers to solve problems
8	Standard form of a linear equation	Define, evaluate, and compare functions	Understand and apply the Pythagorean Theorem

Examine the CCSS Math Standards for grades 3 – 5. Based on your observations, identify the focus areas for that grade span.

Grade	Focus Areas in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
K–2	Addition and subtraction - concepts, skills, and problem solving and place value
3–5	
6	Ratios and proportional reasoning; early expressions and equations
7	Ratios and proportional reasoning; arithmetic of rational numbers
8	Linear algebra

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Key Areas of Focus in Mathematics

Grade	Focus Areas in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
K–2	Addition and subtraction - concepts, skills, and problem solving and place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional reasoning; early expressions and equations
7	Ratios and proportional reasoning; arithmetic of rational numbers
8	Linear algebra

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Content Emphases by Cluster: Grade Four

Content Emphases by Cluster--Grade 4*

Key: ■ Major Clusters; ▣ Supporting Clusters; ○ Additional Clusters

Operations and Algebraic Thinking

- ■ Use the four operations with whole numbers to solve problems.
- ▣ Gain familiarity with factors and multiples.
- ○ Generate and analyze patterns.

Number and Operations in Base Ten

- ■ Generalize place value understanding for multi-digit whole numbers.
- ■ Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations--Fractions

- ■ Extend understanding of fraction equivalence and ordering.
- ■ Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- ■ Understand decimal notation for fractions, and compare decimal fractions.

Measurement and Data

- ▣ Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- ▣ Represent and interpret data
- ○ Geometric measurement: understand concepts of angle and measure angles.

Geometry

- ○ Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

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Power Standards and Assessment Opportunities for In-Depth Focus

PARCC Model Content Frameworks for Mathematics Version 2.0—August 31, 2012

(revised)

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one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

In Depth Focus:

In this standard students combine prior understanding of multiplication with deepening understanding of the base-ten system of units to express the product of two multidigit numbers as another multidigit number.

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PARCC Assessment Sample

Look at the following assessment sample. How does this assessment address the in depth focus of standard 4.NBT.5?

http://www.ccsstoolbox.com/parcc/PARCCPrototype_main.html

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4.NF.3

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

In Depth Focus:

This standard represents an important step in the multigrade progression for addition and subtraction of fractions. Students extend their prior understanding of addition and subtraction to add and subtract fractions with like denominators by thinking of adding or subtracting so many unit fractions.

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Smarter Balanced Assessment Sample

Look at the following assessment sample. How does this assessment address the in depth focus of standard 4.NBT.3?

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Additional Grade 4 Power Standards

- **4.NBT.6** When students work toward meeting this standard, they combine prior understanding of multiplication and division with deepening understanding of the base-ten system of units to find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors. This work will develop further in grade 5 and culminate in fluency with the standard algorithms in grade 6.

- **4.NF.1** Extending fraction equivalence to the general case is necessary to extend arithmetic from whole numbers to fractions and decimals.

- **4.NF.4** This standard represents an important step in the multigrade progression for multiplication and division of fractions. Students extend their developing understanding of multiplication to multiply a fraction by a whole number.

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Examples of how the content of this grade might be connected to the practices follow.

When students decompose numbers into sums of multiples of base-ten units to multiply them (4.NBT.5), they are seeing and making use of structure (MP.7).

As they illustrate and explain the calculation by using physical or drawn models, they are modeling (MP.4), using appropriate drawn tools strategically (MP.5) and attending to precision (MP.6) as they use base-ten units in the appropriate places.

To compute and interpret remainders in word problems (4.OA.3), students must reason abstractly and quantitatively (MP.2), make sense of problems (MP.1), and look for and express regularity in repeated reasoning (MP.8) as they search for the structure (MP.7) in problems with similar interpretations of remainders.

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Video Part Three: Question to Ponder

How will this shift in focus impact your curriculum, instruction, and assessment?

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Action Plan

- Step 1: Examine current curriculum:
  - What needs to be eliminated or changed?
  - What new content needs to be implemented?

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Action Plan continued

- Step 2: Examine Instruction/Assessment
- How did I teach this cluster?
- How did I teach this standard?
- How can I dig deeper into the standards using the shift of focus to improve instruction and assessment?
- How can I embed “supporting” and “additional” clusters into the “major” clusters? (refer to resources)

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Resources for Teachers

- Unpacking CCSS
- Key Areas of Focus in CCSS Mathematics

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