

Priorities in the Math Standards

There are two design principles in the math standards that are at the very heart of improving math education: *focus* and *coherence*. To understand the shifts required to implement the Common Core and to raise the levels of mathematics proficiency for all students, it is essential to understand these principles and how they fundamentally change the typical U.S. approach to math education.

The concept of *focus* requires that at each grade level students and teachers will focus their time, their energy, and their resources on a few things. Without markedly greater focus, students are not likely to reach greater levels of fluency and conceptual understanding. In other words, by doing fewer things at each grade level, students are actually able to go farther in developing sophisticated math concepts as they progress through middle and high school mathematics.

There are no more than a couple of these key areas of focus at each grade level. Focus allows the teacher to be patient in teaching the content, giving students the opportunity to understand the concept and practice applying the concept in order to reach a deep and fluent understanding. This is in contrast to current mathematics curriculum that is famously described as a mile wide and an inch deep in which both teachers and students are obligated to race through, regardless of the student's command of the concept. By taking the time to not simply memorize math procedures through gimmicks or mnemonics, and getting to a level of understanding where fluency is expected, students will be able to build upon their knowledge of math in an efficient and effective progression. A fragmented sampling-type curriculum works against this expectation. It is for this reason that focus is "job one" of the Common Core math standards.

A classroom in which everyone is struggling to "cover the curriculum" is not a classroom where deep and fluent understanding can develop. It is also not a classroom where students can be expected to work on rich problems that take fundamentals for granted. Finally, it is not a classroom where mathematics educators can bring to life the Mathematical Practices in the Standards. Without focus, such ambitions are dreams.

Areas deserving intense focus are listed below:

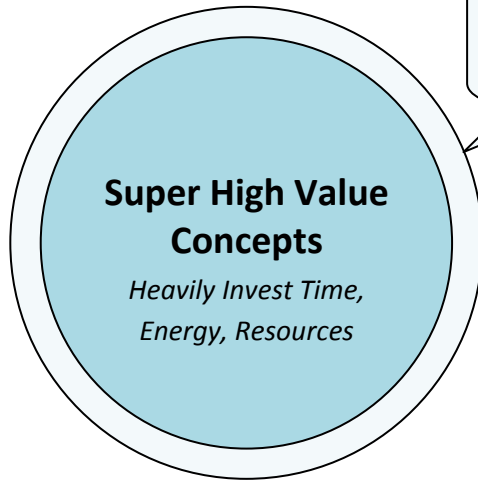
Grade	Priorities in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
K–2	Addition and subtraction, measurement using whole number quantities
3–5	Multiplication and division of whole numbers and fractions
6	Ratios and proportional reasoning; early expressions and equations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

The second design principle of **coherence** actually results from the ability to focus on fewer concepts that matter. Coherence is a result of the efficient and effective progression described previously, and refers to the ability to actually make sense of the mathematics that students are encountering. The standards are carefully placed within the grade levels to build relationships between concepts of mathematics and even more critically, they follow a grade by grade progression in which student understanding of mathematical concepts and applications matures. In an overcrowded curriculum that merely covers a multitude of topics there is no expectation and, simply stated, no room for developing this type of sense-making about math.

Implications

So, what does this mean for Common Core Standards implementation plans? For one thing, transition plans must be as much about what to cease doing as they are to be about the content scope and sequence to be addressed. We therefore encourage organizations working toward quality implementation of the standards to begin the process with an intense focus on the areas listed in the table above. Any exemplars, curricular units, professional development support, intervention planning, assessment adjustments, data systems and resource investments should focus intensely on these areas. There is time to flesh out as we go. In the short term, plans for partial or phased implementation should only consider these high value concepts.

In order to make room for these areas of focus, teachers shouldn't be asked to continue what they are doing and also focus intensely on these areas.



Concepts to take responsibility for