



## MASTERING MATH

How K<sup>12</sup> Math Meets and Exceeds the New NCTM Focal Points





## A Mile Wide and an Inch Deep

Here's the problem.

Right now, in 49 out of 50 states, there are some 30 to 90 math objectives for every K-8 grade level. *30 to 90*. That's a lot of material for a teacher to try to cover, even at the low end of the scale. Of course, they can't cover everything. They have to pick and choose—figure out what's most important out of all those objectives. A job in and of itself.

The result? With ominous amounts of material looming, and little guidance on how to get through it all, teachers jump from topic to topic, with students failing to master the most important concepts before they move on. Math in the United States has earned the reputation—justifiably—as being “a mile wide and an inch deep.”

## The Public Voice of Mathematics Education

The National Council of Teachers of Mathematics (NCTM) is, as the organization itself puts it, “a public voice of mathematics education.” The nonprofit, nonpartisan education association is the world's largest organization dedicated solely to improving the teaching and learning of mathematics from pre-kindergarten through high school.

In September 2006, in an effort to address this lack of depth in American math, NCTM published *Curriculum Focal Points for Pre-kindergarten through Grade 8 Mathematics: A Quest for Coherence*. *A Quest for Coherence* spells out in detail the three most significant math concepts students should learn at each grade level—called “Focal Points.”

## Focal Points = Focus

Focal Points provide focus—curricular focus—for both teachers and students. They're cohesive clusters of related knowledge, skills,

and concepts that specify the mathematical content a student needs to understand—and a teacher needs to stress—for successful, future mathematics learning.

Put simply, certain critical concepts need to be mastered before moving on to new ones. One thing builds on another, and students shouldn't be moving ahead or jumping around until they master what they have in front of them—otherwise, they'll be at a loss when it comes to future studies.

## K<sup>12</sup> and Content Mastery

K<sup>12</sup> is the country's top curriculum provider for K-12 online academies. Based on decades of education research, and designed in-house by our own team of content specialists, lesson writers, and interactive designers, the K<sup>12</sup> curriculum is flexible and individualized—offering a rich mix of content that includes online interactive lessons, beautiful textbooks, and lots of hands-on materials. This combination of online and offline content—of thinking and doing—helps engage young minds in the right ways.

Like the Focal Points, every lesson in the K<sup>12</sup> curriculum builds on previous learning. K<sup>12</sup> calls this “content mastery.” That is, students don't move on to new material until they demonstrate mastery over the material they're currently studying. The content itself is built around the notion of identifying the “big ideas” within a subject, then driving that material home through consistent reinforcement and assessment. Again, just like the Focal Points.

## K<sup>12</sup> Meets the Focal Points

But more than just a philosophical match, K<sup>12</sup> Math demonstrably meets the Focal Points every step of the way—and at one grade level even exceeds them. Grade 2 is a good example of a K<sup>12</sup> course that mirrors the Focal Points. In the box below, the italicized text lays out the Focal

Point requirements, while the “units” designate at what specific point and in what specific manner K<sup>12</sup> Math addresses them.

### Grade 2 NCTM Focal Points and K<sup>12</sup> Math coverage points

**Number and Operation:** *Developing an understanding of the base-ten numeration system and place-value concepts.*

**Unit 1:** Number and Operation Sense, Part 1

**Unit 3:** Place Value to 100, Part 1

**Unit 4:** Place Value to 100, Part 2

**Unit 7:** Money and Time, Part 1

**Unit 16:** Place Value to 1,000 and Addition, Part 1

**Unit 20:** Place Value to 1,000 and Subtraction Sense, Part 1

**Number and Operation and Algebra:** *Developing quick recall of addition facts and related subtraction facts and fluency with multi-digit addition and subtraction.*

**Unit 1:** Number Operation Sense, Part 1

**Unit 2:** Number and Operation Sense, Part 2

**Unit 5:** Addition and Subtraction: Facts to 18, Part 1

**Unit 6:** Addition and Subtraction: Facts to 18, Part 2

**Unit 9:** Addition and Two-digit Numbers

**Unit 10:** Subtraction of Two-digit Numbers, Part 1

**Unit 11:** Subtraction of Two-digit Numbers, Part 2

**Unit 16:** Place Value to 1,000 and Addition, Part 1

**Unit 17:** Place Value to 1,000 and Addition, Part 2

**Unit 20:** Place Value to 1,000 and Subtraction Sense, Part 1

**Unit 20:** Place Value to 1,000 and Subtraction Sense, Part 2

**Measurement:** *Developing an understanding of linear measurement and facility in measuring lengths.*

**Unit 14:** Measurement, Part 1

**Unit 15:** Measurement, Part 2

In every other grade it’s the same story—K<sup>12</sup> Math consistently meets the Focal Points. A notable exception is Grade 8, where K<sup>12</sup> actually exceeds the Focal Points. Here’s how.

### K<sup>12</sup> Exceeds the Focal Points

Another of the forces that drove development of the Focal Points was that students at the high school level weren’t having success in algebra. So, step by step and grade by grade, the Focal Points focus the teachers, and therefore prepare the students, for what they will face as they transition into formal algebra.

This being the case, the Grade 8 Focal Points spell out a classic pre-algebra curriculum. However, K<sup>12</sup> Grade 8 Math is an actual algebra course, offering the same material the average public-schooler would see in a high school level algebra course. (Any pre-algebra requirements will have already been covered earlier in the K<sup>12</sup> curriculum.)

The bottom line? When it comes to the Grade 8 Focal Points, K<sup>12</sup> Math not only meets them, but exceeds them.

### A Focused Student is a Successful Student

The NCTM Focal Points go a long way towards trying to reshape and refocus American math, to help it begin the long climb out of that “mile-wide, inch-deep” trough it finds itself in.

With a curriculum built around content mastery—a curriculum that meets or exceeds the Focal Points every step of the way—K<sup>12</sup> is there, too. And it will continue to be there—point by point, equation by equation, student by successful student.



**For more information about K<sup>12</sup> Math and how it can be used by your school or district, call 866.903.5122 or visit [K12.com/educators](http://K12.com/educators).**