



Common Core Math: Addressing Misconceptions

Common Core math standards have been maligned, misinterpreted, and misunderstood for quite some time. This document will help clarify some key points, due to recent media reports that may have been misleading or confusing.

What the Media is Getting Wrong: Recent press reports have been highly critical of Common Core math standards by charging that they:

- 1) Demand "**fuzzy**" **new math** that replaces traditional tried-and-true methods;
- 2) Require students to learn multiple approaches that are **confusing and unnecessarily complicated**; and
- 3) Rely on a "**top-down**" forced mandate that ignores teachers and local communities.

The Real Message: Common Core math standards are designed so that ALL students are equipped with the math concepts and skills to make them ready for college and career.

- 1) **There is no "fuzzy" math...there is only math.** All students will still learn the math fundamentals -- addition, subtraction, multiplication, and division -- just like their parents. As those skills develop, they will learn other methods and strategies as well. Unfortunately, poorly designed math homework exists, and we encourage parents to work with teachers and local schools to improve it.
- 2) **Knowing multiple methods prepares them for more complex problems.** Just as the more skilled baseball pitcher masters multiple pitches (fastball, curveball, slider), the more skilled student knows multiple ways to solve a math problem. And knowing multiple ways to solve a problem allows the student to select the method that is best for them.
- 3) **Local communities are innovating!** Communities are finding the best ways to support parents with common core math. Many recent articles highlight how school districts, principals, and teachers across the country are offering their time and ideas on how to help parents understand the standards so they can help their children learn.

News & Resources You Can Use: Please see the additional resources and assets below.

Videos:

- [The Idaho Math in Minutes Video Series](#): This video series illustrates how students continue to learn traditional approaches to solving math problems while the Common Core encourages students of all ages to use the math strategies that work best for them.

Issues Addressed: Watch the videos from Kindergarten on up and you can see that teaching students multiple approaches enables them to use the methods that work best for them, which is especially helpful as students advance to more complicated problems. The 3rd grade tutorial demonstrates the evolution of addition, subtraction, and multiplication and why it is important for students to learn how to manipulate numbers to make it easier to work as the math gets more challenging. The 4th grade video specifically highlights students choosing traditional approaches as the strategy that work best for them.

- [Talking About Math: Sharing Strategies](#): This Teaching Channel video follows two 3rd grade students, Carlos and Sara, as they use mental math and other strategies to solve problems and discuss the approaches they took.

Issues Addressed: This video clearly shows that students can do this work, despite critiques and questions of developmental appropriateness. These students not only solve the problems, but have developed the skills and confidence to explain their work in front of classmates. The Common Core ensures students learn the important mathematical procedures, but also seeks to instill in them a deeper conceptual understanding. Students who "understand" the math, in addition to being able to "do" the math, are better able to apply math to practical, real-world situations.

Articles:

- [What Makes a Good Common Core Math Question:](#) In this article, we see that one of the goals of the math standards is for students to think creatively and to develop problem solving skills. Phil Daro, one of the authors of the Common Core highlights an example that has students solve 15 divided by three in six ways: as a multiplication problem, by constructing equal groups of numbers, using an array, using an area model, using the multiplication table, and through writing a word problem. He notes that students could learn about remainders by having them do the same thing for 16 divided by three.

Issues Addressed: Daro's example above highlights that students will continue to learn traditional approaches to solving math and important math facts. For example, the Common Core standards expressly require that students memorize their times tables by third grade. Research indicates that only about one-third of states had this requirement in place before Common Core.

- [How New is "New Math"?](#) In this article, elementary teacher and curriculum designer Melissa Mazur investigates the myth that the Common Core standards promote new, crazy math strategies in order to educate a Common Core opponent. She provides a side-by-side comparison of the Common Core-aligned math assignments she gives her third graders compared to the assignments she was given in third grade circa 1993. Her analysis reveals that the assignments are actually similar if not identical.

Issues Addressed: The author demonstrates that much ado has been made about supposedly "new" strategies for math. Common Core builds upon the best approaches that have been utilized for decades to teach students multiple methods for solving math problems. She also provides a strong model for teachers on how to communicate effectively with parents and community members about Common Core math.

- [Common Core Helps Elementaries Focus on Math Strategies:](#) In this article, three different teachers discuss the virtues of giving students multiple approaches to solving math problems. One teacher states the Common Core approach isn't "new" but rather what she has always believed to be good teaching. Students learn and comprehend math differently, and by arming them with a variety of approaches they are better able to tackle math. As another teacher says, "And what I tell my students is you choose what fits you, because I can't tell them how to learn ... and for me to say, 'You're going to learn it this way and this way only,' is that fair? I don't think it is."

Issues Addressed: As the article notes, many parents were taught to only memorize math facts and standard processes and so they will not be familiar with many of the other strategies their students might use, but parents can still help their children learn the standard algorithms and important math facts. As a community we have to help parents understand the additional strategies their students will learn, as well as the rationale for learning them.

- [Common Core Math Can Be a Mystery, and Parents Are Going to School to Understand It:](#) Although CCSS-aligned math has caused some confusion among parents, the Washington Post's Lyndsey Layton writes that from "New York to California, schools districts are holding special math sessions for parents and caregivers, sending home 'cheat sheets' and offering homework hotlines answered by math teachers, all in an effort to explain and demystify the new approach." The article points out that in the past math was "learned as a series of memorized facts, formulas and shortcuts or tricks," which left many students struggling. "The new math standards are encouraging students to think deeper," one principal says. Another teacher notes her students are showing more sophisticated understanding on content they otherwise wouldn't have encountered until later grades.

Issues Addressed: While still teaching traditional problem-solving techniques, CCSS math puts a greater emphasis on how a student arrives at an answer, giving students a better understanding of the concepts behind the numbers. Instead of just rote memorization, the Standards highlight multiple ways to work through a problem, which creates deeper content understanding and better equips students for higher level math.

Parent Guides:

- [The Parent Roadmaps to the Common Core State Standards - Mathematics:](#) Created by the Council of the Great City Schools, this is one of many tools that can help parents better understand the math standards and the uses of strategies that are unfamiliar to them.

Issues Addressed: On page three of the [4th grade roadmap](#), parents can see how their child will develop an understanding of place value, and use it as part of a strategy for solving multi-digit multiplication problems. As the document shows, students will explore a variety of multiplication strategies, including the standard algorithm. Page four also demonstrates how 4th grade students can use number lines as they learn how to breakdown fractions into smaller fractions.

- [The Eureka Math Parent Tip Sheets:](#) These are another tool parents can turn to in order to better understand some of the key concepts by grade level.

Issues Addressed: Because the Common Core standards expect students to fluently multiply and divide within 100 by the end of 3rd grade, parents should encourage their children to practice multiplication facts for 2s, 3s, 4s, 5s, and 10s until they know them fluently. The tip sheet also shows parents how a student might use strategies like number bonds or arrays to solve multiplication problems.