

Common Core State Standards Initiative (2010). Common Core Standards for Mathematics.

Full text is available also at: <http://www.corestandards.org/Math/>.

Summary

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An introduction of the Common Core State Standards Initiative led to the conclusion that teaching standards need to be established to reach a greater focus and coherence in students. Over the span of ten years, the United States concentrated on worldwide research studies of mathematical education in high-performing countries and examined the development of the international benchmarking process that was utilized in Hong Kong, Korea, and Singapore. The United States then produced common standards of teaching to improve mathematical achievement in the country, with such standards addressing the problem of the past curriculum being, “a mile wide and an inch deep.”

Recognizing the research of Confrey (2007), this article concludes the following, “the development of these Standards began with research-based learning progressions detailing what is known today about how students’ mathematical knowledge, skill, and understanding develop over time” (2010, p. 4). These crafted, more inclusive standards provide a “substantial” answer to mathematics, with such standards defining what students should understand and what students should be able to do. Mathematical understanding comes to be the core of these standards, pushing students to hold the ability to have mathematical maturity, further justifying *why* a particular mathematical statement holds validity and stating the accompanying rule(s) which supports such problems.

The outline of the standards is developed for each grade level ranging from K-12, with each standard again defining what each student should be able to comprehend and complete. The format of the Common Core Standards is designed to match expectations of specific grade levels by providing intervention methods and additional materials to aid student development both above and below one’s current academic grade level. While students all are pushed to reach the high expectations of one’s grade to benefit their life experiences post-schooling, appropriate accommodations are set in place to ensure active participation for all students of differing academic levels and needs.

Standards are broken up into three components, the domain (the overarching idea), the standard itself (what students should be able to understand/do), and the cluster (the other accompanying standards within this domain that are closely related). An example given within this article states a grade 3 domain of, “3.NBT, Numbers and Operations in Base 10.” The first standard listed is noted as, “1. Use place value understanding to round whole numbers to the

nearest 10 or 100.” While the cluster includes additional standards of, “2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction and 3. Multiply one-digit whole numbers by multiples of 10 in the ranges 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations” (2010, p. 5). More generally, the document is broken down by grade level with the first page including tips of how instructional time can more so focus on critical areas for students of this age; an overview of how each mathematical practice is related to each grade is provided; and then finally, the accompanying standards close each grade level.

The Standards for Mathematical Practice include eight practices that expand on areas of expertise for all grade-level students mathematical development and understanding:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

These practices are modeled on “processes and proficiencies” that are active points of intersection between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are both intended to be expanded upon as a student ages, improving several concepts, such as the curriculum, academic development and achievement, and mathematical instruction.

When reviewing the Common Core State Standards, expectations should not be centered upon the standards providing curriculum or teaching methods, but rather are intended to improve mathematics achievement in the United States. Such developed standards lead to a scaffolding approach of gained knowledge, which composes one’s greater development of mathematical learning over time.