

Common Core State Standards

The Common Core State Standards (CCSS) are broad statements of outcomes that provide a consistent and clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. They are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. These standards assume a shared responsibility for students' literacy development. They have been built on an integrated model of literacy with media requirements throughout. The common core standards are developmentally appropriate with cumulative progression of skills and understandings and a one-to-one correspondence with College and Career Readiness standards.

The Common Core State Standards Initiative is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO). These standards are informed by the highest, most effective models from states across the country and countries around the world. The standards have been adopted by most states. The New York State Board of Regents adopted the CCSS in July 2010, then added an additional 15 percent (as allowed) in January 2011. Upon adoption of the 15%, New York State renamed the CCSS for our state to NYS P-12 Common Core Learning Standards (NYS P-12 CCLS). The standards only apply to ELA & Literacy and mathematics.

These standards define the knowledge and skills students should have within their P-K-12 education careers so that they will graduate high school able to succeed in entry-level, credit-bearing academic college courses and in workforce training programs. The standards:

- Are aligned with college and work expectations;
- Are clear, understandable and consistent;
- Include rigorous content and application of knowledge through high-order skills;
- Build upon strengths and lessons of current state standards;
- Are informed by other top performing countries, so that all students are prepared to succeed in our global economy and society; and
- Are evidence-based.

Mathematical Practices

(apply to grades P-K – 12)

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.

Common Core Standards for Mathematics - Standards for Mathematical Practice and Standards for Mathematical Content

Mathematical Content

Grade	Critical Areas
Pre-K	(1) developing an understanding of whole numbers; (2) describing shapes in their environment
K	(1) representing and comparing whole numbers; (2) describing shapes and space
1	(1) developing understanding of addition, subtraction within 20; (2) developing understanding of place value (3) developing understanding of linear measurement; (4) reasoning about attributes of geometric shapes
2	(1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction (3) using standard units of measure; (4) describing and analyzing shapes
3	(1) multiplication and division within 100; (2) developing understanding of fractions (3) developing understanding of area; (4) describing and analyzing two-dimensional shapes
4	(1) developing understanding and fluency with multi-digit multiplication; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties
5	(1) fluency with addition and subtraction of fractions, and developing understanding of the multiplication division of fractions; (2) extending division to 2-digit divisors, developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; (3) developing understanding of volume
6	(1) connecting ratio and rate to whole number multiplication and division and using those concepts to solve problems; (2) completing understanding of division of fractions and extending to rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.
7	(1) applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings, and working with 2- and 3-dimensional shapes to solve area, surface area, and volume problems; (4) drawing inferences about populations based on samples
8	(1) formulating, reasoning and solving linear equations and systems of linear equations; (2) using functions to describe quantitative relationships; (3) analyzing 2- and 3-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem

Mathematical Content

High School	The high school standards specify the mathematics that all students should study in order to be college and career ready. Additional mathematics that students should learn in order to take advanced courses such as calculus, advanced statistics, or discrete mathematics. The high school standards are listed in conceptual categories: Number and Quantity; Algebra; Functions Modeling; Geometry; Statistics and Probability
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Shifts in Mathematics

There are 6 shifts in Mathematics that the Common Core requires to help align curricular materials and classroom instruction.

Shifts in Mathematics		
Shift 1	Focus	<i>Teachers significantly narrow and deepen the scope of what is taught in the math classroom. They do so in order to focus deeply only on the concepts that are prioritized in the standards so that students reach strong foundational knowledge and deep conceptual understanding and are able to transfer mathematical skills and understanding across concepts and grades. Mathematics concepts, content and practice are taught to mastery at each grade level. Explore a video on this shift at: http://engageny.org/resource/common-core-in-mathematics-shift-1---focus/</i>
Shift 2	Coherence	<i>Principals and teachers carefully connect the learning within and across grades so that, for example, fractions or multiplication spiral across grade levels and students can build new understanding onto foundations built in previous years. Teachers can begin to count on deep conceptual understanding in core content and build on it. Each standard is not a new event, but an extension of previous learning. Explore a video on this shift at: http://engageny.org/resource/the-common-core-in-mathematics-shifts-2-6/</i>
Shift 3	Fluency	<i>Students are expected to have speed and accuracy with simple calculations; teachers structure class time and/or homework time for students to memorize, through repetition, core functions such as: multiplication tables so that they are more able to understand and manipulate more complex concepts. Explore a video on this shift at: http://engageny.org/resource/the-common-core-in-mathematics-shifts-2-6/</i>
Shift 4	Deep Understanding	<i>Teachers teach more than “how to get the answer” and instead support students’ ability to access concepts from a number of perspectives so that students are able to see math as more than a set of mnemonics or discrete procedures. Students demonstrate deep conceptual understanding of core math concepts by applying them to new situations as well as writing and speaking about their understanding. Explore a video on this shift at: http://engageny.org/resource/the-common-core-in-mathematics-shifts-2-6/</i>
Shift 5	Application	<i>Students are expected to use math and to choose the appropriate concept for application even when they are not prompted to do so. Teachers provide opportunities at all grade levels for students to apply math concepts in “real world” situations. Teachers in content areas outside of math, particularly science, ensure that students are using math – at all grade levels – to make meaning of and access content. Explore a video on this shift at: http://engageny.org/resource/the-common-core-in-mathematics-shifts-2-6/</i>
Shift 6	Dual Intensity	<i>Students are practicing and understanding. There is more than a balance between these two things in the classroom – both are occurring with intensity. Teachers create opportunities for students to participate in “drills” and make use of those skills through extended application of math concepts. The amount of time and energy spent in the practice and understanding learning environments is driven by the specific mathematical concept and therefore varies throughout the given school year. Explore a video on this shift at: http://engageny.org/resource/the-common-core-in-mathematics-shifts-2-6/</i>

Resources:

The NYS P-12 CCLS for Mathematics -

http://www.p12.nysed.gov/ciai/common_core_standards/pdfdocs/nysp12cclsmath.pdf

The Common Core State Standards - <http://www.corestandards.org/>

EngageNY- resources for teachers, administrators, and other stakeholders – www.engageny.org

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