

## A First Look at Common Core Mathematics in Illinois



Taken from "A First Look at the Common Core and College and Career Readiness"

- **Increased focus is needed on the foundations of mathematics.** The low performance by students on Number & Quantity (40%) in the Common Core is of particular concern because these skills are the foundation for success in the other Common Core mathematics conceptual categories (e.g., Algebra, Functions, Modeling, Geometry and Statistics & Probability). Students need to make *meaning* of numbers, operations, and arithmetic expressions, and to use their understanding to solve problems, reason about mathematics, and explain their thinking. **To increase math performance, states need to ensure K-8 curriculum and instruction require rigorous understanding of the concepts in Number & Quantity from the earliest grades.**
  - In the early grades, student will benefit from problem solving in novel contexts and hands-on experiences with increasingly sophisticated quantities and their measurement.
  - In middle school and high school teachers should lead students to see connections between Number & Quantity and other Common Core mathematics conceptual categories, particularly Algebra.
- **Math Interventions are needed for students who are falling behind at the earliest grades.** Across the board, Hispanic and African American students performed well below their Caucasian counterparts in all Common Core math domains. **States must ensure that teachers and students have the resources necessary to identify struggling math students as early as possible (K-4) so that proper interventions are made.** Providing teachers and students with adequate opportunities to collect achievement data that function diagnostically—data collected frequently and from both formative and summative assessments—is crucial to supporting students’ learning progressions and for optimal growth to occur.
- **Greater understanding of mathematical processes and practices is needed.** For each of the Common Core Mathematical Practices standards only about two-fifths of students reached the college-and career-ready level. States and districts must ensure that conceptual understanding is emphasized for all students in mathematics. More specifically students at grade level need to be:
  - Working and solving challenging non routine problems.
  - Explaining methods and justifying conclusions.
  - Predicting and conjecturing about things like unknown numbers, measurements, quantitative relations, the behavior of functions, how well a model fits reality, the effectiveness of different solution methods, and the way probabilistic events occur: and
  - Looking for patterns and structure in places like diagrams, equations, number systems, proofs, problems, tables, graphs, and real-world objects.

**Note:** Percentages reported for “All 11<sup>th</sup> graders” are estimates for all students nationwide based on ACT’s analysis of data from the spring 2010 study described in the Detailed Methodology section at the end of this report. The study sample was composed of students who took the ACT as part of their states’ annual testing programs, spanned the full range of abilities college aspirations, were from a range of communities and schools, and included students tested under standard conditions as well as under accommodations.