

The Urban Mathematics Leadership Network

Strengthening Mathematics Learning for All Students



A collaboration between
The Charles A. Dana Center at The University of Texas at Austin
Achieve, Inc., and The Aspen Institute

Considerations from the Urban Mathematics Leadership Network regarding the development of Common Core State Standards in Mathematics

The Urban Mathematics Leadership Network represents mathematics education leaders in 22 of the nation's largest urban school districts, including Chicago, Los Angeles, and New York City. Our overarching commitment is to equity, and we actively work toward a high-quality mathematics education for *every* student. UMLN represents roughly half the students and teachers in urban districts in the United States and almost 1 out of every 12 students in the nation. Additional information about UMLN and our background, activities, and partners is available at utdanacenter.org/umlcn.

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The development of Common Core State Standards in mathematics has great potential to support and enhance our efforts to provide an excellent mathematics education to every student. But this initiative also has the potential for unintended consequences that could impede improvements already under way. In particular, in working with states that may have very different sets of standards and expectations, advocating for national consensus and overlap could inadvertently lead to reinforcing the status quo as represented in common course structures and content that some states may have moved beyond.

Because of the importance of the Common Core State Standards development, UMLN participants recently engaged in a group discussion about issues related to this work. For your consideration, we offer five suggestions arising from that discussion.

- 1. Involve key constituencies.** We hope you will consider involving very soon, and in every stage of this process, representatives from the broad professional community actively involved in improving school mathematics.

Many individuals and groups could be part of this process, including representatives from the National Council of Teachers of Mathematics (NCTM), the National Council of Supervisors of Mathematics (NCSM), and various partners and affiliates—such as the Benjamin Banneker Association, TODOS: Mathematics for ALL, Women in Mathematics Education, the Association of Mathematics Teacher Educators (AMTE), and the Association of State Supervisors of Mathematics (ASSM)—as well as the Mathematical Association of America, the National Association for the Education of Young Children (NAEYC), and other stakeholders representing the mathematics, mathematics education, and early education communities.

Many of these organizations have laid a foundation of strong expectations for mathematics teaching and learning, with an unequivocal equity commitment to a high-quality mathematics education for every student in this country.

Those working on the ground in schools every day can bring another important perspective to the work to create Common Core State Standards—especially mathematics leaders in urban and other large districts (many of whom are represented in the UMLN) and in states (represented in the Association of State Supervisors of Mathematics).

Early and ongoing input and involvement by these groups and by stakeholders inside and outside the mathematics and mathematics education communities can help balance the standards and build consensus that avoids any particular philosophy, approach, program, product, or practice. This consensus could help avoid unnecessary criticism after the fact and could help significantly in implementation of the Common Core State Standards.

- 2. Consider implementation issues at the beginning of the process.** We all recognize that the development of common standards is just the beginning of a process to bring states into closer alignment in defining what students should know and be able to do in mathematics, with the ultimate goal of improving student mathematics learning. We hope you will also consider that in recent years many states have undergone more than one round of standards revision, often moving toward your stated common goals of fewer, clearer, higher standards. The resulting demands on teachers have sometimes involved significant work to implement the new expectations. We urge you to consider this context in terms of both implementation timelines and implementation support.

Currently the Common Core State Standards work is described as a way to develop common standards and assessments. We know from experience, however, that without implementation support for both teachers and leaders, any efforts to create common standards and assessment are destined to fall short of potential gains, while fostering frustration on the part of educators and communities.

In terms of assessment, plans should be made to illustrate standards with exemplars of rich assessment items to eliminate ambiguity and to demonstrate how to measure learning (e.g., students who master --- will be able to ---). Meaningful, productive exemplars can demonstrate how to connect isolated bits of mathematical content, while in the process providing coherence within and across grade levels.

In addition, effective implementation of the Common Core State Standards will require the development of instructional resources and professional development to further support teachers' implementation. The partners suggested in our first recommendation can be vitally important in identifying and developing such resources, including formative assessments, student work samples (and rubrics for evaluating them), implementation guides, examples of development and alignment of content across grades, and so on.

- 3. In advocating *higher* standards, aim for a balanced view of mathematics.** We expect more from our students and support Common Core State Standards that reflect these raised expectations. Toward this end, the Common Core document should represent a balanced approach to mathematics that encompasses conceptual understanding, procedural fluency, and the critical mathematical processes involved in reasoning and problem solving.

In particular, in working toward fewer, clearer, higher standards, we urge that *higher* not translate to pushing material down to lower grades from a higher grade level. Such an approach tends to limit students' experience and often falls short of providing students with the strong foundation and complex thinking skills they need. Rather, we urge that higher standards involve the expectation for students to engage in higher levels of cognitive demand and complexity, including students' development of the mathematical thinking and problem-solving skills that are necessary for college readiness, for the changing demands of everyday life, and for the dynamic 21st-century workplace.

- 4. In advocating *fewer* standards, pursue greater focus and depth.** We support standards built around a shorter list of priorities than currently exists in some states. In identifying fewer, clearer, higher standards, we recommend that the notion of *fewer* indicate greater focus and depth (deeper conceptual understanding at higher cognitive levels), but *not* a narrowing of the comprehensive knowledge of mathematics that should be expected by the time that students graduate from high school.

This emphasis on greater focus and depth would mean identifying big, important ideas representing the strands of mathematics beyond numbers, operations, and algebra (e.g., including geometry, measurement, and ways to make sense of data and statistical information). Indeed, some states should ask teachers to attend to much shorter lists of topics at each grade level.

But some states have already taken significant steps in the direction of greater focus and depth. Increased focus and depth enable teachers to avoid unnecessary repetition from grade to grade so that students will have learned many topics deeply and well by the end of high school. It should be clear in the Common Core State Standards for mathematics whether these standards represent desired final outcomes for what students should know and be able to do or whether these standards will represent the development of key elements of understanding along the way to reaching these desired final outcomes. This distinction is especially important in considering what participating states can do beyond the common core and what the expected 85 percent coverage of the Common Core standards by states will mean in practice.

- 5. Provide room for a flexible course structure at high school.** High school is one area where common standards could have the effect of inadvertently entrenching current practice in an area where there is wide recognition that we may need to do some things differently. In particular, many schools organize their high school mathematics courses according to some variation of Algebra I, Geometry, and Algebra II. But many other schools offer high school mathematics courses organized without these divisions, with titles such as Integrated Mathematics 1, 2, and 3. A few states are identifying such an integrated sequence in state standards, but this area of work is still in its early stages in terms of policy, support, and widespread implementation.

Nevertheless, it is worth noting that the United States is the only country in the world with algebra and geometry separated into different high school courses. Every other country continues the development of secondary mathematics with content blended at each grade level, as in the elementary and middle school grades, and with secondary mathematics building continuously on what has gone before. We all recognize the need to dramatically improve the teaching of high school mathematics. If we want to leave room for significant mathematics improvement at high school, then there must be room for serious rethinking of how we organize high school content. We urge that the Common Core State Standards not create structures at the high school level that lock out current and future innovations that might help us improve high school mathematics programs.