



Lincoln Public Schools

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To: School Committee
From: Mary Sterling
Re: Report on Alignment to Massachusetts 2011 Standards for Mathematics
Date: February 27, 2013

In 2010 the Massachusetts Department of Elementary and Secondary Education (DESE) adopted the national "Common Core" standards in mathematics and English language arts (ELA). Our state is one of 47 states committed to integrating the national standards into their own state standards. Massachusetts revised the state "curriculum frameworks" in ELA and mathematics to incorporate the national standards and then distributed the new frameworks to districts in August, 2011.

A report to School Committee in May 2012, provided information on key questions about the amount and kind of change this represents for the state and for our district in mathematics and ELA. It also described district work accomplished to date and delineated plans for the summer and school year.

This report provides an update on our work in mathematics, focusing on three points:

- What are the changes in the new state mathematics frameworks that reflect the priorities of the national common core standards?
- What have we accomplished so far in the district and what are next steps?
- What are some examples from our instruction that illustrate some of the changes?

2011 Massachusetts Mathematics Standards

The new state PreK-12 curriculum framework builds on the national "Common Core State Standards for Mathematics." These Massachusetts content standards are 1) research- and evidence-based, 2) aligned with college and work expectations, 3) rigorous, and 4) internationally benchmarked.¹ As described briefly in the May 2012 School Committee report, the Massachusetts standards were already considered some of the highest in the country and were largely aligned with the new national standards. However, there are three main shifts in emphasis in the state frameworks that respond to the national priorities:

1. Standards for Mathematical Practice A set of eight process standards have been added to the curriculum to describe varieties of expertise that educators should seek to develop in their students. These practices are essential to promote strong learning of mathematical procedures and conceptual understanding. See list of standards at the end of this report.
2. Shift from Breadth to Depth The content standards have been re-designed to be more focused and coherent, grade-to-grade. Some topics have been eliminated at specific grade levels to avoid repetition and to make room for greater depth of learning and problem-solving.

¹ *Massachusetts Curriculum Framework for Mathematics*, Massachusetts Department of Elementary and Secondary Education, March 2011, p. 3.

3. Developmental Progression Adjustments in content focus at different grades have been made to reflect the natural progression for children's development of concepts and skills.

Steps Toward New Standards Alignment in Lincoln

We have been working towards the revision of our math curriculum, instruction, and assessment since the new standards were distributed in the summer of 2011. Our curriculum leaders, Ellen Metzger and Liz van Cleef, have led efforts in making adjustments to our grade K-5 program, *Everyday Math*, and our grade 6-8 program, *Impact Mathematics*. They have also worked closely with our team of math specialists to revise our common assessments in Open Response and to provide professional development and support to teachers. During the fall, three Wednesday early release afternoons involved K-8 teachers in work on the standards for mathematical practice and common assessments. This winter and spring, our curriculum leaders will be leading the revision of our report card descriptors to align with the new standards. This past summer, we sponsored professional development sessions for classroom teachers, grades K-5 and for mathematics teachers in grades 6-8. We anticipate the need for additional summer work in 2013 to revise the Lincoln Learning Expectations in mathematics, to work on our common assessments, to make program revisions, and to continue professional development in teaching the new standards.

Adjustments to our mathematics program continue in the daily instruction and learning in the classrooms. Teachers have used some of the ideas and resources from the summer sessions to integrate standards for mathematical practice into the topics that students study. With the help of mathematics specialists, each grade level team has been making adjustments to the K-5 and 6-8 program materials by eliminating some topics and adding greater depth to others. Grade-level team meetings have been held to discuss student progress in terms of the assessment evidence and to decide on both challenge and intervention strategies based on student achievement.

On Thursday March 7, 2013, Ellen Metzger and Liz van Cleef will join me to make a presentation to School Committee to amplify this report with a more detailed explanation of the standards for mathematical practice, examples of the shifts in emphasis in the new standards, and a discussion of the Open Response common assessments.

Standards for Mathematical Practice

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.