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STATEMENT ON *THE NATION'S REPORT CARD: NAEP 2008 TRENDS IN ACADEMIC PROGRESS — MATHEMATICS ACHIEVEMENT*

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The results found in this Report Card of student achievement over time, especially in the area of mathematics, bring some encouraging news. Overall, average scores in mathematics for 9- and 13-year-olds were higher in 2008 than in all previous assessment years. And we have made some strides in closing racial gaps, as both Black and Hispanic students at all age groups made greater gains than White students since 1973.

But the results also show challenges in math achievement. Overall, more of the mathematics gains seen over time are happening with the younger students. Average mathematics scores for 9- and 13-year-olds increased since 2004, while the average score for 17-year-olds did not change significantly. The average mathematics score for 17-year-olds was not significantly different from that in 1973. And when you compare overall 2004 math scores to 2008 scores for 17-year-olds, there are no significant changes at all.

That suggests to me that we are losing momentum through the grades as we seek to ensure American students are equipped with a wide range of mathematics skills and knowledge they will need in school and beyond. The foundation of math comprehension needs to be made stronger. The challenges, and what we can do to overcome them, take me back to my time as Commissioner of Education in Massachusetts.

During statewide testing conducted through the Massachusetts Comprehensive Assessment System in 2000, I discovered that two-thirds of our fourth-graders couldn't perform long division successfully. This concern caused us to look at what we needed

to do better. After much discussion, we decided to change the math framework and include common algorithms, i.e. a finite sequence of instructions or an explicit, step-by-step procedure for solving a math problem. Within a year, two-thirds of the fourth-graders could do long division.

And I recall the old debate in mathematics education between those who endorsed constant drilling of facts and those who advocated a more complete understanding of concepts as the better way to teach students. That debate was resolved when educators realized that we needed to incorporate both approaches to have lasting success.

A current debate, and one we really need to pay attention to, is whether our math education has become a mile wide, but an inch deep. There is concern that some of our students are experiencing a surface learning of math, meaning knowledge of some concepts but without ties to a deeper understanding of how that knowledge can be used.

In some Asian countries, for example, high student achievement in math across the board seems to come in part from the in-depth knowledge of the teachers and how deeply they go into the subject matter. Compare that to the U.S., where you see gains that develop at the elementary grades lessen at the middle and high-school levels.
In Massachusetts, we introduced a beefed-up component of the math content knowledge on teacher exams. I think that's a good development, but there needs to be more. Providing higher-level courses to students helps, and so does the current push to make Algebra I and Algebra II mandatory in high schools. But if the students don't have a solid grasp of the pre-requisite skills needed to do well in these classes, it won't do us much good.

The trends we see here in mathematics achievement reveal that a comprehensive process needs to be put in place where educators, policymakers, parents, and students are all part of the equation. We need to have a common core of standards and a rigorous emphasis on a variety of math skills – from basic to complex – starting from the early grades. In short, we need to see consistency that never lets up if our students are going to remain competitive with students in other countries.

There are results found in the long-term trend mathematics reports that do give us a hope of improvement over time upon which we can build. For example, the average score in 2008 for 9-year-olds was 24 points higher than in 1978. Thirteen-year-old students performing at all five percentile levels scored higher in 2008 compared to 1978. And scores for some lower-and-middle-performing 17-year-olds were higher in 2008 than in 1978.

The NAEP long-term assessments serve an important function of measuring student performance over time, which allows us to go beyond snapshots of ability and see education trends that bring things into even sharper focus. The next step is to look at these results and challenge ourselves to see what we can do to improve achievement. Thank you.