



## Focus on Math: A Key to Student Success

### Why Is Taking Math So Important?

Students who do well in math are more likely to be critical thinkers, have college success and more career opportunities because more jobs in the future will require strong math skills.

Over the past five years, with the implementation of the School District's new core curriculum, students have begun to show strength in overall math test performance in the middle grades and high school, along with progress by specific groups in closing achievement gaps. Between 2002-07, there was a 27% increase in 8th grade students scoring proficient or better on the Pennsylvania State System of Assessment (PSSA), with a 8% increase 11th graders scoring proficient or better. The achievement gap has narrowed as well—the scoring gap between black and white students narrowed by 2.7 percentage points, while the gap between Latino and white students narrowed by 1.3 points. But we still have a long way to go. In 2006-07, well below half (45%) of 8th grade students, and less than one-third (32%) of 11th grade students scored at the proficient level in math.

The Philadelphia Education Fund, through its Math & Science Coalition, examined math course taking and achievement trends across the School District of Philadelphia, beginning with 9th grade students in 2002-03. We followed these students forward three years, to 2005-06. Here is what we found:

### Fewer students are taking math.

We have seen a downward trend in students enrolled in math in Philadelphia public schools. Seniors are the least likely to be taking math. In 2002-03, 82% of 12th graders were enrolled in math, compared with just 62% in 2005-

06. This is partially due to a change in District policy to require three math credits, down from four, in order to graduate from high school.

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### Algebra I is the gatekeeper.

Passing Algebra I is the gateway to succeeding in more advanced math and science courses. For a closer look at math courses offered, math courses taken, and student math performance, we sampled all ninth graders in six Philadelphia high schools and followed them forward to their expected year of graduation. The schools chosen reflect three different school types (comprehensive, career & technical, magnet) and represent different neighborhoods and enrollment sizes. The result is a snapshot of high school course-taking and performance across the District. In the comprehensive high schools we sampled, we witnessed an 11-point drop over four years (from 65% to 54%) in high school students passing Algebra I. In '05-'06, in two of our schools, the pass rate dipped below 60%.

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**The Philadelphia Education Fund** is an independent non-profit organization dedicated to improving the quality of public education throughout the Philadelphia region. The Ed Fund is one of the largest of 82 local education funds affiliated with the Public Education Network.

**The Ed Fund's Philadelphia Math & Science Coalition** strives to enhance the quality of math and science teaching in the Philadelphia public schools, so that youth will excel in these subjects and attain the skills necessary to succeed in an increasingly competitive global workforce.

**The Ed Fund's Community Learning Briefs** are designed to keep parents, families and communities central to the academic success of our young people.

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## Too few students take high-level math courses.

Just one-third of students who eventually graduated from the six high schools we studied took high level math courses. This means that many students did not move beyond the basic Algebra I-Geometry-Algebra II sequence. Students can only hope to conquer high-level math courses if they receive the necessary confidence and skills for succeeding in Algebra I. Preparation must begin early, in the middle grades. High-level math courses include Statistics, Pre-Calculus, International Baccalaureate Math, Calculus, Advanced Placement Calculus, and Advanced Placement Statistics.

## Less than 20% of the students in our study who took Algebra II passed it.

Of the students who passed Algebra II, 35% were unable to score at or above the Basic level on the math portion of the PSSA. Educational success for students is a function of access to key educational resources, including resources for teachers. The importance of subject-specific tools and professional development directed at excellence in math for all cannot be overstated. The Philadelphia Math & Science Coalition is actively working with 35 partnering businesses, universities and organizations, including the School District, toward supporting effective math and science teaching practice in the classroom, every day.

## How Can We Help Our Students Succeed in Math?

### Tips for Future Student Success in Math

For those of us who are parents, grandparents, guardians, and friends of middle and high school students, there are four simple but important steps we can take to elevate student success in math:

- ✓ Pay close attention to your student's math instruction, especially in the middle grades, when students are taking courses that prepare them for Algebra I.
- ✓ Get to know your student's math teacher and if your student is having trouble, ask that teacher for help.
- ✓ Visit your student's school. Ask the principal or school counselor about the school's advanced math classes.
- ✓ Encourage your student to take courses beyond Algebra II.

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