FOCUS On Children
Boston Public Schools

What Does it Take to Move a District? Lessons From Working to Strengthen Math Teaching and Learning in Boston

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Strengthening Math Teaching and Learning in Boston

- Who is the Boston Public Schools and what have we been able to accomplish?
- What has helped us be able to achieve these accomplishments?
- What lessons we are learning as we continue with this work?

BPS Facts and Figures

- 6 Early Learning Centers
- 53 Elementary Schools (K-5)
- 23 Elementary and Middle Schools (K-8)
- 10 Middle Schools (6-8)
- 2 Middle and High Schools (6-12)
- 29 High Schools
- 1 Elementary through High School (K-12)
- 6 Special Education Schools (K-12)
- 3 Exam Schools (7-12)
- 2 Alternative Programs for students at risk

BPS Student Demographics

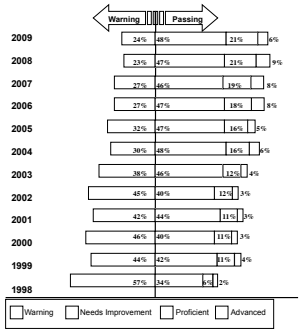
- **39% Hispanic**
- **37% Black**
- **13% White**
- **9% Asian**
- **74% of BPS students are eligible to receive free meals in school**

Student Enrollment and Staff

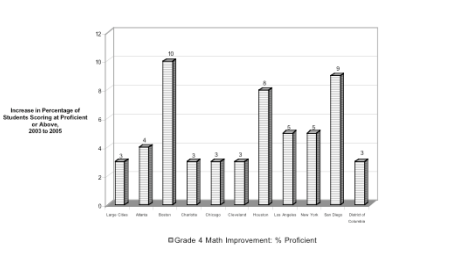
- **26,540 students in grades K-5**
- **11,460 students in grades 6-8**
- **18,340 students in grades 9-12**

There are 4,671 teachers; 694 administrators; 474 support personnel; 1,174 aides and monitors; 344 secretaries and clerical staff; and 1,173 custodial/safety/technical staff.

MCAS Results: 4th Grade Math



Trial Urban District Assessment (TUDA)
National Assessment of Educational Progress (NAEP)
Progress in percentage of students scoring proficient or higher from 2003 to 2005
Mathematics: Grade 4



Creation of a District-Wide Math Plan Fall 2000 -

- Adoption of standards-based instructional materials
- Development of district-wide formative assessments
- Creation of a cohesive program of professional development for teachers and administrators
- Cultivation of teacher leadership in each school
- Strategic use of school-based math coaching
- Partnerships with parents, tutors, community learning centers, and other local organizations

Adoption of Standards-Based Instructional Materials

- Institutionalization of a 60-minute math period plus an additional 10 minutes for math routines
- Creation of a scope and sequence pacing guide for lessons and routines for each grade level
- Creation of additional resource materials where needed
- Documentation of the strong alignment between our instructional materials and the state frameworks

Development and Institutionalization of Formative Assessments

- End-of-unit, mid-year, and end-of-year assessments using non-routine contexts and a format consistent with state assessments
- Spreadsheets to record and analyze data classroom by classroom
- Collection of mid-year and end-of-year data centrally for review and discussion
- Blueprints and master worksheets that allow for analysis of student results.

Teacher Participation in Professional Development

- Teachers complete a curriculum institute or a set of unit study seminars and at least 3 Developing Mathematical Ideas (DMI) seminars
- Public database identifies which teachers have completed which offerings and when; and
- Additional offerings included study groups and school-based workshops as well as grade level team meetings, LASW sessions, structured visits to each other's classrooms

Administrator Participation in Professional Development

- Principals participate in Lenses on Learning courses, Principal Breakfast Meetings, and other offerings
- Opportunities to participate in professional development with teachers
- Ongoing discussions about math teaching and learning with math coaches and the Math Office

Cultivation of Teacher Leadership in Each School

- One teacher per grade level identified as a potential teacher leader
- Math Leadership Teams (MLT) including these teachers and the principal meet monthly to discuss math teaching and learning school wide
- One MLT teacher designated the Math Facilitator attends bimonthly meetings with other Math Facilitators and serves as a liaison between the Math Office and the school
- MLT teachers begin to take on take leadership roles in their school and in the district

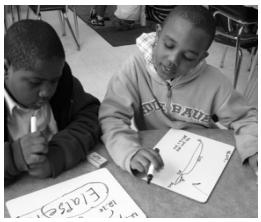
School-Based Math Coaching

- Monthly meetings with the MLT to examine math teaching and learning and plan next steps
- Grade level team planning and debriefing meetings that included LASW
- Facilitated opportunities for teachers to visit each other's classrooms
- One-on-one coaching support to individual teachers
- Regularly-scheduled meetings with the principal to discuss priorities for math coaching in the school

Partnerships with Parents, Tutors, and Community Organizations

- Doing math together using the district's instructional materials
- Sharing our own math thinking, trying new strategies and representations, and discussing what we learn
- Viewing video clips of students in classrooms doing similar math and sharing *their* math thinking
- Considering expectations surrounding homework and how to support math learning at home or in other settings by focusing on reasoning and sense making

Some Lessons Learned



The Importance of Working Systematically Across the District

- Teachers at the same grade level can collaborate within and across schools
- Teachers across grade levels can have discussions about how content builds from grade to grade
- Students who move from school to school have a consistent experience
- Professional development can address what teachers are getting ready to teach or what they have just taught
- School administrators and other key partners can be supported in what to look for in classrooms at particular points in the year

The Importance of Working at All Levels Within the District

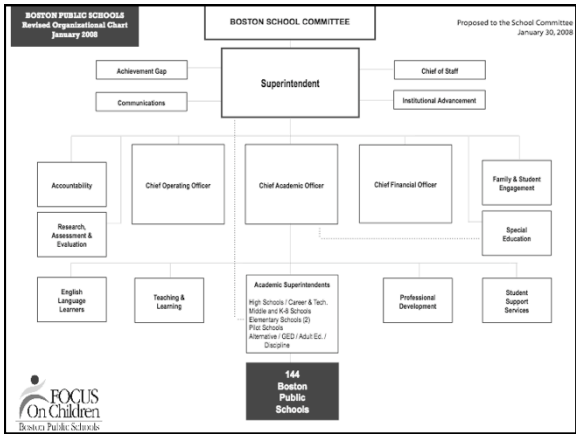
- *All* students receive instruction that is consistent in its focus on mathematical sense making regardless of the context
- *All* students, parents, and community members are clear on goals and expectations and what it takes to be successful in math
- Opportunities to learn are more likely to be equitable across the district
- Interventions to support struggling students are more likely to be effective across the district

The Importance of Identifying Examples of Success in Order to Bring Success to Scale

- Visiting schools where a strong and thoughtful focus on math teaching and learning is visible and can be discussed
- Using video clips to share and discuss multiple examples of strong practice
- Posting and sharing exemplars of strong student work for discussion with teachers and administrators
- Creating contexts for collaborating across schools so teachers and administrators can learn from each other's successes

The Importance of Accountability Structures

- Principal visits to classrooms during math instruction and visits to grade level team meetings
- "Learning Walks" conducted collaboratively with the school's Math Leadership Team
- Classroom and school visits by teams that include Math Office staff, Academic Superintendents, and other important collaborators
- Use of implementation rubrics and observation tools for discussions with teachers and administrators
- Ongoing use of student and teacher data to examine and consider what is working well and where more support is needed



The Importance of Collaboration with Academic Superintendents and Other District Offices

- Discussing our expectations for schools including how to address the needs of special education and ELL students
- Visiting schools together and discussing what we see including successes and challenges
- Sharing assessment data and professional development data for schools we visit
- Discussing school progress and next steps

The Importance of a Positive Relationship with the Teacher Union

- Conferring about policies that might constitute a change of working condition
- Partnering around professional development expectations including homework and compensation
- Negotiating what it means to be in classrooms

The Importance of High Expectations for Everyone

- Believing that all students are capable of being strong mathematical thinkers
- Believing that all teachers are capable of strong mathematics teaching
- Believing that all administrators have the capacity to become strong instructional leaders in math

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