

# Is one of these things not like the others?

Comparing Math for America with other national teacher preparation and professional development programs

Critical Issues in  
Mathematics Education  
May 11-13, 2011

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# Our Mission

MfA

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Math for America

To improve the quality of mathematics education in our nation's public schools by recruiting, training, and retaining highly qualified mathematics teachers.



# Sites - 2010 Data

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- **Fellows:** Boston, Los Angeles, San Diego, Utah, DC
  - Approximately 100 total for all sites
- **Master Teacher Fellows:** Berkeley, Boston, San Diego, DC
  - Approximately 15 total
- **New York City Programs**
  - Approximately 220 Fellows and Early Career Fellows
  - Approximately 100 Master Teacher Fellows

# New York City

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- Math for America is in its 7<sup>th</sup> year in New York City
- MfA NY offers three programs for teachers
  - MfA Fellows
  - MfA Early Career Fellows
  - MfA Master Teacher Fellows
  - Total numbers grew from a first cohort of 13 Fellows to over 300 Fellows, Early Career Fellows, Master Teachers
- MfA NY has just announced a new program for administrators, the MfA School Leader Fellowship

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The new school leader fellowship aims to support active participation of school leaders in developing mathematically rich communities within their schools and districts. Two-year fellowship; \$8000 stipend plus school grant for improving mathematics instruction and PD.

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- MfA Fellowship Program
  - Focus: highly qualified individuals with strong mathematics backgrounds and enthusiastic commitment to building a teaching career
- MfA Early Career Fellowship Program
  - Similar to MfA Fellows, but targets strong teachers in their first two-three years of teaching
- MfA Master Teacher Program
  - Rewarding outstanding current teachers and assisting their growth into master teachers and leaders

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Nuance here: not “you’re good at mathematics, you should teach” but “you are enthusiastic about teaching and you love mathematics – we’ll help you launch your career and grow as teachers & mathematicians”

# Core Principles

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## Core Principles of Excellent Teaching

- Knowledge of Mathematics
- Disposition
- Approaches to Teaching

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We strive to recruit teachers who share these principles and wish to grow and develop in this context. Unpack these headings.

# Core Principles

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## Core Principles of Excellent Teaching

- Knowledge of Mathematics
  - Has an extensive background in mathematics
  - Is a confident, enthusiastic, and flexible problem-solver
  - Appreciates the beauty of mathematics

## Core Principles of Excellent Teaching

- Disposition
  - Believes that every student can be a successful problem-solver
  - Is a continuous learner, both of mathematics itself and the profession of teaching mathematics, keeping current with best practices and actively seeking engagement with professional communities
  - Understands that mathematics class is one part of the student's learning continuum and that successful teaching means working with the whole of the student's experience



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## Core Principles of Excellent Teaching

- Approaches to Teaching
  - Designs and executes lesson plans that focus on building the mathematical understanding of every student, and provides a range of structures to explore, question, practice, reflect on, and communicate about mathematical relationships and concepts

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## Core Principles of Excellent Teaching

- Approaches to Teaching
  - Designs and executes lesson plans that focus on building the mathematical understanding of every student...
  - Works to know each student as an individual, and as a member of a community. Uses that knowledge to create mathematical tasks that allow students to develop problem-solving strategies that apply to everyday life and to see the relevance of mathematics in their own lives

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## Core Principles of Excellent Teaching

- Approaches to Teaching
  - Designs and executes lesson plans that focus on building the mathematical understanding of every student...
  - Works to know each student as an individual...to create mathematical tasks that allow students to develop...
  - Employs a variety of assessments, both formative and summative, on an ongoing basis. Values students' performances not only as an indicator of student understanding, but as a means of continuously examining and reflecting upon goals for the individual student, the class as a whole, and oneself as a teacher of mathematics.

# Core Principles

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## Core Principles of Excellent Teaching

- Knowledge of Mathematics
- Disposition
- Approaches to Teaching

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Now let's talk about the program details/logistics, followed by how MfA tries to embody these principles

# Fellows / Early Career

## Cohort Experience

- Year 1: Preparation (Fellows only)
  - Full tuition scholarship to a full-time graduate education program at a partner university leading to a Master's in mathematics education
  - Student teaching experience
  - \$30,000 MfA stipend
  - Professional development activities plus job search mentoring

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Mandatory monthly cohort meetings; of course there is the requisite online community of resources, tips, listserv of job announcements, conference announcements, room-mate at NCTM wanted, anyone interested in designing a workshop/PLT/study group on x-y-z... will say more about PD activities after a quick finishing off of the logistics

# Fellows / Early Career

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  - \$30,000 MfA stipend
  - Professional development activities plus job search mentoring
- **Years 2 - 5: Teaching (Early Career Fellows join)**
  - Ongoing support in career management/job search
  - NYC teacher's salary plus MfA stipends, total \$70,000 over four years
  - Mentoring, advising, and support services
  - Regular professional development supporting growth in knowledge of teaching skills and knowledge of mathematics

# Master Teachers

## Cohort Experience

- \$60,000 stipends over four years
- Mentoring, advising, and support services
- Regular professional development supporting growth in knowledge of teaching skills and knowledge of mathematics
- Workshops or mini-courses on developing leadership skills (e.g. how to be a facilitator)
- Conference travel support (e.g. NCTM, PCMI, regional conferences)
- Support for National Board Certification

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Mandatory monthly cohort meetings; several MTF and Fellows presented at NCTM this year. MT can join in any PD activity (except Fellows cohort meetings) offered by MfA.

# Activities

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## Professional Learning Teams

- Monthly meetings, topic-specific, facilitated by expert Master Teachers, preparation required for each meeting
- Recent topics: Integrated Algebra; Geometry; Middle School Mathematics; Pre-Calculus/Calculus; Algebra 2/Trig; Project-Based Integrated Algebra; Problem Solving



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We don't meet the 80 hours criterion in one year, but spread over the 4 years we get very close to that goal. Stress that we are striving to embody the elements of PD that Diane Briars described on Wednesday: focus on content knowledge and how students learn content; sustained focus over time



## Recent Examples of Mini-Courses

- Three-part workshops on pedagogy or mathematics (or both) led by expert consultants or MfA staff
- Strategies for English Language Learners in the Classroom
- Classroom Discourse
- Unique Factorization
- Math. of Moving Water
- PLT Facilitator Training



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## Recent examples from Master Teachers

- January cohort meeting topic: “Whole-class conversations in mathematics classrooms: a close reading of paradigmatic texts” led by a professor from Brooklyn College, CUNY
- February cohort meeting topic: “Building professional learning communities surrounding math semiotics” led by two experienced Master Teacher Fellows and built on the previous cohort meeting

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the ones I observed modeled active learning, whole class discussions, attentiveness to the individual and the individual within the group

# Other Activities

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## Recent examples of one-time workshops

- Smart-board training
- Calculator workshops
- Hands-on materials from everyday items
- The “Mississippi problem”
- Mathematics and Fairness



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Bob Moses workshop last year on Math & Fairness

# Social Activities

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- Fall Function, an evening celebrating teaching, learning, and MfA teachers
- Winter ice-skating at Bryant Park
- End of year celebration of graduating Fellows
- and so on...



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# Culture

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As MfA programs grow, the cohorts are developing a kind of “vertically integrated” culture by and for themselves.



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Some MTFs who are leading PLTs this year are making a video to show the entering cohort of new fellows what PLTs are about and why they'll enjoy and benefit from them. Another MTF and I are planning to meet in a couple of weeks to test out stealing the AAAS idea from their GK-12 fellows (science in a minute) to make “math in a minute” videos – if it goes well, we're interested in getting groups of fellows together to create a range of quick videos showcasing their (students) work.

# Other Programs

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- TFA
- Knowles Science Teaching Fellows
- UTeach, CalTeach
- NYC Teaching Fellows, Math Immersion
- Woodrow Wilson Teaching Fellowships
- Troops to Teachers

# Discussion?

I welcome comments, suggestions, questions about this evolving program. Thanks for coming,

Katherine Socha

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