



Mathematics in the City

The City College of New York
NAC Room 3/217

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2007 ~ 2008

Mathematics in the City Offerings

Summer Institute

August 6th ~ 17th

9:00am ~ 4:00pm, Monday ~ Friday

Teachers begin their MitC work with the Summer Institute, a two-week inquiry based workshop on teaching and learning mathematics. Teachers are asked to be learners in a mathematics environment where math is seen as the posing and solving of problems, the searching for patterns, and the construction of big ideas, models, and strategies. Emphasis is placed on the role of context in planning investigations, the development of mental math strategies for computation, and on analyzing children at work using the Young Mathematicians at Work materials. *The fee is \$1000 per participant.*

Participants can earn 3 NYC P-credits for an additional fee.

Instructors: Cathy Fosnot, Toni Cameron, Mike Askew, Janan Hamm, and Nina Liu

Calendar of Events for the 2007~08 Academic Year

⟨ ***Five Follow-up Multi-level Days (Pre-requisite is the Summer Institute)***

These are differentiated days. Participants recently completing the Summer Institute are supported in constructing a grade-span learning trajectory (the Landscape of Learning). For example, a 1st grade teacher might work on the development of early number sense, addition, and subtraction (K-3), whereas a grade 4 teacher might work on the development of multiplication and division (3-5); an upper grade teacher may choose fractions. Other teachers who have taken the Summer Institute in past years may also attend and do more advanced work related to curriculum planning.

No fee, but only available to schools that have purchased the Basic Package.

Instructors: Cathy Fosnot, Toni Cameron, Janan Hamm, and Bill Jacob

⟨ ***DELTA Institutes (No Pre-requisites)***

The DELTA Institutes are mini-institutes (two-days) offered throughout the academic year. Each DELTA is designed around a specific content area and uses the new MitC digital environment for teaching and learning. They also provide support in using the new Contexts for Learning Mathematics units.

The fee is \$500 per participant per DELTA. [SEE ATTACHED LIST]

Schools purchasing the Basic Package receive a discount.

Instructors: See Monthly Calendar

⟨ ***Mathematics Coach/Teacher Leader Course – two semesters***

4:30pm ~ 7:00pm, Wednesdays

The intent of this year-long course is to help teacher leaders and coaches understand the full spectrum of mathematics development as it relates to number and operation from early number through fractions, decimals, and percents.

The fee for this course is \$1,000 per participant per semester.

Participants can earn 3 NYC P-credits per semester for an additional fee.

Instructors: Cathy Fosnot (fall), Toni Cameron (spring)

⟨ ***Advanced Think Tank (Pre-requisite: Summer Institute, Multilevel Days, and Year-long Coach/Teacher Leader Course)***

To keep us all growing each year, Mathematics in the City selects a theme for its Advanced Level Think Tank. The theme of this year's Think Tank will be Geometry. Towards this aim, participants will meet three Sunday mornings during the academic year to discuss, read, and do field research on the topic.

No fee, but only available to schools that have purchased the Basic Package.

Instructors: All MitC staff are participants of the Think Tank, which is led by Cathy Fosnot

⟨ ***Workshops for Administrators****

Three morning workshops throughout the year are held for administrators. Topics include:

- “What to Look for in a Good Math Lesson & Supporting Teachers Meeting the Challenge of Reform”
- “Developing a Variety of Efficient Strategies & How to Communicate with Parents about Computation”
- “Designing and Planning a Specific In-Service for Your School”

Administrators of schools with MitC staff developers are required to attend all three morning sessions.

Instructors: Cathy Fosnot, Toni Cameron, Miki Jensen

How to Purchase In-service from MitC

The Basic Package of In-service Events

Purchase of the Basic Package (\$2500) provides affiliation with MitC, including:

- up to 10 registrations for the five Multi-level Days
- three Administrator Days
- Advanced Think Tank
- Discount on the DELTAS (Purchase 4 registrations, get one free)
- Ability to contract for on-site staff development days.

Mathematics in the City Consultants

MitC consultants use a co-teaching model when working alongside individual teachers and coaches in the classroom. Our consultants are also available to facilitate whole school and region-wide professional development workshops and to facilitate intervisitations for lesson study.

The fee for on-site staff development in individual schools is \$1,000 per day.

The fee for regional or intervisitation work is \$1,500 per day.

DELTA Institutes

Deltas make up a substantial portion of our offerings and they are purchased separately (affiliated MitC schools receive a discount). Deltas are two-day mini-institutes. Both local and national participation is encouraged. DELTAS will be directly linked to the Contexts for Learning Mathematics materials as a way to provide support for teachers using these materials. Each month we will also mail the listing to all affiliated MitC schools.

The fee is \$500 per participant, per Delta.

#1: Exploring Routines, Games, and Mini-lessons in Early Childhood (Toni Cameron)

This 2-day workshop will introduce K-1 teachers to many of the Math in the City Games and explore how each game provides rich opportunities and possibilities for learning.

Emphasis will also be placed on ways to maximize learning with routines and minilessons.

#2: Bunk Beds and Apple Boxes: Developing Early Number Sense (Joan Backer)

This 2-day workshop will provide an overview of the kindergarten unit, *Bunk Beds and Apple Boxes*. Emphasis will be placed on the mathematics in the unit, including the big ideas, strategies and models important for early number sense.

#3: The Double-Decker Bus: Using the Arithmetic Rack (Maarten Dolk and Nina Liu)

This 2-day session will introduce K-2 teachers to the arithmetic rack. They will learn how the apparatus supports the use of the five and ten structures and facilitates the automatizing of the basic facts. The Double-Decker Bus will be explored as a context to accompany work with the rack.

#4: Developing and Extending Place Value (Cathy Fosnot)

This is a 2-day institute on the development of place value. Real classrooms will be examined via digital environments and connections will be made to the units, *Organizing and Collecting* (grades 1-2) and *The T-Shirt Factory* (grades 2-3).

#5: An Algebra Course for Teachers (Bill Jacob)

This mini-institute is a content math course for K-6 teachers taught in an inquiry fashion by a renowned mathematician and a distinguished NSF Teaching Scholar. It is four days long, comprised of two Deltas. Level I is for beginners and Level II is for the group of teachers who took the course last year and want to continue.

#6: Best Buys, Ratios, and Rates: Proportional Reasoning (Bill Jacob)

This two-part series is designed for grades 4-6 teachers. The content of proportional reasoning will be examined using a variety of contexts and models, i.e. the ratio table and the double number line. The first two days will be held at CCNY. The last two days will be held on-site as intervisitations. Participants can enroll in only Part One, or both.

#7: Ages and Timelines: Developing an Understanding of Subtraction (Cathy Fosnot & Stephanie Slabic)

This mini-institute will be particularly helpful for teachers, grades 2-3. The context of age differences will be used to examine a variety of models of subtraction. Emphasis will be placed on the use of the open number line to support mental arithmetic.

#8: Assessment to Inform Instruction (Mike Askew)

The role of assessment in supporting instruction (K-6) will be examined. Participants will learn a variety of ways to design helpful assessments, and will explore the landscape of learning as a way to document individual pathways. This session is particularly helpful for those involved in the DY0 projects.

#9: Facilitating Powerful Math Talk (Janan Hamm)

What does powerful math talk look like across the grades (K-6) and through the year? This 2-day mini-institute will examine the role of questioning, paraphrasing, pair talk, and other strategies, as well as how powerful talk can support proof and generalization.

#10: The Power of Mathematical Models: The Ratio Table and the Array (Toni Cameron)

This mini-institute is designed for teachers (grades 3-5) interested in the topic of multiplication. The first day will be focused on developing the ratio table to support multiplicative reasoning with a connection made to the unit, *The Big Dinner*. The second day will focus on the development of the array with a connection made to the unit, *Muffles Truffles*.

#11: Measuring for the Art Show: Developing the Open Number Line (Stephanie Slabic & Dennis Kortright)

This 2-day mini-institute, designed for teachers (grades 1-3) will focus on the development of the open number line as a powerful tool for addition and subtraction.

#12: The Box Factory: Developing Multiplicative Thinking (Miki Jensen & Cathy Fosnot)

Designed for grade 4/5 teachers, this mini-institute will explore how geometry can be integrated with the teaching of multiplication. The focus will be area, volume, nets, and the associative property of multiplication.

#13: Minilessons for Fractions, Decimals, and Percents (Kara Imm)

Designed for teachers of grades 5-8, this two-day series will focus on the development of a variety of mental arithmetic strategies for calculating with rational numbers.

#14: Trades, Jumps, and Stops: Algebra in grades 2/3 (Trish Lent & Cathy Fosnot)

Equivalence, proof, deductive rules, and early functions will be the focus of this mini-institute, all taught and explored through realistic contexts meaningful to children in grades 2/3. Sample children's work will be examined.

#15: The Mystery of the Meter: A Context for Teaching Decimals (Bill Jacob)

The analog electric meter (measuring kilowatts of energy) is used as a context to explore decimals. Emphasis is placed on equivalence, place value, and calculations with decimal numbers. This workshop is specifically designed for teachers, grades 4-6.

#16: Shifting from the Individual to the Community (Mike Askew)

This two-day mini-institute is designed for teachers K-8 interested in exploring the connection between community and learning. Building on constructivist learning theory, this workshop will extend the theory to explore the role of the social. Participants will examine ways to develop community in their classrooms and ensure powerful learning results.

#17: The Teachers' Lounge: Developing Division (Chris Natale & Cathy Fosnot)

This 2-day mini-institute is designed for teachers in grades 3-5 interested in exploring realistic contexts to support children in constructing the big ideas and strategies important for division. Both mental math strategies and the standard algorithm will be explored.

#18: Multiplication and Division Minilessons (Stephanie Slabic & Toni Cameron)

Quick ten-minute minilessons can be used, designed around strings of related problems, to ensure that powerful mental arithmetic strategies result. This 2-day institute will deepen teachers' own mental arithmetic strategies and enable them to design their own strings.

#19: Beads, Shoes, and Making Twos: Developing Early Number Sense (Madeline Chang & Cathy Fosnot)

This workshop designed for teachers (grades K-2) will focus on the development of doubles, doubles +/-, and the exploring of odd and even numbers. Various contexts meaningful to the young child will be explored. Connections will be made to using children's literature as a source of inspiration.

#20: What Role Does Writing and Reflection Play in Mathematical Development (Toni Cameron)

This two-day mini-institute will explore the role of writing, poster-making, developing justifications and arguments that will hold up in math congresses, gallery walks, and final socio-historical walls for documentation of learning and reflection.

#21: Automatizing the Basic Facts with the Arithmetic Rack (Maarten Dolk)

Do many of your children still need support in developing the basic facts for addition and subtraction? This two-day mini-institute will focus on how to use the arithmetic rack to provide children with support that makes use of the five and ten structures and supports the use of the relationships between the basic addition and subtraction facts. Parents wanting to work with their children throughout the summer are welcome as participants on the second day, and they should bring their child.

#22: Automatizing the Basic Multiplication Facts (Stephanie Slabic)

Do many of your children still need support in developing the basic multiplication facts? This two-day mini-institute will focus on how to use array cards and the ratio table to provide children with support that makes use of multiplicative reasoning and supports the use of relationships between the facts. Parents wanting to work with their children throughout the summer are welcome as participants on the second day, and they should bring their child.

#23: Developing Addition and Subtraction of Fractions (Bill Jacob)

Do many of your children still need support in developing strategies for addition and subtraction of fractions? This two-day mini-institute will focus on how to use the double open number line, the clock, money, and other models to support development. Parents wanting to work with their children throughout the summer are welcome as participants on the second day, and they should bring their child.