



Association of Teachers of Mathematics in Massachusetts



Winter Conference

New Methods and New Ideas for a New Year

Thursday, January 9, 2014
3:30 pm – 7:30 pm

Gasson Hall
Boston College
Chestnut Hill, Massachusetts

3:30 – 4:00	Registration
4:00 – 4:45	Session #1
5:00 – 5:45	Session #2
6:00 – 6:40	Dinner
6:45 – 7:30	Keynote Address

Conference Program

Key Note Address
6:45-7:30 PM

New Methods, New Ideas? Yes, but Why and How?

Timothy Whiteford, St. Michael's College

The adoption of new teaching methods or ideas is often not an easy task. Using selected examples, this presentation will explore ways of examining and implementing change by addressing several important questions.

Gasson Hall Boston College – Chestnut Hill, MA

Boston College is located in the Chestnut Hill section of Newton, Massachusetts. The campus is approximately 6 miles west of downtown Boston.

FROM POINTS NORTH AND SOUTH: Take Interstate 95 (Route 128) to exit 124 (Route 30). Proceed east on Route 30, also known as Commonwealth Avenue, and follow for about 5 miles to Boston College.

FROM POINTS WEST: Take the Massachusetts Turnpike (Route 90) to exit 17. At the 1st set of lights after the exit ramp, take a right onto Centre Street. Follow Centre Street to the 4th set of lights, and turn left onto Commonwealth Avenue. Follow Commonwealth Avenue 1½ miles to Boston College.

FROM DOWNTOWN BOSTON: Take the Massachusetts Turnpike (Route 90 West) to exit 17. Take a left over the bridge after passing the Crowne Plaza Hotel. Take the first right onto Centre Street. Follow above directions from Centre Street.

PUBLIC TRANSPORTATION: The Boston College branch of the MBTA's Green Line (B) ends at the Boston-Newton boundary on Commonwealth Avenue. Cross the street and walk up the hill to the campus entrance.

Campus maps are available online at www.bc.edu/about/maps

Session 1 4:00-4:45 PM
Elementary

Fractions, Essential Questions, and the Common Core

The Common Core standards present a significant shift in what students are expected to understand about fractions, and when and how deeply they are supposed to understand it. But how do we teach toward and measure depth of understanding? One approach is the use of Essential Questions and "backward" design: developing open-ended questions that serve as anchors through a unit and inform the creation of engaging lessons and challenging tasks. We'll look at some examples of this process and at some tasks that require students to demonstrate conceptual understanding on a variety of levels, and we'll consider how what we learn from student responses to such tasks can deepen our own understanding and support the development of further Essential Questions.

Benjamin Geiger and Glen Sherman
Cambridge Public Schools

Room: 202

Is there high cognitive demand in the questions I ask?

The advent of the "Common Core Standards for Mathematical Practice" have created a need to examine the questions we ask students. In order for students to engage in meaningful mathematics, teachers need to start with high-level, cognitively complex math tasks. Using the work of Stein, Smith, Henningsen and Silver (2009) in *Implementing Standards-Based Mathematics Instruction* as a guide, we will explore and categorize questions posed in a K-5 class during math instruction. We will measure the level of student engagement and thinking required by instructional tasks, consider how and why tasks differ and analyze how these differences can impact opportunities for student learning.

Jennifer Shore
Newton Public Schools

Room: 204

Session 1 4:00-4:45 PM
Middle School

Is there high cognitive demand in the questions I ask?

The advent of the "Common Core Standards for Mathematical Practice" have created a need to examine the questions we ask students. In order for students to engage in meaningful mathematics, teachers need to start with high-level, cognitively complex math tasks. Using the work of Stein, Smith, Henningsen and Silver (2009) in *Implementing Standards-Based Mathematics Instruction* as a guide, we will explore and categorize questions posed in a typical middle school math class. We will measure the level of student engagement and thinking required by instructional tasks, consider how and why tasks differ and analyze how these differences can impact opportunities for student learning.

Sherri Flecca
Newton Public Schools

Room: 206

Making Rational Numbers More Meaningful

Revisit rational numbers through the lens of the Common Core State Standards. Explore unit fractions, the relations $<$, $=$, $>$, the number line, operations, and probing questions. Perhaps you'll uncover some unexpected results!

Peg Kenney
Boston College

Room: 302

Session 1 4:00-4:45 PM
High School

Do you See What I See?

In this workshop, participants will explore problem-based learning activities that are aligned with the Common Core State Standards. Participants will work in small groups on finding equations to match patterns and learn some fun ways to get students actively involved in the problem solving process.

Lisa Lopes and Talitha Oliveri
Hopedale High School

Room: 304

What We Can Learn from the “Lowly” Trapezoid

It’s just one property away from being a JAQ, but the trapezoid has a few secrets that make it a rich and interesting subject. There’s so much more to learn than just its perimeter and area.

JAQ: Just Another Quadrilateral

Steve Yurek
Leslie University

Room: 306

Session 2 5:00-5:45 PM
Elementary

The Development of Division Concepts in Grades 3-6

This workshop examines the progression of division concepts throughout the CCSSM and will develop participants’ understanding of the visual models outlined in the division standards in grades 3-6. We will work with visual models including: pictorial models, bar models, number lines, arrays, and area models and discuss the affordances, limitations, and applications of the different models.

Katherine Marin
Westwood Public Schools

Room: 202

Essentials for Developing Early Numeracy (PreK-2)

During this session we will work with materials to help ensure that your early childhood classroom lessons are designed to provide students with opportunities for counting, building fluency with small numbers and developing the concepts of one-to-one correspondence. Through the use of five and ten frames, dot cards and conversation we can ensure that students are engaging in experiences that support the development of early numeracy concepts. We will discuss visual and spatial arrangements along with the latest buzz word in early childhood mathematics, subitizing. These fundamental skills lead the way to ensuring students are successful with composing and decomposing numbers to ten and beyond. Are you teaching PreK mathematicians? Or providing remediation to a struggling second grader? Either or both? Please join me for an information-packed session to learn practical strategies.

Jill Milton
Norwood Public Schools

Room: 204

Session 2 5:00-5:45 PM
Middle School

PARCC Potpourri: Design, Cognitive Complexity, and Going Beyond the Single Standard

PARCC has several documents that define what it is, how it works, and what it means for teachers and students. This presentation intends to provide the links between the claims of the assessment, the evidence collected by to support those claims, the tasks that are intended to elicit that evidence, and how student performance will be communicated to all stakeholders. This will lead to a more focused discussion of the cognitive complexity framework used in task design and scoring within the PARCC assessment. The hope is that understanding this assessment will lead to a new reading of the standards and what this means for classroom practice.

Darren Burris
Boston Collegiate Charter School

Room: 206

Diagramming Problems in 5-8 Math

A good diagram shows quantities and relationships visually. Participants will get acquainted with different types of diagrams that can be helpful to students (and teachers!) in solve problems and communicating about them. We will look at bar models, double number lines, area models, and possibly others in the context of rate problems, multiplication and division of fractions, and problems involving percents. Participants will be encouraged to create their own diagrams.

Ellen Metzger
Lincoln Public Schools

Room: 302

Session 2 5:00-5:45 PM
High School

How to flip without flopping: getting the most out of a flipped classroom

As more and more technology comes in to the mathematics classroom, teachers need to make sure that it is being used to help and not hinder the education process. A flipped classroom, where students watch lecture videos for homework and then spend class time on problems and activities, can lead to better differentiated instruction and a more efficient use of time in the classroom. I will lead a discussion about what has worked well in the three years since I flipped and what has not. Be on the lookout for an email with a link to the lecture part of this presentation so that we can spend most of the time on discussion and Q & A.

Ross Benson
Cambridge High School

Room: 304

Rethinking Mathematics Education In the New Era

The factory-like method of mathematics education we have employed for over 100 years worked well when the learned skills lasted a life-time. But with the age of technology that has thrust upon us skills that become obsolete almost as quickly as they are introduced, has come the need to shift our focus from teaching to learning; from instruction to inquiry; from competitiveness to cooperation. The implementation of the Common Core Standards represents a significant step towards rethinking mathematics education. This presentation will share some useful technology techniques and pedagogical strategies that support the Common Core Standards while guiding us not only in becoming better teachers but also in helping our students to become better learners

Don Cameron
The Brooks School

Room: 306

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