

# Math in Action 2007 Program

## General Session: 8:30 - 9:30 am

### Judy Wheeler, MCTM President & K-12 Mathematics Consultant at Berrien County ISD

#### Oh, the Place's You'll Go When You Accept the Challenge of PUFM!

Congratulations! Today is your day. You're off to Great Places! You're off and away!" To adapt to our changing expectations of what all kids should know and be able to do, what will you do? Will you "get all hung-up in a prickly perch" or "get so confused that you'll start in a race...at a breaknecking pace...toward a most useless place"? Or will you go to that place where "everyone is just waiting...for a Better Break...or Another Chance". I suggest that in true Seussian Spirit that we as mathematics educators embrace Mathematics Literacy for All Students as well as accept the Challenge of PUFM for Ourselves. No, it won't happen magically and it won't be easy. Yet we wonder if, even with hard work and focused efforts, we will be able to succeed. "Yes! We will, indeed! 98 and 3/4 percent guaranteed!...We'll move mountains!

## Session A: 9:45 - 10:45 am

### A1 Investigation of Student Thinking and Curriculum Design through Lesson Study.

*Paul Yu, GVSU Mathematics*

This session will look at the use of lesson study, a popular professional development program in Japan, as a powerful teacher driven form of PD through the collaborative development and investigation of student-centered mathematics instruction.

*Grades Pre-K - 12*

### A2 An Introduction to the Digi-Block Learning System\*

*Matt Wyneken, GVSU Mathematics*

By interacting with Digi-Block materials, children can discover for themselves how place value and arithmetic operations work. Participants in this workshop will experience sample lessons and learn how the Digi-Block Learning System can further support existing curricula.

*Grades K - 4*

### A3 KC4 Mathematics

*Ruth Moxon, Kent Intermediate School District*

KC4 Mathematics is aligned at grades K-8 to the Michigan GLCEs and a revision of grades 9-12 to align with the HSCEs is underway. See KC4 sample lessons, assessments and resource materials.

*Grades K - 12*

### A4 Exploring Patterns and Functions with the Cat in the Hat

*Jamie Dahms, Lynnette Jurgensen, GVSU alumni*

Participants will explore patterns and relationships in a variety of children's literature, including Dr. Seuss' *The Cat in the Hat Comes Back* and will brainstorm activities applicable for their classrooms.

*Grades 3 - 8*

### A5 Don't Slow Me Down with that Calculator \*

*Cliff Petrak, Brother Rice H.S., Chicago (retired)*

Learn to master a multitude of little-known, super-shortcut computational techniques involving addition, subtraction, fractions, squaring and multiplication that will leave your calculator-dependent friends in the dust.

*Grades 3 - 9*

### A6 A Four Pack of Statistics Activities

*Phyllis Curtiss, John Gabrosek, Kirk Anderson, Paul Stephenson, GVSU Statistics*

We will have four stations; each with a hands-on introductory statistics activity and a professor from GVSU as your guide. Activities will involve sampling, descriptive statistics and probability.

*Grades 6 - 12*

### A7 Harry Potter's Potions Puzzle

*Hugh McGuire, GVSU School of Computing and Information Systems*

The first Harry Potter book by J. K. Rowling presents a problem to use clues to determine the contents of seven bottles. Math teachers can use this puzzle in class or for homework on counting (permutations/combinations) and/or reasoning.

*Grades 6 - 12*

### A8 New Goals and New Technologies for Teaching Statistics in Michigan High Schools

*Beth Ritsema, Western Michigan University*

We will consider the new Michigan HSCEs for Statistics and illustrate how these topics might be integrated within a four-year program along with new public domain data-analysis software.

*Grades 9 - 12*

### A9 Do Dogs Know Calculus?

*Timothy Pennings, Hope College*

*Elvis Bogaart Wales Pennings, Welsh Corgi*

Does Elvis, my Welsh Corgi, find the optimal (quickest) path to balls that I throw in Lake Michigan? What does the answer, gained from solving a standard calculus problem, reveal about Nature? We also provide an experimental worksheet that students can use to determine if they can find optimal paths. Elvis will be available for demonstration and follow-up questions.

*Grades 11 - 12*

## Session B: 11:00 am - 12:00 pm

### B1 I have all these manipulatives ... now what do I do?

*Kevin Dykema, Mattawan Middle School*

Participants will hear some benefits of using manipulatives in math and see some ways to use a variety of manipulatives.

*Grades PreK - 8*

### B2 An Introduction to the Digi-Block Learning System\**Matt Wyneken,*

*GVSU Mathematics*

This session repeats A2.

*Grades K - 4*

### B3 MEAP Math: Perils, Pitfalls, Life Preservers

*Michael Paul Goldenberg, University of Michigan-Flint*

What do teachers and students really need to know for successful performance on mathematics sections of the MEAP? How can MEAP problems be used to promote math for understanding?

*Grades 3 - 5*

### B4 Don't Slow Me Down with that Calculator \*

*Cliff Petrak, Brother Rice H.S., Chicago (retired)*

This session repeats session A5.

*Grades 3 - 9*

### B5 Great Ideas For Teaching Students (G.I.F.T.S.)

*Feryal Alayont, Gary Klingler, Jon Hodge, Ted Sundstrom, Semail Ulgen Yildirim*

*GVSU Mathematics*

Come join an interactive round-robin session in which facilitators share instructional ideas (such as writing and using technology) that they have used successfully in their classes. Handouts will be provided.

*Grades 6 - 12*

### B6 Great Expectations (Activities, That Is!)

*Barbara Leopard, Eastern Michigan University*

Looking for great activities to help supplement the teaching of high school math grade level expectations? Come join in on the hands-on and technological activities for this session.

*Grades 9 - 12*

### B7 What is "I Spy"?

*Mary Richardson, Paul Stephenson, Neal Rogness, GVSU Statistics*

The speakers will guide participants through two interactive activities that can be used to explore introductory statistical concepts. These activities are based upon the TV shows "Jeopardy" and "I Spy".

*Grades 9 - 12*

### B8 The New HSCEs in Mathematics: How Does Core-Plus Mathematics Stack Up?

*Beth Ritsema, Western Michigan University*

In this interactive session, we will review selected content from the 2nd edition of Core-Plus Mathematics and consider how some key expectations are developed within the curriculum.

*Grades 9 - 12*

### B9 The Optimal Origami Box

*Shelly Smith, GVSU Mathematics*

We use two approaches to optimization: First, students use experimental data and regression models. Next, students use features present in the unfolded box to create a theoretical model for comparison purposes.

*Grades 9 - 12*

## Lunch Break: 12:00 - 12:45 pm

## Session C: 12:45 - 1:45 pm

### C1 Reading, Mathing, Teaching - Moving Beyond the Motions

*Dave Coffey, John Golden, GVSU Mathematics*

Effective readers, mathematicians, and teachers share many characteristics. We examine metacognition - attention to action, intention, and analysis. Participants will identify ways to enhance this ability in themselves and students.

*Grades PreK - 12*

### C2 An Introduction to Cognitively Guided Instruction for Whole Number Operations

*Stephen Blair, GVSU Mathematics*

We will use video clips of actual students to get a hands-on introduction to Cognitively Guided Instruction, which is a framework used to help teachers better understand children's intuitive mathematical thinking

*Grades K - 5*

### C3 Probability Games for Grades 3-6

*Jan Koop, Calvin College*

Children's ideas about probability, fairness, and likely events develop as the result of many and varied experiences. Appropriate activities that use data to investigate these concepts will be shared.

*Grades 3 - 8*

### C4 Starting Math Class With a Bang \*

*Pat Knoester, Grand Rapids Christian Schools*

If you can start each math class with an engaging game / thinking activity, your students may just forget that they "hate math" and approach the subject with a positive attitude!

*Grades 3 - 8*

## Session C (continued): 12:45 - 1:45 pm

### C5 Scaling the Universe

Mary Garrett, GLAST Educator Ambassador NASA EPO Sonoma State University  
How big is big? How small is small? Students often have difficulty comprehending orders of magnitude. Let us "Scale the Universe" as we investigate the powers of 10.  
Grades 5 - 12

### C6 Bring Math Alive through Data

David Kapolka, Key Curriculum Press  
Fathom Dynamical Data Software can import data from the web, Excel files, Vernier Probes, and directly from the keyboard. Come see the newest features of this amazing software. Graphs can be easily generated and manipulated to dynamically demonstrate families of functions and data analysis. One participant will win a copy of Fathom.  
Grades 9 - 12

### C7 MEAP Math: Perils, Pitfalls, Life Preservers

Michael Paul Goldenberg, University of Michigan-Flint  
What do teachers and students really need to know for successful performance on mathematics sections of the MEAP? How can MEAP problems be used to promote math for understanding?  
Grades 6 - 8

### C8 Zome Geometry Workshop

David Ritcher, Western Michigan University  
We will use Zome to build some models of some notable 3- and 4-dimensional objects. Time permitting, we will build a model of the 120-cell, an arrangement of 120 congruent regular dodecahedra in 4-dimensional space.  
Grades 9 - 12

## Session D: 2:00 - 3:00 pm

### D1 Gaining Insights Into Children's Geometric Knowledge With The Greedy Triangle

Nancy Mack, GVSU Mathematics  
We will explore ways to use The Greedy Triangle to gain insights into children's geometric knowledge related to properties of polygons while helping children grow in their understanding of polygons.  
Grades 3 - 5

### D2 What's Your Angle

Gina Garza Kling, Western Michigan University  
Truly understanding the concept of angle can be challenging for students. Using various forms of technology, we'll examine how students can develop a deeper understanding of this critical topic.  
Grades 3 - 8

### D3 Starting Math Class With a Bang \*

Pat Knoester, Grand Rapids Christian Schools  
This session repeats session C4.  
Grades 3 - 8

### D4 Do You See What I Mean? Developing Compare/Contrast Skills

Garry Johns, Saginaw Valley State University  
A sequence of activities designed to increase student description skills are modeled. Examples from several strands are shared and connections to constructed-response items, writing, vocabulary, graphs, and algebra are shown.  
Grades 6 - 8

### D5 Hands-on Activities for the Middle School Classroom

Cathy Brewster, Kevin Dykema, Mattawan Middle School  
Come discover some easy to create, hands-on activities that your students will love. These activities can be used for a wide range of topics.  
Grades 6 - 8

### D6 PI in the SKY

Mary Garrett, GLAST Educator Ambassador NASA EPO Sonoma State University  
What is PI? What is a radian? How do I know how far it is to the nearest star? Use free hands-on NASA activities to make mathematics interesting and real.  
Grades 5 - 12

### D7 Ways to Incorporate Best-Practice Language Arts Methods in the Math Classroom

Gretchen Rumohr-Voskuil, Western Michigan University English  
Esther Billings, GVSU Mathematics  
Describing how to incorporate best-practice language arts methods into math classrooms, this session will utilize relevant classroom experience, share published research, and encourage lively discussion.  
Grades 6 - 12

### D8 Rock, Paper, Scissors

Katharine Vance, Hope College  
In this presentation I will take a problem-solving approach to develop concepts of probability by playing and analyzing the game of "Rock, Paper, Scissors."  
Grades 9 - 12



# Mathematics in Action Registration Form

(One registration per form...duplicate as needed - this form AND online registration are also available at [www.gvsu.edu/math/MathInAction](http://www.gvsu.edu/math/MathInAction))

<b>Name</b>		<b>Last 4 digits of Social Security Number</b>			
<b>Address</b>		<b>City</b>		<b>Zip</b>	
<b>Daytime Phone ( )</b>		<b>Email</b>			
<b>Name of School</b>		<b>School District</b>		<b>Grades Teaching Now</b>	
<b>Gender</b>		<b>Ethnicity</b>			
Male ___ Female ___		African-Am ___ Asian-Am ___		Caucasian ___ Hispanic ___ Native-Am ___ Other ___	
<b>Participant Category (please select one choice from the two rows of boxes below)</b>					
<b>Teacher</b> <input type="checkbox"/>	<b>Student</b> <input type="checkbox"/>	<b>Administrator</b> <input type="checkbox"/> (your title) _____		<b>School Board</b> <input type="checkbox"/>	<b>Parent</b> <input type="checkbox"/>
<b>Community Member</b> <input type="checkbox"/>	<b>Business/Industry</b> <input type="checkbox"/>	<b>Legislator</b> <input type="checkbox"/>	<b>Other (specify)</b> _____		

(Place appropriate session code in blank)

<b>Session A:</b> _____ 1 <sup>st</sup> Choice _____ 2 <sup>nd</sup> Choice	<b>Session B:</b> _____ 1 <sup>st</sup> Choice _____ 2 <sup>nd</sup> Choice	<b>Session C:</b> _____ 1 <sup>st</sup> Choice _____ 2 <sup>nd</sup> Choice	<b>Session D:</b> _____ 1 <sup>st</sup> Choice _____ 2 <sup>nd</sup> Choice
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**NOTE:** Sessions offered more than once are marked with an \*.

Ask your school if professional development funds are available.

Enclose your registration fee of  
\$27.00 per teacher/educator  
\$11.00 per preservice teacher  
(make checks payable to GVSU) and mail  
this completed registration form postmarked  
by **February 8, 2007** to:

RMSC - MIA  
328 Henry Hall  
Grand Valley State University  
1 Campus Drive  
Allendale, MI 49401

### Online Registration is available at:

[www.gvsu.edu/rmsc](http://www.gvsu.edu/rmsc) **OR** [www.gvsu.edu/math/MathInAction](http://www.gvsu.edu/math/MathInAction)

**Amount enclosed:** \_\_\_\_\_ Check \_\_\_ or Credit Card \_\_\_

CC Number: \_\_\_\_\_

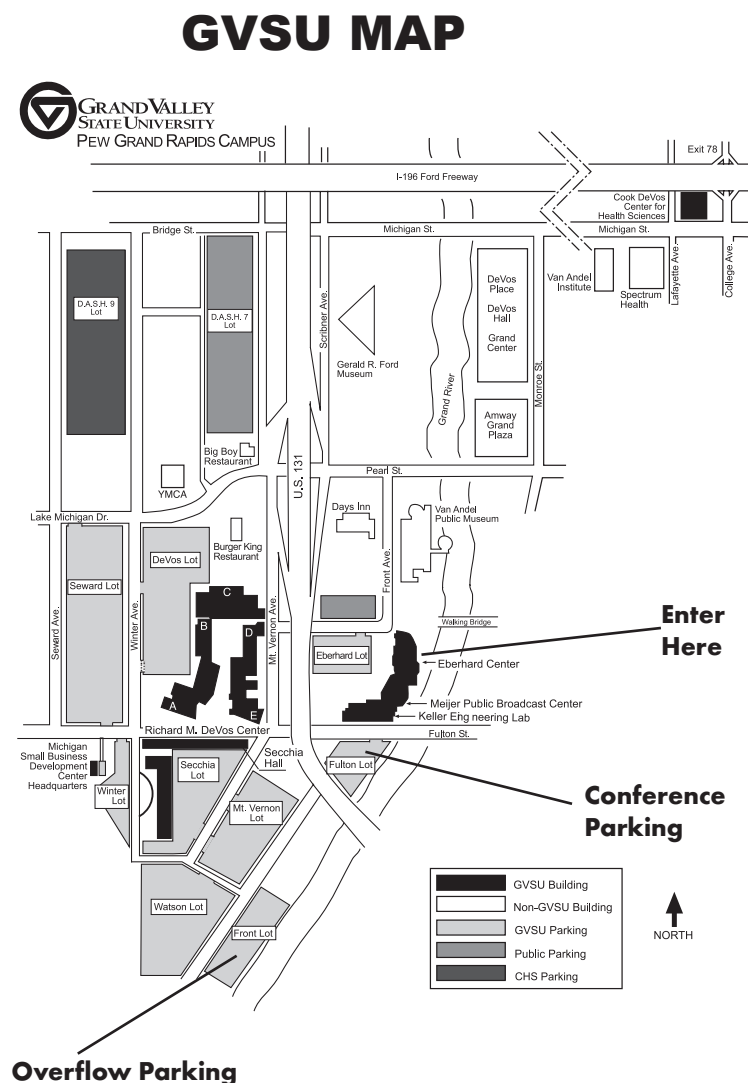
Expiration date: \_\_\_\_\_

Signature: \_\_\_\_\_

**Confirmations will be emailed.**

# Math in Action Schedule

8:00 - 8:30 am	Registration and Refreshments 2nd Floor lobby, Eberhard Center
8:30 - 9:30 am	General Session Auditorium, Eberhard Center
9:45 - 10:45 am	Concurrent Session A Conference Facilities, Eberhard Center
11:00 am - 12:00 pm	Concurrent Session B Conference Facilities, Eberhard Center
12:00 - 12:45 pm	Lunch 2nd Floor Lobby, Eberhard Center
12:45 - 1:45 pm	Concurrent Session C Conference Facilities, Eberhard Center
2:00 - 3:00 pm	Concurrent Session D Conference Facilities, Eberhard Center



**From US-131 Northbound:** Take the Pearl St. Exit, #85B. Turn left (west) onto Pearl Street (which becomes Lake Michigan Drive). Go two blocks; turn left on Winter Ave. Take Winter south to light at Fulton St. Turn left on Fulton, follow roughly two blocks under US-131 and enter the Fulton Lot on your right.

**From US-131 Southbound:** Take the Pearl St. Exit, #85B. Turn right (west) onto Pearl Street (which becomes Lake Michigan Drive). Go one block; turn left at first intersection on Winter Ave. Take Winter south to light at Fulton St. Turn left on Fulton, follow roughly two blocks under US-131 and enter the Fulton Lot on your right.

**From I-196 East/West:** Take the Ottawa Ave/Downtown Exit, #77. Follow Ottawa Ave. through downtown til it dead-ends into Fulton St. Turn right onto Fulton. Proceed roughly three blocks across the river til just before the US 131 overpass. Turn left into the Fulton Lot marked Conference Parking.

Overflow parking is available in the Front Lot noted on the map above.

January 3, 2007

Dear Educator,

You are cordially invited to attend this year's Math in Action Conference, hosted by Grand Valley State University, on Thursday, February 22, 2007. This conference exists to provide a venue for mathematics educators in west Michigan to grow professionally by coming together and sharing ideas. The theme for this year's conference is "Mathematical Literacy for All: Adapting to Changing Expectations," which reflects the fact that mathematics educators at all levels are faced with the challenge of meeting new expectations, such as the MEAP, the GLCEs, and the new HSCes. The program includes sessions which address this theme as well as a variety of other topics of interest to educators at all levels of K-12 mathematics. Our hope is that this conference will bring together educators with diverse experiences in an environment in which best practices can be shared and new ideas can be generated.

We are excited to welcome Judy Wheeler, current president of the Michigan Council of Teacher of Mathematics and mathematics consultant at Berrien County Intermediate School District, as our keynote speaker. Judy will be sharing her experience regarding the challenge for teachers to develop a profound understanding of fundamental mathematics in her address "Oh, the Place's You'll Go When You Accept the Challenge of PUFM!" In addition to Judy's address, there will be four concurrent sessions that run throughout the day. Each session will be composed of about eight presentations running in parallel and will include presentations in which educators will share activities and ideas relevant to K-12 teachers. In particular, many of these sessions will encourage participants to explore ideas interactively and will leave participants with activities and ideas that can be adapted for use in their classrooms.

Besides directions to the conference site, this brochure contains a detailed schedule of presentations and a registration form (note that the deadline for registration is February 8, 2007). Please share this brochure with your colleagues who may be interested in attending. Additional brochures can be found online at <http://www.gvsu.edu/math/MathInAction>. Your questions and comments will be welcomed by the co-chairs, who may be reached at the addresses below.

Sincerely,

Steve Blair  
Co-chair, Math in Action

[blairst@gvsu.edu](mailto:blairst@gvsu.edu)

Jonathan Hodge  
Co-chair, Math in Action

[hodgejo@gvsu.edu](mailto:hodgejo@gvsu.edu)

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STATE UNIVERSITY

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1 Campus Drive  
Allendale MI 49401

# Mathematics in Action

**“Mathematical Literacy for All:  
Adapting to Changing Expectations”**

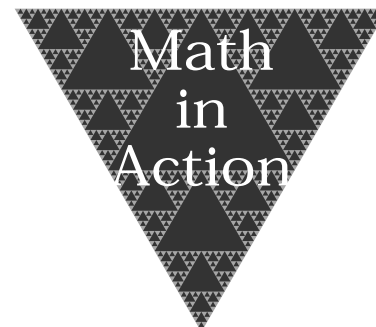
a conference for K-12 mathematics educators



Thursday, February 22, 2007



The Eberhard Center  
The Robert C. Pew Campus  
in downtown Grand Rapids  
Grand Valley State University  
Thursday, February 22, 2007  
8:30 am - 3:00 pm



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[www.gvsu.edu/math/MathInAction](http://www.gvsu.edu/math/MathInAction)