# NCTM 2010 ANNUAL MEETING & EXPOSITION

SAN DIEGO, CA • APRIL 21-24, 2010

Connections: Linking Concepts and Context

850

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# PROGRAM BOOK



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NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

www.nctm.org

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#### **National Council of Teachers of Mathematics**

# **2010 ANNUAL MEETING** and **EXPOSITION**

San Diego, California | April 21–24, 2010 | Connections: Linking Concepts and Context

#### HOSTS

Greater San Diego Math Council California Mathematics Council, Southern Section

#### **MEETING FACILITIES**

All Annual Meeting presentations will be held at the San Diego Convention Center, the Manchester Grand Hyatt San Diego, and the San Diego Marriott Hotel and Marina. See pages 168–71 for floor plans.

#### **REGISTRATION AREA HOURS**

Wednesday Thursday Friday Saturday 8:00 a.m. - 7:00 p.m. 7:00 a.m. - 4:00 p.m. 7:00 a.m. - 4:00 p.m. 7:00 a.m. -10:00 a.m.

#### **EXHIBITS & CYBER CAFÉ**

Thursday Friday Saturday 8:30 a.m. – 5:00 p.m. 8:30 a.m. – 5:00 p.m. 9:00 a.m. – 12:00 noon

#### **BOOKSTORE & MEMBER SHOWCASE**

Wednesday Thursday Friday Saturday 10:00 a.m. - 7:00 p.m. 7:00 a.m. - 5:30 p.m. 7:30 a.m. - 5:30 p.m. 8:30 a.m. - 12:00 noon



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NCTM does not sell or distribute member e-mail addresses in compliance with Federal privacy policies. However, some speakers on this program have elected to print their e-mail addresses as a means for individual correspondence with conference attendees. Unsolicited commercial e-mail or unsolicited bulk e-mail, whether or not that e-mail is commercial in nature, is expressly prohibited. Any use of e-mail addresses beyond personal correspondence is not authorized by NCTM.

National Council of Teachers of Mathematics, 1906 Association Drive, Reston, VA 20191-1502; Telephone (703) 620-9840; Fax (703) 476-2970; e-mail nctm@nctm.org; Web www.nctm.org.

# Welcome to San Diego!

W ELCOME to the largest, most exciting annual gathering of mathematics educators in the world. The 88th Annual Meeting and Exposition of the National Council of Teachers of Mathematics brings together outstanding classroom teachers, mathematics educators, and mathematicians to share what they know and to exchange ideas all in support of helping every student learn challenging mathematics. On behalf of the Board of Directors, Program and Local Arrangements committees, NCTM staff, and the many volunteers who have worked long hours over the past two years to put together an extraordinary set of opportunities for you, welcome to San Diego.

Our conference theme, Connections: Linking Concepts and Context, provides just a glimpse of what the conference will offer. Our Program Committee has put together an exceptional group of presentations for you to explore and consider so that you can help all students learn. You will find presentations that challenge you to examine your own teaching within the context of connecting concepts and context, as well as your connec-



Henry S. Kepner, Jr. President, National Council of Teachers of Mathematics University of Wisconsin— Milwaukee

S. Kepner



Bonnie Hagelberger Program Chair Monroe Elementary School, Retired Plymouth, Minnesota

Bannu g Hagelberger

Welcome to the Council's 2010 Annual Meeting and Exposition. The NCTM staff and I are delighted that you decided to join us for this wonderful event in sunny Southern California!

The NCTM Annual Meeting is a truly awesome event not only because of its size—we have more than 12,000 students, teachers, and educators attending our conference—but also because of its scope of coverage. This year's meeting is no exception: there are more than 700 presentations to choose from, covering a wide range of topics. There are presentations on such timely topics as the national common core standards, response to intervention strategy, and NCTM's recent publication, *Focus in High School Mathematics: Reasoning*  tions to your students and their community, and your perspectives on mathematics.

There is much more to the conference than the more than 700 presentations planned for your professional enrichment. Over the next three days, take advantage of the extraordinary opportunities you'll have to meet new colleagues and to form stimulating professional and personal relationships that can last a lifetime. With its idyllic climate, 70 miles of beaches, and a wide variety of attractions, San Diego has something for everyone. Popular attractions include the San Diego Zoo, Sea World, Balboa Park, and Coronado Island. Explore San Diego's charming neighborhoods and experience its vibrant nightlife. Sightseeing tours are available to NCTM attendees and guests through NCTM's shuttle company.

We hope that after your San Diego experiences you will return to your classroom and colleagues full of new ideas and fresh perspectives that will expand your thinking about the mathematics you teach and the students whose lives you influence every day.



William Bokesch Local Arrangements Committee Cochair San Diego, California

Will My Bohand

**Carol Treglio** Local Arrangements Committee Cochair San Diego, California

Carl Treglis

*and Sense Making*. Moreover, you will discover that mathematics is everywhere, even in such unexpected places as origami, the Federalist papers, the NBA draft lottery, opera, and poetry. I am confident that you will grow professionally and have fun in the process.



Kichoon Yang Executive Director National Council of Teachers of Mathematics

Kahoonpy



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# **Program Information**

THE 2010 NCTM Annual Meeting and Exposition officially begins with the Opening Session, starting at 5:30 p.m. on Wednesday, April 21, in Ballroom 20 at the San Diego Convention Center. All other presentations begin at 8:00 a.m. each day and are scheduled concurrently throughout the day on Thursday, Friday, and Saturday.

We have made every attempt to provide adequate seating for participants at the Annual Meeting and Exposition. The room capacity for each presentation is listed on all meeting room signs. For your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To comply with fire codes, it may be necessary to ask any person sitting on the floor or standing to leave the room.

Please remember:

- All meeting rooms will be cleared between presentations.
- All seats are available on a first-come, first-served basis.
- Reserving spaces in line or saving seats is not permitted.
- As a courtesy to the speakers and your colleagues, please turn off your cell phone during all presentations.

### **Professional Development Focus** of the Year 2009–2010

#### **Connections: Linking Concepts and Context**

This year's Focus of the Year is Connections: Linking Concepts and Context. This theme will be highlighted at the conference as the topic of Thursday's Learn↔Reflect strand, as well as in many NCTM activities throughout the year. For more information, visit www.nctm.org/focus.

### Learn↔Reflect Strand

Focus one full day on the Focus of the Year topic, Connections: Linking Concepts and Context. The strand begins with a morning Kickoff session and concludes with an end-of-theday Reflection session. In between, you choose from among a number of sessions exploring the topic, all marked with the symbol  $L^{\mathbb{C}}\mathbb{R}$ . Immerse yourself in the topic and collaborate with leaders and colleagues. Participants are asked to reflect on the following questions throughout the Learn $\leftrightarrow$ Reflect strand. At the end of the strand during the Reflection session, participants engage in a discussion based on the following questions.

- 1. How has your understanding of mathematics connections been changed, challenged, or confirmed?
- 2. What role do connections play in developing students' insights about and understanding of mathematics?
- 3. What do you do or what will you do in your instruction to emphasize the interrelatedness of mathematical ideas?
- 4. How will you create classroom experiences that value and build upon the connections between mathematics and students' prior knowledge, lived experiences, and personal interests?

Learn $\leftrightarrow$ Reflect sessions are open for anyone to attend throughout the day. Personalized certificates will be prepared for those attendees who attend the Kickoff session, at least one Learn $\leftrightarrow$ Reflect session during the day, and the final Reflection session.

#### **New Teacher Strand**

The New Teacher strand offers sessions and gallery workshops designed to answer questions and concerns of new teachers. Presentations are grade-band-specific and include topics from management and motivation, to engaging struggling students, to a celebration of those entering and just beginning their teaching careers. Learn, network with other new teachers, and get your questions answered. Targeted to early career teachers and those working on certification. All are welcome.

Look for this symbol, **NP**, on Friday, April 23, 2010, for presentations that are part of this strand. Join the New Teacher Kickoff on Thursday at 3:00 p.m.

Visit www.nctm.org/newteacher for more information.

## **NCTM Committee Presentations**

NCTM committee presentations are identified by the symbol. For a list of all NCTM committees, please visit www.nctm.org.

### **Equity Strand**

The Equity strand features presentations given by the Benjamin Banneker Association, TODOS: Mathematics for ALL, and Women and Mathematics Education. Presentations are scheduled throughout the conference.

## Mathematical Association Presidents' Series

The Presidents' Series is a feature of the NCTM Annual Meeting program that highlights connections among the mathematical community at different levels. Presentations are scheduled throughout the conference.

## Come, Connect, Communicate

Join your colleagues in informational discussions about the latest trends in education. Held on Friday, these small-group discussions will be led by a facilitator and provide attendees with a place to focus on important issues in the education world.

# **Supporting Math and Science Education**

# When does X+Y(Z) = future CEO? When MathMovesU<sup>®</sup>.

Raytheon believes when students are engaged and inspired by math and science, anything is possible. That's why we created the MathMovesU<sup>®</sup> national initiative. It takes math and science to fun, exciting and innovative places:

like having kids engineer their own thrills through a new Raytheon experience at INNOVENTIONS at *Epcot*<sup>®</sup> at the *Walt Disney World*<sup>®</sup> Resort; compete with peers in the Raytheon MATHCOUNTS<sup>®</sup> National Competition; use math to talk football with the New England Patriots; or explore a range of interactive activities on www.mathmovesu.com. It's all part of our mission to inspire today's students to be tomorrow's leaders.

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# **Program Information**

## New Member and First Timers' Orientation

New to NCTM or a first-time attendee? Hear about maximizing your NCTM member experience and get takeaways full of classroom-ready activities with the New Member and First Timers' Orientation. Plus, the sessions will discuss the format of the conference and help attendees make the most of their experience. Our attendees are representative of the United States, Canada, and numerous international locations.

Wednesday	Thursday
Session #1	Session #3
4:00 p.m4:30 p.m.	7:15 a.m.–7:45 a.m.
Room 6 A	Room 6 A
(Convention Center)	(Convention Center)

## **Types of Presentations**

All presentations are open to all conference participants. Admission is on a first-come, first-served basis. Reserving spaces in line or saving seats in not permitted.

Session (60 minutes)	Rooms are set theatre style and vary in size.	
Research Session (60 minutes)	Rooms are set theatre style and vary in size. Research sessions emphasize the connection between research and practice.	
Gallery Workshop (90 minutes)	Rooms are set with round tables for hands-on work and additional seating around the perimeter of the room. The gallery partici- pants will receive the print material and observe the workshop in a fashion simi- lar to a classroom observer.	
Exhibitor Workshop (60 minutes)	Rooms are set theatre style for 100 people. Exhibitors showcase their products and services away from the exhibit hall. Look for the symbol <b>CW</b> indicating Exhibitor Workshops in the program book.	

## **Grade Bands**

To assist attendees in finding appropriate presentations to attend, each presentation lists the presentation's target grade band audience. The grade bands are:

**Pre-K–2**—preschool and prekindergarten through grade 2 **Grades 3–5**—grades 3 through 5

Grades 6-8-grades 6 through 8

Grades 9–12—grades 9 through 12

**Higher Education**–university and college level issues including both two-year and four-year institutions

**Preservice and In-Service**—content and techniques for providers of preservice teacher education and professional development for practicing teachers, supervisors, specialists, coaches and mathematics educators.

General Interest—applicable to all grades and audiences

## **On-Site** *Daily News*

Start each morning with the NCTM *Daily News*, which will include late-breaking news about the 2010 NCTM Annual Meeting and Exposition. Program or speaker changes and cancellations will be listed as well. The *Daily News* will be distributed in the lobby of the San Diego Convention Center and available in the Manchester Grand Hyatt San Diego and the San Diego Marriott Hotel and Marina.

## Tips for a Rewarding Annual Meeting and Exposition

- Become familiar with the layout of the San Diego Convention Center, Manchester Grand Hyatt San Diego, and San Diego Marriott Hotel and Marina by reviewing the floor plans on pages 168–71.
- Visit the NCTM Bookstore and save 25 percent on all NCTM resources.
- Stop by the Information Booth for information on the local San Diego, California, area.
- If attending the conference with colleagues, attend different presentations and share your learned knowledge after the conference.
- Wear comfortable shoes and clothes, and dress in layers.
- Turn off cell phones and pagers during presentations.
- Visit the Exhibit Hall, where more than 200 exhibitors will share the latest educational products.
- The more you participate in the presentations, the more you will get out of the conference.
- Help us continually improve the Annual Meeting and Exposition by filling out the post-conference survey, sent via email in late April.
- Be safe! Remove your name badge when you leave the conference facilities at the end of the day.

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- CD with 12 Diverse Math Lessons and Activities
- 1 Teaching Tips
- 12 Solution Guides 2 Sign Out Sheets
- 2 Posters
- 2 Certificates
- 4 Stickers

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The Mail Chinesenst

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Learn More at our workshop on Friday, April 23 4:00 p.m. - 5:00 p.m., Room 1A in the Convention Center

#### When ordering online use code NCTMSD4

# Booth #1847

Carlos Santo **Student Benefits** 

Lessons in GEOMETRY, ALGEBRA and GENERAL MATH.

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Math Standards

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Helps to visualize Math concepts

# **NCTM Members** Have Access to All These Great Resources!

Looking for lessons, activities, resources, and teaching tips? NCTM has you covered. We've got all of this and more in one location and set up by grade band to help make it easier. Check us out today!

www.nctm.org/resources

Access your NCTM journal online (including searchable archives of 1,000 articles). View *ON-Matb*, our interactive online journal; new publications; and more.

#### www.nctm.org/publications

Full Member-only online access to the *NCTM Principles & Standards for School Mathematics.* 

www.nctm.org/standards

Invest in You! NCTM's professional development resources provide you with the opportunity to focus on improving your skills. Let us help you expand your knowledge base with e-Workshops, conferences, meetings, and more.

www.nctm.org/profdev



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These are just a few of the many resources available to you that are included with your membership. Check us out to see how we can help you; visit www.nctm.org/membership.

Need help with your membership or have questions? Contact us by phone (800) 235-7566 or by e-mail nctm@nctm.org.

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Π

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# **WARNING:** YOUR STUDENTS MAY DEVELOP A SUDDEN, INCURABLE INTEREST IN MATHEMATICS.





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# WEDNESDAY PLANNER

#### Plan your conference activities here.

5:00	
5:30	
6:00	
6:30	
7:00	

#### HIGHLIGHTS

• Opening Session (Presentation 2): Change Is Good When Your Attitude Is Great!

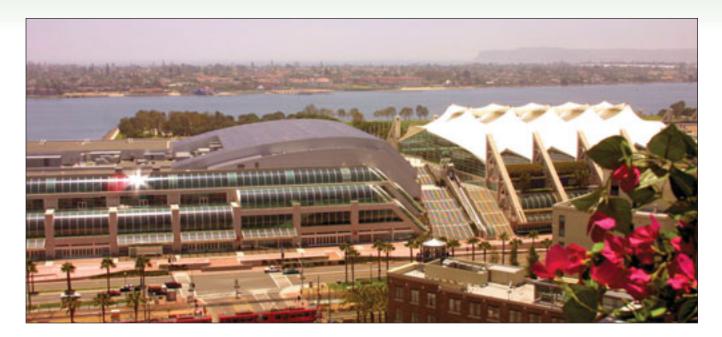
#### **Registration Hours**

8:00 a.m.–7:00 p.m.

#### Bookstore and Member Showcase Hours 10:00 a.m.-7:00 p.m.

#### **Fire Codes**

We have made every attempt to provide adequate seating for participants at the conference, but for your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To conform to fire codes, it will be necessary to ask persons sitting on the floor or standing to leave the room.



# NCTM Regional Caucuses Regional Caucuses for Delegates and Alternates

Caucus	Location	Presiders
Canadian Caucus 2:00 p.m.—4:00 p.m.	17 B (Convention Center)	Rita Janes, Educational Solutions, St. John's, Newfoundland
Central Caucus 2:00 p.m.—4:00 p.m.	16 B (Convention Center)	Bethany Noblitt, Northern Kentucky University, Highland Heights, Kentucky Tom Muchlinski, Retired, Plymouth, Minnesota
Eastern Caucus 2:00 p.m.—4:00 p.m.	16 A (Convention Center)	Maria Diamantis, Southern Connecticut State University, New Haven, Connecticut Neil Cooperman, Millburn High School, Millburn, New Jersey
Southern Caucus 2:00 p.m.—4:00 p.m.	14 A/B (Convention Center)	Desha L. Williams, Kennesaw State University, Kennesaw, Georgia Vanessa Cleaver, Little Rock School District, Little Rock, Arkansas
Western Caucus 2:00 p.m.—4:00 p.m.	15 A/B (Convention Center)	David Brancamp, Nevada Department of Education, Carson City, Nevada Sandy Christie, Puget Sound Educational Service District, Renton, Washington
Affiliates-at-Large Caucus 2:00 p.m.—4:00 p.m.	17 A (Convention Center)	Vena Long, University of Tennessee, Knoxville, Tennessee



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#### New Member and First Timers' Orientation

#### (General Interest) Session

New to NCTM? Join members of the NCTM Board to learn how to maximize your membership experience! From journals and online lessons, tools, and activities to networking and career-advancement opportunities, you'll discover all that NCTM has to offer you. First-time attendees, learn how to make the most of your time at the conference.

**National Council of Teachers of Mathematics Board of Directors** National Council of Teachers of Mathematics, Reston, Virginia

6 A (Convention Center)

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#### 5:30 p.m.-7:00 p.m.



#### Change Is Good When Your Attitude Is Great! Opening Session

#### Remarks by NCTM President Henry S. Kepner, Jr.

Change happens! Life happens! Change is essential to any growth process, yet nobody wants to change. Progress necessitates change, and change is the key to progress. Jolley will share his "VDAD" (Vision, Decision, Action, Desire) formula for embrac-

ing change. You will view change as an ally, believing that change is good!

Willie Jolley is truly a renaissance man—an award winning speaker, singer, author, and national columnist, all in one. In 1999 he was named "One of the Outstanding Five Speakers in the World" by Toastmasters International. He is the author of two international best selling books, *It Only Takes a Minute to Change Your Life!* and *A Setback Is a Setup for a Comeback,* and coauthor of several more. He is host of the radio show, *The Willie Jolley Weekend Show* on XM Radio.

#### Willie Jolley

Willie Jolley Productions, Inc., Washington, D.C.

#### Ballroom 20 (Convention Center)



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# A MATHEMATICS LEADER'S GUIDE TO LESSON STUDY IN PRACTICE

Hands-on Professional learning

Focusing on students is a powerful force for teacher learning. Teams set student-centered goals reflecting the learning needs of their own students. They study the mathematics through a student lens.

—Jane Gorman, June Mark, and Johannah Nikula

Research-based best practices <text>

A Mathematics Leader's Guide to Lesson Study in Practice, Gr 6–12 978-0-325-02799-9 / 2010 / 248 pp / **\$25.00** 

Across the world lesson study gives teachers immediate classroom-based feedback that helps them evaluate and improve their instructional effectiveness. They develop a method for ongoing learning about mathematics and the craft of teaching.

In *A Mathematics Leader's Guide to Lesson Study in Practice,* Jane Gorman, June Mark, and Johannah Nikula share the best practices they've learned in leading lesson study teams, training lesson study coaches, and launching lesson study programs in schools. Taking teams beyond understanding how to get started, the guide provides a resource for leaders and teams to use across many lesson study cycles to continually deepen lesson study practices.

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Lesson Study in Practice: A Mathematics Staff Development Course offers a structured introduction to lesson study in a learn-by-doing format. Includes 10 ready-to-go PD sessions and a DVD-ROM with classroom case-study videos and more.

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Responsive

Gr 6-12 / 978-0-325-02800-2 / 2010 / Binder + DVD-ROM + book / \$195.00

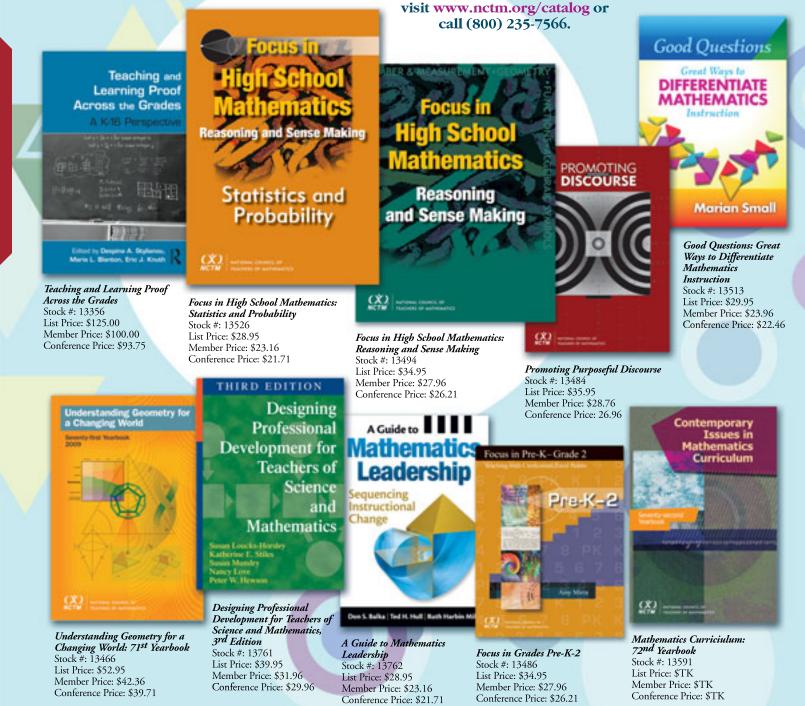
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THURSDAY

# NEW BOOKS

Shop online where you can view tables of contents and sample pages! For more information or to place an order,



All conference attendees will receive a special conference discount of 25% off the NCTM list price on all purchases made in the Bookstore.\* Visit the NCTM Bookstore in the Exhibit Hall!

Store hours: Wednesday 10 a.m.-7 p.m. • Thursday 7 a.m.-5:30 p.m. Friday 7:30 a.m.-5:30 p.m. • Saturday 8:30 a.m.-12 p.m.



NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS \*Conference discount not valid on sale items.

# THURSDAY PLANNER

Plan your conference activities here.

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**L**⊂**R** Learn↔Reflect Strand

■ New Teacher Strand

**CW** Exhibitor Workshop

**NCTM Committee Presentation** 

#### HIGHLIGHTS

- 61st Annual Delegate Assembly (Presentation 4)
- Learn↔Reflect Kickoff (Presentation 69)
- New Teacher Workshop and Kickoff (Presentation 302.1)
- Learn↔Reflect Reflection Session (Presentation 307)
- NCTM President's Address (Presentation 340)

**Registration Hours** 

7:00 a.m.-4:00 p.m.

Exhibits and Cyber Café Hours 8:30 a.m.-5:00 p.m. Bookstore and Member Showcase Hours 7:00 a.m.-5:30 p.m.

#### **Fire Codes**

We have made every attempt to provide adequate seating for participants at the conference, but for your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To conform to fire codes, it will be necessary to ask persons sitting on the floor or standing to leave the room.

#### 7:15 a.m.-7:45 a.m.

#### New Member and First Timers' Orientation (General Interest) Session

New to NCTM? Join members of the NCTM Board to learn how to maximize your membership experience! From journals and online lessons, tools, and activities to networking and career-advancement opportunities, you'll discover all that NCTM has to offer you. First-time attendees, learn how to make the most of your time at the conference.

#### National Council of Teachers of Mathematics **Board of Directors**

National Council of Teachers of Mathematics, Reston, Virginia

6 A (Convention Center)

#### 7:30 a.m.-9:00 a.m.

#### 61st Annual Delegate Assembly

#### (General Interest) Session

This session is a forum for delegates and designated leaders of NCTM Affiliates to make recommendations to the NCTM Board of Directors concerning activities and policies of NCTM and mathematics education.

#### Affiliate Services Committee

National Council of Teachers of Mathematics, Reston, Virginia

6 B (Convention Center)

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#### 8:00 a.m.-9:00 a.m.

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#### The Teacher Development Continuum in China

#### (General Interest) Session

Mathematics teachers in China progress through a sequence of levels with increasing mentoring and curriculum responsibilities. This session will describe how this system works in China, on the basis of findings of the August 2009 conference for Chinese and American mathematics educators sponsored by the U.S. National Commission on Math Instruction.

#### Joseph G. Rosenstein

Rutgers University, New Brunswick, New Jersey

#### Ann Lawrence

Consultant, Washington, D.C.

#### **Rick Scott**

New Mexico Department of Higher Education, Santa Fe 7 B (Convention Center)

#### Connecting Algebra from Grade to Grade! (General Interest) Session

Explore classic problems as algebra develops, grades K–12, in topics such as patterns, functions, and rate of change. Solve problems, view students' work demonstrating connections for concept development. Gain the insight that the structure of problems formed in early grades is the foundation for creating a connected vision of math.

#### Nell W. McAnelly

Louisiana State University, Baton Rouge

Elizabeth Ballroom D/E (Hyatt)

#### 7

#### Promote Number Sense with Effective **Games and Practices**

#### (Pre-K-2) Session

Experience highly engaging activities and instructional strategies that promote students' greater participation and sense making. A ready-to-use handout will help you enhance mathematical reasoning and build your students' confidence. Discover repeatable, adaptable activities that work well at school and home.

#### Laura Lee Choate

Fallbrook Union Elementary School District, California

16 B (Convention Center)

#### 8

#### **Differentiation: Supporting and Challenging All Students**

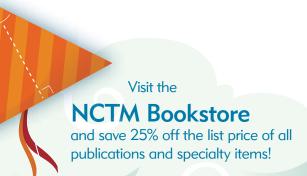
#### (Pre-K-2) Session

The diversity of learning needs in classrooms is growing. By adapting classroom practices that address this growing diversity, teachers can increase the likelihood that curricular outcomes will be met. Come explore how to transform tasks to allow access and success for all students.

#### Amy Cliffe Mayfield

Math Solutions, Sausalito, California

5 B (Convention Center)



#### 9 Supporting Teachers at Crucial Junctures

#### (Pre-K–2, 9–12, Higher Education, Preservice and In-Service) Session

This session will discuss the nature of three graduate-level mathematics education programs that are designed to support teachers at crucial junctures in the mathematics education continuum. Our focuses will be on programs for grades K-3 mathematics specialists, Algebra 1 teachers, and newly certified secondary school mathematics teachers.

#### Ira Papick

University of Nebraska-Lincoln

#### Jim Lewis

University of Nebraska-Lincoln

Molly A/B (Hyatt)

#### 10

# Grades Pre-K-2 Math: It's Mostly about the Numbers

#### (Pre-K-2, Preservice and In-Service) Session

Current recommendations focus on helping students build an understanding of number and number relationships. This begins with helping students build an intuitive feel for number meaning through explorations and experiences. This session will provide teachers with concrete ideas to take back to their own classrooms.

#### **Carol Inzerillo**

Kendall Hunt Publishing Company, Dubuque, Iowa 2 (Convention Center)

#### 11

# Flips, Turns, and Slides: Sorry, This Is Not Dance Class

#### (Pre-K-5) Session

This presentation will give you classroom resources to help your students develop the spatial visualization skills needed to recognize and perform geometric transformation (flips, turns, and slides). Each participant will create their own "Flips, Turns, and Slides" book.

#### **Belinda Phillips Robertson**

Arkansas Center for Mathematics and Science Education, University of Central Arkansas, Conway

10 (Convention Center)

#### 12

# I've Assessed: Now What? New Insights into Data-Guided Instructional Planning

#### (Pre-K–5) Session

IES-funded research examining three years of longitudinal assessment data reveals patterns in students' learning that apply to classroom instruction. Learn about these new patterns and their relevance to your students and instruction. Actual profiles and lesson plans will be shared, as well as guidance on effective classroom implementation.

#### Herbert P. Ginsburg

Teachers College, Columbia University, New York, New York

#### Doug Moore

Wireless Generation, Brooklyn, New York

Douglas Pavilion D (Hyatt)

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#### 13

#### Math Is a Life Skill: Presenting Mathematical Concepts in Contexts That Students Understand

#### (Pre-K–5) Session

Stories that present mathematical concepts within the context of a kid's-world setting help students to understand that math isn't just a school skill: it's a life skill. Visual models help students to understand difficult concepts, make connections to other areas of learning, and build their mathematical comprehension.

#### Stuart J. Murphy

MathStart Series, Boston, Massachusetts

20 D (Convention Center)

#### 14

#### Keeping Up, Not Catching Up: Differentiating Instruction without Differentiating Children

#### (Pre-K–5) Session

For strugglers, timing matters. A little help before a lesson gives a child two chances to learn—the help session, and then the lesson for which the child is more ready. It saves time, doesn't hold the class back, and helps strugglers get the real lesson, not watered down, so they can rejoin the mainstream rather than falling further behind.

#### Shannon Sauder

Cunniff Elementary School, Watertown, Massachusetts

E. Paul Goldenberg Education Development Center, Newton, Massachusetts Elizabeth Ballroom H (Hyatt)

#### 15

#### Investigating the Steps of Statistical Problem Solving in the Elementary Grades (3–5) Session

This session will present classroom-ready activities that involve the process of statistical problem solving. We will examine this process, which involves more than collecting data and making graphs but includes formulating good statistical questions and interpreting the results.

#### Patrick Hopfensperger

University of Wisconsin-Milwaukee

4 (Convention Center)

#### 16

#### Making Sense of Multiplication and Division: Activities, Games, and More! (3–5) Session

Avoid multiplication mayhem and division disaster! From meanings to basic facts to computational procedures, the speakers will use hands-on concrete, pictorial, and symbolic activities. Games and writing activities will show how to develop skills meaningfully. Have marvelous multiplication and dazzling division!

#### Janet H. Caldwell

Rowan University, Glassboro, New Jersey

Manchester Ballroom D (Hyatt)

#### 17

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#### Hop into Mathematics and Science Connections

#### (3-5) Session

Experience inquiry-based projects exploring mathematics content (data collection, geometry concepts, measurement, and graphing) and science content (ecosystems, habitats, adaptations, food chains, and structure and function).

#### **Betty Stephens**

Northern Kentucky University Center for Integrative Natural Science and Mathematics, Highland Heights

Salon 4 (Marriott)

#### 18

#### Teachers' Stories in Action: Ways to Improve Teachers' Geometry Knowledge

#### (3–5, Preservice and In-Service) Research Session

This presentation will demonstrate how to conduct narrative analysis, a qualitative method. Teachers will investigate their knowledge and how to design activities for teachers by using results. This study incorporated the research results with an analysis that used students' work in a set of geometry activities to improve teachers' knowledge.

#### Fatma Aslan Tutak

Bogazici University, Istanbul, Turkey

Gregory A/B (Hyatt)

#### 19

#### It Starts with a Cube

#### (3-8) Session

A cube is the starting point for many rich problems involving even more math concepts. Work your way through factors, combinatorics, volume, surface area, networks, and more by solving Math Olympiad problems. A dozen of these cube problems provide a fresh approach to these topics. More than 50 additional Math Olympiad problems will be distributed.

#### **Dennis Mulhearn**

Math Olympiads, Bellmore, New York

Manchester 1/2 (Marriott)

#### 20

#### Linking Concepts, Context, and Problem Solving through Singapore Math Model Drawing

#### (3-8) Session

Learn how special education students improved their ability to understand and visualize word problems, resulting in improved test performance and more confident students. The presenter will share the model-drawing steps and problems that connect to the real world and reinforce skills and concepts, as well as examples of students' work.

#### Patty E. Smith

Educational Resources Group, Inc., Charleston, South Carolina

15 B (Convention Center)

#### 21

# Teaching through Problem Solving to Develop Concepts in the Context

#### (3-8, Preservice and In-Service) Session

Teaching though problem solving has been a major focus in mathematics education because it helps students develop concepts in context so that they can see connections. Japanese textbooks use contextualized problems to introduce new concepts to students. This session will discuss how you can use problem solving in everyday teaching.

#### Akihiko Takahashi

DePaul University, Chicago, Illinois

6 F (Convention Center)

The NCTM Membership Showcase has activities, lessons, sample journals, and more. Stop by!

#### 8:00 a.m.–9:00 a.m.

#### 22

#### Using Misconceptions and Students' Thinking to Deepen Teachers' Mathematics Knowledge

#### (3–8, Preservice and In-Service) Session

Explore activities intended to develop teachers' knowledge of content and students. Grades 3–8 topics from fractions, algebra, and geometry will situate three types of activities– analyzing students' work, discussing one's own misconceptions, and engaging with research on students' thinking.

#### Mary Lou Metz

Indiana University of Pennsylvania

#### Amy F. Hillen

Kennesaw State University, Georgia

#### **Elizabeth Hughes**

University of Northern Iowa, Cedar Falls

Manchester Ballroom B (Hyatt)

#### 23

#### Journey through the Core

#### (3–12) Session

One of the goals of the team writing the common core standards was to capture the coherence of mathematics. The team identified unifying principles that tie together the disparate topics in school mathematics. The speaker will describe these principles and illustrate with examples how they can provide coherence to the curriculum.

#### William McCallum

University of Arizona, Tucson

#### 6 E (Convention Center)

#### 24

#### Making Sense of Multiplication with Fractions: The Role of Context

#### (6-8) Session

Field-tested, carefully crafted problems that use the context of designing urban playgrounds will be examined, in order to support students' development of big ideas and strategies related to multiplication with fractions and equivalent forms of fractions—decimals and percents. Helpful suggestions for classroom use and materials will be provided.

#### Lynn D. Tarlow

City University of New York-City College

Marina G (Marriott)

#### 25

#### Wikis in the Math Classroom

#### (6-12) Session

Increase classroom communication and collaboration. Create a classroom resource. Discover how wikis can be used in the math classroom. Receive how-to information including lesson ideas, lesson plans, technology tips, and related Web site information.

#### Jennie L. Gibson

Idaho Virtual Academy, Jerome

Edward A/B/C/D (Hyatt)

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#### 26

#### SMART<sup>™</sup> Games That Engage

#### (6-12) Session

Experience exciting, new interactive algebra games using SMART technology that will reinforce your lessons in a fun way. These engaging games can be customized to any grade level. CDs will be given out with the templates already created, waiting for your personal editing. Be prepared to interact, learn, and have fun, just like your students.

#### Karen Lee Compere

Trinity Christian Academy, Addison, Texas

#### Judy Lins

Trinity Christian Academy, Addison, Texas

Elizabeth Ballroom A (Hyatt)

#### 27

# Myth Busters: Engaging Students in Data Representation

#### (6-12) Session

Imagine your students creating their own *Myth Busters* episodes! In this session you will experience the power of giving students choices, integrating technology, and applying data analysis to bring math and science full circle. See several student-made projects and recieve lesson plans and rubrics.

#### Amber Muscarello

Sartartia Middle School, Sugar Land, Texas

#### Anna Lauryn Davila

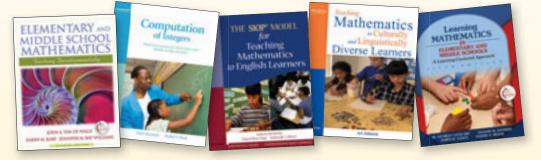
Sartartia Middle School, Sugar Land, Texas

Salon 1/2 (Marriott)

17

# Build Mathematics Instructional Capacity with Help *from* Pearson

#### Learn the Latest Methodology and Teaching Strategies



#### Provide Targeted Improvement in Algebra and Intervention Teaching Strategies

MATHEMATICS INTERVENTION Institutes & Services

ALGEBRA ACHIEVEMENT Institutes & Services **Mathematics Institutes** are designed to help educators and administrators working in kindergarten to tenth grade. Over two-and-a half days, participants will learn proven strategies, techniques, and practices to effectively help every student understand and thrive in mathematics and algebra. Workshops include K-8 Intervention, Foundations of Algebra (K-8), and Rethinking Algebra (6-10).

#### **Build Instructional Capacity in Your District**

When your district is ready to take the next step to improve math instruction, advance student achievement, and build capacity, Pearson's **on-site math training programs** are the solution. Our training supports any curriculum currently in use, including Pearson's research-based programs, and is tailored to your district's specific needs to help you get results that matter.



# Join us in **BOOTH #1023** to check out our newest offerings!



#### 28

#### Lines of Best Fit: Fact and Fiction?

#### (6-12) Session

It's easy to push the LinReg button, but how and why does a line of best fit really work? What does "regression" mean? How is that related to correlation? And what common misunderstanding appears frequently in textbooks and on tests?

#### David Bock

Ithaca High School, New York

11 B (Convention Center)

#### 29

#### Patty Paper Geometry on the Go!

#### (6-12) Session

Start easy and go far folding your way to sophisticated geometric reasoning you and your students will find irresistible! Explore how patty paper activities can motivate students to talk about geometry, use and increase their mathematical vocabulary, discover and retain important geometric ideas, and persist in wrestling with challenging problems.

#### Jenny K. Tsankova

Roger Williams University, Bristol, Rhode Island

#### Polina Dina Sabinin

Boston University, Massachusetts

6 A (Convention Center)

#### 30

#### **Strengthening Connections among Representations of Algebraic Functions**

#### (6-12) Session

Connecting the symbolic, verbal, tabular, and graphical representations of algebraic functions will help students improve their depth of understanding and fluency. Shared strategies will emphasize these connections and foster an environment that encourages students' conjectures when studying linear, nonlinear, and piecewise functions.

#### Elizabeth Kim McClain

University of Kansas, Lawrence

#### Susan Gay

University of Kansas, Lawrence

Manchester Ballroom H (Hyatt)

#### 31

#### **Connecting Algebraic Ideas in Middle and High School Mathematics**

#### (6–12) Session

What does it mean for a student to have a coherent experience of algebra in middle and high school? Participants in this hands-on session will trace core algebraic ideas from middle school through high school mathematics using two NSF curricula, Connected Mathematics Project 2 and the high school CME Project, both published by Pearson.

#### Sarah Sword

Education Development Center, Inc., Newton, Massachusetts

**Bowen Kerins** Education Development Center, Inc., Newton, Massachusetts Salon 3 (Marriott)

#### 32

#### **Teaching for Understanding and Its Impact** on Learning in Algebra

#### (6-12, Higher Education) Session

The speakers will discuss a student-friendly framework designed to develop habits of mind (predicting, applying, representing, justifying, comparing) that help students learn algebra with understanding. They will share data from a project that evaluates the use of this framework. Participants will leave with tasks and rubrics used.

#### Jon Hasenbank

University of Wisconsin-La Crosse

#### Jennifer Kosiak

University of Wisconsin-La Crosse

6 C (Convention Center)

#### 33



#### Making Mathematics "Real" (6–12, Higher Education) Session

A critical-thinking approach encouraging the development of mathematical intuition and student interaction (while discouraging blind reliance on algorithms) is described. Concrete examples come from experiences in the ultimate

test-bed of linking mathematical concepts and context: beginning calculus classes with 200-plus students.

Donald Saari is a mathematician interested in dynamic systems with emphases ranging from the evolution of the universe and chaotic price dynamics to voting theory and the evolution of social norms. He directs a research institute in California that emphasizes the math of the social and behavioral sciences. His interest in teaching challenged him to find a way to teach math so that students in a class of more than 200 could outperform those in smaller classes.

#### **Donald Saari**

Institute for Math Behavioral Sciences, University of California-Irvine

20 A/B/C (Convention Center)

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#### 8:00 a.m.-9:00 a.m.

#### 34

#### Making Dynamic Connections between Algebra and Geometry

#### (9-12) Session

Assist students in connecting applications, linear equations and coordinate geometry using geometry software. The presentation will make use of Geogebra, a free program. Applications of interest to high school students will be examined and lesson outlines will be provided so that you can use the materials or modify them to fit your needs.

#### Amy B. Bell

A. C. Flora High School, Columbia, South Carolina 17 B (Convention Center)

#### 35

#### Why Does a Soccer Ball Have 12 **Pentagons?** (9-12) Session

We spend most of our geometry classes on 2-D figures, but we live in a 3-D world! Improve students' ability to think in 3-D by studying Eüler's formula and some extensions for regular and semiregular polyhedra using manipulatives, photos of real-life models, and software. See how a soccer ball is manufactured and why it has exactly 12 pentagons.

#### Laurie Bass

Ethical Culture Fieldston School, Bronx, New York

**Douglas Pavilion B (Hyatt)** 

#### 36

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#### The Equivalence of Coffee Cups and Doughnuts

#### (9-12) Session

This session will explore some elements of topology, mathematics often only for advanced undergraduates that is accessible to talented students before calculus. Investigate geometric properties from a first proof course such as sets, functions, or knot theory, and receive both a proof-based and a hands-on introduction to topology.

#### Joshu Fisher

Johns Hopkins University-Center for Talented Youth, Baltimore, Maryland

14 B (Convention Center)

#### 37

#### Sliding through Calculus: Using Sliders and Animations to See Patterns and Change

#### (9-12, Higher Education) Session

Computer animations help students visualize concepts. patterns, and change in calculus. The speaker will compare several software programs, show examples, and discuss possibilities for using animations effectively in the classroom with students.

#### Ruth Dover

Illinois Mathematics and Science Academy, Aurora San Diego Ballroom B (Marriott)

#### 38

#### **Connecting Simple Physical Phenomena** to Fundamental Concepts of Calculus

#### (9–12, Higher Education, Preservice and In-Service) Session

This session will show how familiar phenomena can be used to explore concepts in calculus. Data streaming collects and displays data at high rates in real time. The data is used to develop a mathematical model. The model leads to mathematical discourse on concepts. A computer algebra system will lift the discourse further to pure mathematics.

#### G. T. Springer

Hewlett-Packard Company, San Diego, California

#### Manchester Ballroom C (Hyatt)

#### 39

#### Math Phobic? Answers to Real Problems

#### (Higher Education) Session

This presentation will give strategies to help identify math-phobic students and, more important, strategies that college professors can use to help reduce math anxiety. Come prepared to start reducing and eliminating math phobia!

#### Amelia Ann Allen

Monmouth University, Long Branch, New Jersey

#### Harvey Allen

Monmouth University, Long Branch, New Jersey

Elizabeth Ballroom C (Hyatt)

Participate in the Learn⇔Reflect Strand on Thursday! L'Eppi. KdA

#### 40

#### Brain-Based Strategies to Promote Learning Mathematics for All Students

#### (Preservice and In-Service) Session

How is a child's perception of a concept determined by the child's experiences? How do students "experience" concepts of number or algebra? How is learning mathematics anchored through visual and concrete manipulatives? This session will address brain-based strategies to help all students actively participate in learning mathematics.

#### Candace Yamagata

EC Educational Consulting, Orem, Utah

#### Yvonne Randall

Touro University Nevada, Henderson

#### Helen McAnany

Fertitta Middle School, Las Vegas, Nevada

6 D (Convention Center)

#### **EW 41**

#### Math Out of the Box®—a Numbers Game! (General Interest) Exhibitor Workshop

8:30 a.m.-9:30 a.m.

Discover patterns in the world around us through addition, subtraction, multiplication, division, fractions, decimals, and probability in Math Out of the Box, an inquiry-based curriculum developed at Clemson University.

#### **Carolina Biological Supply Company**

Carolina Biological Supply Company, Burlington, North Carolina

1 B (Convention Center)

#### **ew 41.1**

#### Aim for Algebra: Not Business As Usual (General Interest) Exhibitor Workshop

Learn about an engaging algebra intervention program that helps students overcome common barriers to success in algebra. Aim for Algebra is a conceptually-based, standardsaligned supplementary program organized in a modular format allowing for easy implementation, flexible programming, and individualized student placement.

#### Mardi Gale

It's About Time, Armonk, New York

Torrey (Marriott)

#### **EW 42**

#### **Response to Intervention - Mathematics** (K–6) Exhibitor Workshop

From universal screening and progress monitoring to intensive intervention, learn about different solutions for providing intervention around mathematics in your classroom.

#### Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

#### 43

#### Composing and Decomposing Numbers: An Important Prerequisite Math Skill

#### (Pre-K–2) Gallery Workshop

Research suggests that between the ages of 9 and 12, the brain matures enough to take things apart and put them together in new ways. Yet many states expect second graders to add and subtract "whether or not regrouping is necessary." How can we provide early mathematical experiences to help support this expectation?

#### Dinah Lee Chancellor

D. R. Chancellor, Inc., Southlake, Texas

5 A (Convention Center)

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#### 44

#### Big Ideas for Little People: Important Things after Counting (Pre-K–2) Gallery Workshop

This presentation will address four foundational big ideas about numbers that will help children be successful in mathematics. The focus will be how to develop children's understanding of these number relationships in whole-class lessons and small-group activities or centers.

#### **Carollee Norris**

Peace River North School District, Fort Saint John, British Columbia, Canada

Potev	A/D/C	(Luvatt)
Betsv	A/B/C	(Hvatt)

#### 45

#### Focal Points + Manipulatives + Theme = Learning for Understanding!

#### (Pre-K–2) Gallery Workshop

Using ideas from NCTM's Focal Points, we will share grades pre-K–2 activities using games and manipulatives. Ideas will focus on the number and operation strand using common themes–farm, rain forest, ocean, and carnival.

#### Jeannie Gee

Des Moines Public Schools, Iowa

Salon 6 (Marriott)

#### 46

#### Catch the Attribute Train!

#### (Pre-K-5) Gallery Workshop

Participants will explore how the use of SMART Board technology, attribute and pattern blocks, games, and graphic organizers can enhance children's understanding of patterns, relationships, and functions. Attendees will leave with readyto-use activities and lessons for their classrooms.

#### Susan H. Davies

Fairfax County Public Schools, Springfield, Virginia

3 (Convention Center)

#### 8:30 a.m.–10:00 a.m.

#### 47

# Contextual Problem Solving: It's More than a Story Problem

#### (Pre-K–5) Gallery Workshop

This interactive presentation will examine the differences between story problems connected to school mathematics and contextual problems based on students' experiences. Participants will view videos of students engaged in problem solving and discuss how contextual problems encourage meaningful approaches to a solution.

#### Laurel Marsh

Howard County Public Schools, Columbia, Maryland

#### Kay Sammons

Howard County Public Schools, Columbia, Maryland

14 A (Convention Center)

#### 48

# Rhythm and Hues: Teaching with the SMART Board™ and TI-10

#### (Pre-K–5, Preservice and In-Service) Gallery Workshop

Discover how the SMART Board, TI-10, music, literature, and manipulatives can build conceptual understanding and make learning mathematics fun! Hands-on activities will include unique features of the SMART Board and TI-10. Special needs will be addressed. Participants will leave with ready-to-use lessons.

#### **Christine Ruda**

Teachers Teaching with Technology (T<sup>3</sup>), Miami, Florida Manchester Ballroom E/F (Hyatt)

#### 49

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# Leading a Schoolwide Effort to Increase Number Sense for All!

#### (Pre-K–8) Gallery Workshop

"I could teach \_\_\_\_, if only they had \_\_\_\_," or "They don't know their math facts." Math Leaders hear these comments all the time. This presentation will examine your own beliefs about number sense and how to help teachers help students become flexible with numbers. Leave with brain-compatible strategies to implement in your own schools.

#### Debbie Scruggs

Kokopelli Educational Consulting, Albuquerque, New Mexico

Marina F (Marriott)

#### 50

#### Children's Literature and Mathematics: Connecting and Extending

#### (3–5) Gallery Workshop

Many current children's literature books provide opportunities for teachers to connect the mathematics with other areas. How do the activities fit with your lessons? How can NCTM's Curriculum Focal Points and connections be implemented using children's literature? A variety of materials will be provided.

#### **Richard Callan**

Bunker Hill Elementary School, Indianapolis, Indiana

#### Don S. Balka

Saint Mary's College, Notre Dame, Indiana

Elizabeth Ballroom G (Hyatt)

#### 51

# Connecting the Student's Toybox with the Teacher's Mathematical Toolbox

#### (3–5) Gallery Workshop

Can playing with bubbles or balloons help my high-stakes assessment results? Experience ways to enrich mathematical knowledge and deepen understanding using everyday toys in order to address content standards. Simple items will be used to demonstrate fun, easy-to-implement tasks that reinforce the skills necessary for students' achievement.

#### Jeremy J. Winters

Middle Tennessee State University, Murfreesboro

#### Leslie Marrie Lasater

Campus School, Middle Tennessee State University, Murfreesboro

#### **Cindy Cliche**

Campus School, Middle Tennessee State University, Murfreesboro

#### Manchester Ballroom I (Hyatt)

#### 52

#### **Measurement Mania**

#### (3–5) Gallery Workshop

Are you looking for creative ways to help students master concepts in measurement? Try out these classroom ready, hands-on activities that engage and motivate students. Have you ever been in a metric lineup? Created your measurement mug? Built a weight wall? Find out how! Be part of the measurement mania!

#### **Connie Horgan**

Jerome School District, Idaho

Salon 5 (Marriott)

#### 53

#### How to Love 3-D Geometry

#### (3–8) Gallery Workshop

Come to enrich your teaching of spatial geometry through play and games. You will build the most symmetrical solids and play with decomposition to nets to discover what solids can be build with given nets. You will find out how to represent and show with simple materials the abstract 3-D constructs such as height and diagonal.

#### Aniceta Skowron

Geometro, Ancaster, Ontario, Canada

11 A (Convention Center)

#### 54

#### Using Origami in an Algebra Class, Meaningfully

#### (6–8) Gallery Workshop

Change is an essential concept in algebra. Using origami we will explore how length, area, and volume change as a function of the size of the paper that is folded. Models will be built and used with extensions beyond what we will do in this gallery workshop. Teaching algebra is not a prerequisite to benefit from this presentation.

#### Joseph R. Georgeson

University School of Milwaukee, Wisconsin

16 A (Convention Center)

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#### 55

# Beyond M&M's and Cheerios: Making Data Collection and Analysis Fun!

#### (6-8) Gallery Workshop

Let's make statistics fun! Participants will actively collect and engage in a variety of hands-on data-collection activities to generate data suitable for scatterplots, trend, box-and-whiskers plots, bar graphs, histograms, and other descriptive statistics. Handouts with many other activities will be included.

#### **Colleen Watson**

James Madison University, Harrisonburg, Virginia Douglas Pavilion C (Hyatt)



#### 8:30 a.m.–10:00 a.m.

#### 56

#### Body Parts, Livestock, and Bacteria: Algebra Contexts for Middle Grades

#### (6-8, Preservice and In-Service) Gallery Workshop

This gallery workshop will focus on explorations designed to help students develop their algebraic thinking with a variety of concepts and relationships. These explorations help students connect algebra to a variety of contexts and are useful in fostering rich discussions in the mathematics classroom.

#### Terry Goodman

University of Central Missouri, Warrensburg

#### Ann McCoy

University of Central Missouri, Warrensburg

8 (Convention Center)

#### 57

#### Making Math Come Alive by Working on Problems of Living Mathematicians

#### (6–12) Gallery Workshop

Can your students name three professional living musicians and athletes? Of course. Can they name three living professional mathematicians or any of their problems? Can you? In this gallery workshop we will explore some rich, contemporary problems that are accessible to middle school students and learn about some of the mathematicians connected to these problems.

#### James R. Matthews

Siena College, Loudonville, New York

Manchester Ballroom G (Hyatt)

#### 58

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#### Math on the Move: Making Connections! (6–12) Gallery Workshop

Come prepared to move! Using lessons that helped the speaker's students make connections and be successful, participants will kinesthetically and visually explore the connections in the order of operations, integer operations, greatest common factor and lowest common multiple using prime factorization, properties of polygons, and other topics.

#### Julie Nurnberger-Haag

Michigan State University, East Lansing

San Diego Ballroom A (Marriott)

#### 59

#### Creating an "Algebra for All" Toolkit

#### (6-12) Gallery Workshop

Do you teach algebra to English language learners, students with disabilities, or unmotivated students? If so, come "fill your toolkit" with hands-on activities, games, graphic organizers, puzzles, discovery lessons. and journaling ideas to make algebra truly accessible for *all*.

#### Sharon Bryant Hoffert

Chesterfield County Public Schools, Midlothian, Virginia 15 A (Convention Center)

#### 60

#### Pyramids, Cubes, and Stellated Octahedrons: Hands-On, Geometric Origami

#### (6–12) Gallery Workshop

Learn to build various 3-D geometric figures, including the beautiful stellated octahedron, from colorful origami paper! While folding the basic building units and constructing the final "spiky-ball" structure, the speaker will address geometric concepts that arise during the process, including quadrilaterals, triangles, angles, and surface area.

#### Mansoor Kapasi

Los Angeles Unified School District, California

9 (Convention Center)

#### 61

#### Geometry Investigations for 2010

#### (6-12) Gallery Workshop

Does every Pentomino tile the plane? What are all the Archimedean tilings? What is Pick's formula? What is origamics? Can you solve the challenging geometry constructions needed to design the stained-glass windows and tracery of gothic cathedrals? If these are new to you, come explore some unusual and very cool geometry investigations.

#### Michael Serra

Key Curriculum Press, Emeryville, California

Douglas Pavilion A (Hyatt)

#### 62

# Connecting the Concrete to the Abstract through 3-D Puzzles

#### (6-12) Gallery Workshop

Three-dimensional puzzles are a powerful, engaging tool to help students conceptualize important geometric concepts. Through the use of analysis, paper folding, compasses, and computer drawing tools, participants will create nets and construct puzzles while reflecting on the powerful underlying geometric concepts.

#### Joyce Evelyn Frost

Finn Hill Junior High School, Kirkland, Washington

Manchester Ballroom A (Hyatt)

#### 8:30 a.m.–10:00 a.m.

#### 63

# Increasing Accessibility to Algebra and Geometry for All Students

#### (6–12) Gallery Workshop

Make math accessible to all students by using graphic organizers (rule-of-four links sheets, webs, splashes, sorts, matches). The presenter will model helping students build on prior knowledge and communicate what they can do using multiple representations. Participants will have access to our Web site with more than 200 organizers for grades 6–12.

#### **Carol Hynes**

Retired, Leominster Public Schools, Massachusetts Marina E (Marriott)

#### 64

#### Making Secondary School Mathematics More Visual: Using Algebra Tiles from Integers to Factoring

#### (6–12) Gallery Workshop

Manipulatives in a secondary school math classroom? See how it works. Participants will use algebra tiles in a variety of situations. Operations on polynomials will be explored from factoring through completing the square. The important part is transitioning from the concrete (manipulative) to the abstract (paper and pencil).

#### Virginia Head

College Preparatory Mathematics, Grand Prairie, Texas San Diego Ballroom C (Marriott)

#### 65

#### It's All about the Rectangle!

#### (6–12, Preservice and In-Service) Gallery Workshop

Did you know that the formulas for the areas of many plane figures are based on the rectangle? Make hands-on models of figures, such as trapezoids, circles, and regular polygons. Use models to develop formulas. Discuss how these activities can be used to differentiate instruction in diverse classrooms. Classroom-ready materials will be provided.

#### Teri Willard

Central Washington University, Ellensburg

#### Mandy McDaniel

Boise State University, Idaho

Marina D (Marriott)

#### 66

# What's New in Visualization? I Can See the Math!

#### (6–12, Preservice and In-Service) Gallery Workshop Presidents' Series presentation

Using some of the latest software and technology tools available, explore ways in which students can make discoveries that can sometimes be difficult to grasp. The speaker will focus on latest developments with Sketchpad V5. Optional: Bring a fully charged laptop for a hands-on experience.

#### David Kapolka

Council of Presidential Awardees in Mathematics, Alto, Michigan

Elizabeth Ballroom F (Hyatt)

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#### 67

# Making Connections: There Really Is a Use for Why We Do That!

#### (9-12) Gallery Workshop

Square root functions, reciprocal functions, trig functions and rational functions: "Why do we need to know this?" In this gallery workshop we will explore problems that connect the mathematics that is taught to the real world. The examples will span Algebra 1 to precalculus. Be prepared to use your graphing calculator to help make the connections.

#### Fred Decovsky

Teachers Teaching with Technology, Millburn, New Jersey

17 A (Convention Center)

#### 68

#### Classroom Investigations to Improve Students' Understanding of Limits and Derivatives

#### (9–12, Higher Education) Gallery Workshop

This presentation will share several investigations used in the classroom to help strengthen students' understanding of limits and derivatives. The speaker will discuss some ideas for developing these investigations and offer reproducible copies to use in your classes. All levels of teaching experience are welcome.

#### Ken M. Collins

Charlotte Latin School, North Carolina

Elizabeth Ballroom B (Hyatt)





Cambium LEARNING<sup>®</sup> Group

# New Company. Same Mission.

We are excited to announce that Cambium Learning, Inc. and Voyager Learning Company have joined together to form the leading provider of intervention curricula, educational technologies, and services for the PreK–12th grade market in the United States.

As one company, we remain steadfast to our mission to help all students achieve their full academic potential. The three core divisions—Voyager, a comprehensive intervention business; Sopris, a supplemental solutions business; and Cambium Learning Technologies—will be primarily focused on serving the needs of the nation's most challenged learners and those realizing their full potential.

We look forward to continuing to provide our customers with our proven solutions and exceptional service.





Cambium LEARNING® Technologies

(800) 547-6747 www.cambiumlearninggroup.com

#### LCR 69

#### Making Math Much More Accessible to **Our Students**

Learn↔Reflect Kickoff Session

#### (General Interest) Session

This fast-paced, up-beat presentation will identify and model a set of practical, easy-to-adopt instructional strategies that significantly enhance mathematical learning and retention at all grades. Look at how adopting a few daily routines and shifting a few crucial mindsets can pay rich dividends in long-term mastery and test scores.

#### **Steven Leinwand**

American Institutes for Research, Washington, D.C.

6 A (Convention Center)

#### 70

#### **Developing Early Numeracy for** Prekindergarten: The Power of Small Numbers

#### (Pre-K-2, Preservice and In-Service) Session

The presenter will share ideas to encourage early numeracy for young children, such as the use of multiple visual models and partner games. Participants will experience activities and literature to help young children make connections.

#### Patsy Kanter

PK Consultants, New Orleans, Louisiana

14 B (Convention Center)

#### 71

#### String Beans and Tommy Tomatoes; Mathematics Is Growing Green

#### (Pre-K-2, Preservice and In-Service) Session

Mathematical proficiency grows for students, teachers, and parents when they are engaged in nurturing number sense of more, less, and same; part-part-whole; and early spatial sense. Participants will use literature-based experiences, graphic organizers, and assessment tools for linking concepts in the context of a mathematical garden.

#### Lana Bray Thomas

University of Louisville, Kentucky

#### **Elizabeth Todd Brown** University of Louisville, Kentucky

Edward A/B/C/D (Hyatt)

#### 72

#### How Do You Know That Makes Sense? (Pre-K-5) Session

See how children use a measurement context to explore the concepts of equality and inequality. This session will share questioning and other strategies a teacher can use to facilitate the development of students' reasoning abilities.

#### Linda Venenciano

University of Hawaii, Honolulu

Hannah Slovin University of Hawaii, Honolulu

Maria DaSilva University of Hawaii, Honolulu

10 (Convention Center)

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#### 73

#### Algebraic Strategies for Enhancing Visual **Discrimination and Numeracy in Children** (Pre-K-5) Session

Explore a variety of easy-to-learn strategies for introducing algebraic symbols as a learning tool for children in the early grades. The presentation will focus specifically on how algebraic symbol manipulation will enhance visual discrimination and numeracy skills. Participants will also learn ways to document the effects of these strategies.

#### Suzy Koontz

Math Made Fun, Ithaca, New York

6 F (Convention Center)

#### 74

#### **Response to Intervention (RTI) and Math: Completing Your Assessment Plan!**

#### (Pre-K-5) Session

Please join us to learn how a regional educational service agency in Ottawa developed and implemented a large scale RTI model for math. This model includes screening for number sense, data analysis, targeted interventions, and progress-monitoring tools for grades 1-6. Sample screeners and intervention tools will be shared.

#### **Michael Klavon**

Ottawa Area Independent School District, Holland, Michigan

#### **Robyn Lucas**

Ottawa Area Independent School District, Holland, Michigan **Douglas Pavilion D (Hyatt)** 

#### 9:30 a.m.–10:30 a.m.

#### 75

#### Making Equity Real in a Multicultural District through Professional Development (Pre-K–8) Session

Meeting the needs of all in a large, multicultural school district can be a challenging process, but well worth it when students' achievement scores continue to improve year after year. Learn how our all-inclusive, synchronized effort between an outside mathematics consultant and a district coordinator has resulted in data we are proud to share.

#### Claran Einfeldt

C Math 2, Inc., Bradley, Illinois

Janice Taylor Joliet Public Schools, District 86, Illinois

Salon 3 (Marriott)

#### 76

#### The Art of Smart

#### (Pre-K-8, Preservice and In-Service) Session

What's the goal, to make kids great in computations or great in problem solving? Neither: the goal is to make them smart! Join us as we explore a new teaching paradigm that develops algebraic thinking in even the youngest students. See how a few crucial changes to your teaching practice can produce better math students and smarter kids.

#### Greg Tang

Houghton Mifflin Harcourt, Cambridge, Massachusetts

20 A/B/C (Convention Center)

#### 77

R

#### Spatial Relations: Building Problem-Solving Skills through a "Stacking" Approach

#### (3–5) Session

Children view the world more through perceptions than knowledge. Appropriate hands-on math and science activities will be demonstrated with videos from lessons taught by student teachers. From shadows to cross sections, models to mirrors, see children develop mathematical and scientific concepts using topology, perspectives, and projections.

#### Jean Morrow

Emporia State University, Kansas

#### Nancy Tanner Edwards

Missouri Western State University, Saint Joseph

11 B (Convention Center)

#### 78

#### **Fractions without Distraction**

#### (3-5) Session

Learn to eliminate "fraction phobia" using mnemonic devices, number lines, tortillas, and more. See fun, effective, research-based activities and unique teaching tools for differentiated instruction. Learn to "smart teach" fractions. There will be door prizes and handouts!

#### Sandra White

Lone Star Learning, Lubbock, Texas

17 B (Convention Center)

#### 79

#### Wrapping Around: Understanding Fractions and "Super" Units

#### (3-5) Session

The speakers' team of teachers and researchers developed a lesson to help students build knowledge of units and quarter units of length as they measure. They will describe the transition from tutoring students to a whole-class lesson involving wrapping that was developed to address the struggles relating quarter units and units along a ruler.

#### Chepina Witkowski

Illinois State University, Normal

#### Ronda Wilder

Thomas Metcalf Elementary School, Normal, Illinois

Roberta Maubach Thomas Metcalf Elementary School, Normal, Illinois Karen Irvin

Thomas Metcalf Elementary School, Normal, Illinois

Michelle Mueller Thomas Metcalf Elementary School, Normal, Illinois Craig Cullen

#### Illinois State University, Normal

5 B (Convention Center)

#### 80

#### Who Has Time for Development over Time? Helping Students Acquire Both Conceptual and Procedural Knowledge

#### (3–5) Session

If you think you don't have enough time to develop your students' conceptual and procedural knowledge thoroughly, then this session is for you. Through a series of tasks, participants will explore how students' learning progresses from conceptual to procedural knowledge. Emphasis will be given to what "development over time" looks like.

#### Shannon E. Harmon

Mississippi Council of Teacher of Mathematics, University Douglas Pavilion B (Hyatt)

#### 81

# Teaching Investigations Math with SMART<sup>™</sup> Board Technologies

#### (3–5) Session

The presenters will demonstrate how to incorporate SMART Board technologies into teaching the Investigations math program. Participants will be shown dozens of Investigations activities and games (made in notebook 10) on the SMART Board, as well as how to use the SMART document camera as part of an effective math lesson.

#### **Kelle Singleton**

Oakridge Elementary School, Arlington, Virginia

#### **Greg Chapuis**

Oakridge Elementary School, Arlington, Virginia

#### Karen Heathcock

Oakridge Elementary School, Arlington, Virginia

Elizabeth Ballroom A (Hyatt)

#### 82

#### Creating Comics: Connecting Mathematics, Art, and Writing to Explain Concepts

#### (3-8) Session

Writing graphic stories (i.e., comics) are a fun, efficient way for students to make connections among concepts, represent and communicate their understandings to others, explain their reasoning, and develop their problem-solving skills. Come learn how to use math comic writing with students, see sample comics, and build a demonstration comic.

#### **Leslee Francis-Pelton**

University of Victoria, British Columbia, Canada

#### **Tim Pelton**

University of Victoria, British Columbia, Canada

#### Karen Moore

Eastern School District, St. John's, Newfoundland and Labrador, Canada

7 B (Convention Center)

#### 83

#### Making Connections among Concepts, Procedures, Representations, and Contexts (3–8) Session

Mathematics teaching in Japan centers on problem solving, and textbooks include carefully selected and coherently sequenced problems. This session will examine how a Japanese elementary school math textbook series uses problems to help students develop a web of connections among concepts, procedures, and representations using problem contexts.

#### Tad Watanabe

Kennesaw State University, Georgia

San Diego Ballroom B (Marriott)

#### 84

# Adapting Instruction to Promote Equity for Special-Needs Students, Grades 3–8

#### (3-8, Preservice and In-Service) Session

This session will discuss research-based strategies that adapt mathematics instruction to make it equitable for specialneeds students. The speakers will demonstrate how to adapt a problem that integrates several areas of geometry (surface area, volume, and measurement), using these strategies for grades 3–8 and a variety of special needs.

#### Julie Sliva Spitzer

San Jose State University, California

#### Cheryl D. Roddick

San Jose State University, California

Elizabeth Ballroom C (Hyatt)

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#### 85

#### Preservice Teachers Learn to Use Literature to Connect Children's World to Mathematical Ideas

#### (3-8, Preservice and In-Service) Session

This session describes how the book *Spaghetti and Meatballs for All* was used as a catalyst to help prospective elementary school teachers develop skills in connecting students' world to area, perimeter, and algebraic thinking.

#### Blidi S. Stemn

Hofstra University, Hempstead, New York

#### 86

#### You're Not in Math Class Any More! Integrating Math across the Curriculum

(6–8) Session

It is the responsibility of every mathematics teacher to help students recognize and apply mathematics outside the contexts of mathematics. Connecting mathematics to other subject areas is an exciting way to capture students' interests. This presentation will look at examples of how mathematics can be connected to other subject areas.

#### **Mark Evans**

Saint Callistus School, Garden Grove, California

Manchester 1/2 (Marriott)

<sup>6</sup> E (Convention Center)

#### 9:30 a.m.-10:30 a.m.

#### 87

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#### The MATHCOUNTS Club Program: Free, Easy, Fun, and Effective!

#### (6–8) Session

The MATHCOUNTS Club Program is a free program every middle school math teacher can use in and out of the classroom. We provide all the standards-based activities and students' incentives you need! Join us as we go through the Club-in-a-Box, the online resources, and the prizes that make this club a must-have in every middle school.

#### **Kristen Chandler**

MATHCOUNTS, Alexandria, Virginia

Manchester Ballroom B (Hyatt)



#### 88

#### Interactive Classroom Activities That Enhance Mathematical Reasoning and Problem Solving

#### (6-8) Session

This session will showcase a collection of hands-on, action-oriented classroom activities, designed to develop and enhance numerical, geometric, and algebraic reasoning and skills when presented interactively. These dynamic activities support the belief that mathematics must tickle the senses as well as stretch the mind.

#### Evan M. Maletsky

Montclair State University, New Jersey

Manchester Ballroom D (Hyatt)

#### 89

#### Linking Arithmetic and Algebraic Thinking (6–8) Session

This session will engage participants in activities and discussions that link algebraic thinking instruction to arithmetic instruction. Specific content focuses will be on equivalence and properties.

#### Genni Steele

Math Solutions, Saint Paul, Minnesota

Manchester Ballroom H (Hyatt)

#### 90

#### Addressing Misconceptions Using Open-Source, Interactive Technologies

#### (6-8) Session

This interactive session will introduce the combined use of formative assessment prompts and interactive technologies to elicit and address students' known misconceptions as revealed by research. Focus topics will include identifying, locating, comparing, and operating with rationale numbers. Additional content areas will be discussed.

#### **Cheryl Rose Tobey**

Educational Development Center, Gardiner, Maine

Salon 4 (Marriott)

#### 91

# Teaching Fractions: Is It Poetry or Mathematics?

#### (6-8, Higher Education) Session

Why are students not learning fractions? The speaker will describe a likely general reason: if we continue to teach fractions—or, in fact all school mathematics—solely by the use of analogies, metaphors, and allusions rather than precise mathematical language, students will continue not to learn.

#### Hung-Hsi Wu

University of California Berkeley

16 B (Convention Center)

## Reading and Rhyming in the 'Rithmetic Classroom

#### (6–12) Session

Explore the mathematical structure of poetry as we examine a variety of styles in this genre. Learn techniques designed to enable you to spark your students' creativity as they discover ways to express mathematical concepts in verse. You may encounter your own "inner poet!"

#### Martha Hildebrandt

Chatham University, Pittsburgh, Pennsylvania

#### Barbara Biglan

Chatham University, Pittsburgh, Pennsylvania

Elizabeth Ballroom H (Hyatt)

#### 93

## A SMARTer Way to Teach Math: Use SMART Notebook™ Math

#### (6-12) Session

Get an interactive look at the new SMART Notebook mathematics software. Participants will have the opportunity not only to observe, but also to take part in using the many new features relating to algebra, geometry, and other concepts. Get ideas about lesson creation, classroom instruction, and students' engagement from middle school classroom teachers.

#### Jill Lyttle

Kenmore Middle School, Arlington, Virginia

#### **Michelle Meehan**

Kenmore Middle School, Arlington, Virginia

Manchester Ballroom C (Hyatt)

#### 94

## Can Three Wrongs Make a Right? Drive Students' Thinking with Test Items

#### (6-12) Session

We use items from large-scale math tests with our students, but can we use them for more than drill, to help drive their thinking to higher levels? Absolutely! Using case studies, the speaker will build insights into item and test construction and explore methods and strategies to make test items into tools that really get students thinking.

#### Sendhil Revuluri

Chicago Public Schools, Illinois

Salon 1/2 (Marriott)

#### 95

#### Fractions from the Ground Up

#### (6–12, Higher Education) Session

Many students begin eighth-grade algebra with a very rudimentary understanding of algorithms for fraction operations, which increases the likelihood that they will need to take algebra a second time. Explore some language issues and visual models that better connect fraction and operation concepts to students' experience.

#### **Lewis Philip Douglas**

Lawrence Hall of Science, Berkeley, California

*Elizabeth Ballroom D/E (Hyatt)* 

#### 96

#### We Are Leaving Our English Language Learners (ELLs) Behind: How Teachers Can Help Prevent It

#### (6–12, Higher Education, Preservice and In-Service) Session

ELLs typically score low on state assessment tests. They need to learn mathematics language in the context of mathematics lessons. This session will offer tested classroom activities that help students practice geometric vocabulary, with an emphasis on implementing the Texas English Language Proficiency Standards.

#### **Bill Jasper**

Sam Houston State University, Huntsville, Texas

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2 (Convention Center)
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#### 97

## Searching for Solutions to Solution Sets (9–12) Session

What does it mean to solve an equation or a system of equations? Explore this question to gain insight into teaching and assessing these important concepts. Experiences and discussions with NSF Mathematics Leadership Institute lead teachers will be shared focusing on the common misconceptions about the nature of solution sets.

#### **Richard Parr**

Rice University School Mathematics Project, Houston, Texas

#### Anne Papakonstantinou

Rice University School Mathematics Project, Houston, Texas 15 B (Convention Center) Т

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#### Algebra Explained through Magic!

#### (9–12) Session

Magic tricks that are explained by using algebra will be presented. First the trick will be presented with cards, number cubes, calendars, or mental patterns. Then the trick will be explained showing the algebra that the teacher can share with their students.

#### John Gregory

University of Florida, Gainesville

#### 20 D (Convention Center)

#### 99

### Transform Geometry with Transformations

#### (9–12) Session

Students come to geometry with a basic understanding of transformations. So, why not begin with what they know? This session will provide a series of hands-on activities that develop conceptual understanding of the properties of triangles and quadrilaterals in connection to students' knowledge of transformations.

#### Colleen McLean Eddy

University of North Texas, Denton

#### **Kevin Hughes**

Arlington Independent School District, Texas

#### Vincent Kieftenbeld

University of North Texas, Denton

#### Carole Hayata

University of North Texas, Denton

6 B (Convention Center)

#### 100

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#### Focus in High School Mathematics: **Reasoning and Sense Making**

#### (9–12) Session

NCTM has recognized the need to promote new discussion around high school mathematics. This session will provide participants an opportunity to discuss NCTM's Focus in High School Mathematics: Reasoning and Sense Making. Other NCTM activities related to high school mathematics will also be discussed.

#### W. Gary Martin

Auburn University, Alabama

#### Judith Quander

National Council of Teachers of Mathematics, Reston, Virginia

#### Vincent Snipes

Winston-Salem State University, North Carolina

6 D (Convention Center)

#### 101

#### Why Are Word Problems So Much Easier than the Others?

#### (9–12) Session

This is an actual question from a student. Without context. students are working with abstractions and have nothing to suggest the approach to solving the problem. The speaker will provide examples of problems and contexts beginning in elementary algebra that will help students solve problems and develop concepts.

#### **Guy Robert Mauldin**

Science Hill High School, Johnson City, Tennessee

Marina G (Marriott)

#### 102

#### To the Vector Belong the Spoils

#### (9-12, Higher Education) Session

Learn three unique ways to introduce vectors. Discover how MacDonalds can make understanding dot product easier. Glean unusual ways to use vectors in d = rt problems, geometric proofs. and a dynamic projectile motion game on the TI-84. Plus, be surprised by simple AB and BC calculus applications that are not difficult to comprehend.

#### William E. Rogge

University of Nebraska-Lincoln

Molly A/B (Hyatt)

#### 103

#### **Oral Assessments: Retaining Students in** Science, Technology, Engineering, and **Mathematics (STEM) Majors**

#### (9-12, Higher Education) Session

In voluntary, ungraded oral assessments, students defend their reasoning and negotiate meaning with peers. Students learn to assess themselves, use multiple representations, and make important mathematical connections. Statistical analyses show that orals help underprepared students improve conceptual understanding and their retention in STEM majors.

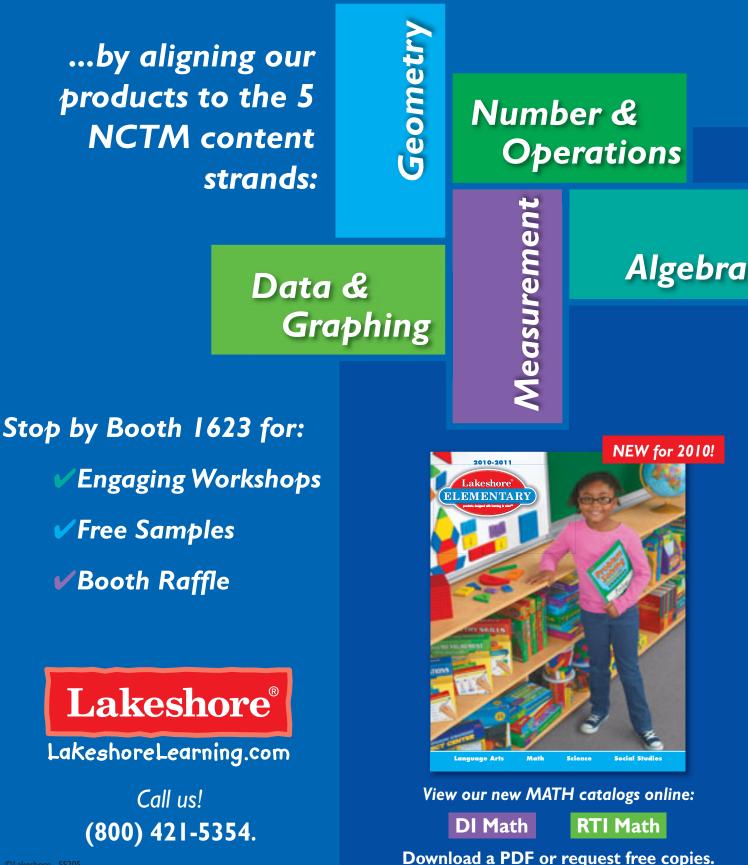
#### Mary Ann Nelson

University of Colorado, Boulder

Gregory A/B (Hyatt)



# Lakeshore helps children make connections...



#### 9:30 a.m.–10:30 a.m.

#### 104

Mathematics Teacher Education: Current Issues and Perspectives (Higher Education) Session Presidents' Series presentation

#### The session will highlight issues in the preparation of mathematics teachers, including a shortage of qualified secondary school mathematics teachers, strengthening mathematics preparation of elementary school teachers, and responding to public criticism of traditional teacher education programs. Ideas for addressing the issues will be shared.

Cracking the

Code of Algebra

Dr. Henry

Borenson

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TO WIN A CLASS SET!

Thursday · April 22nd

Columbia 1, 2, 3 (Marriott)

10:00 a.m. to 11:00 a.m.

#### **Barbara Reys**

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University of Missouri-Columbia

6 C (Convention Center)

#### 105

#### Algebra, the Connector Par Excellence! Connections within, between, and Among

#### (Higher Education, Preservice and In-Service) Session

Algebra is a now a way of thinking that cuts across content areas and unifies the curriculum. Demands on elementary school teachers to expose students to algebra early, and on middle and high school teachers to build on students' prior experiences, can be daunting. The speaker will use her research and writing to render them concrete.

#### Monica Neagoy

MN Mathematics Consulting Services, Arlington, Virginia 4 (Convention Center)

#### 10:00 a.m.–11:00 a.m.

#### **EW 106**

## Interactive Digital Texts Engage Students in Algebra

#### (General Interest) Exhibitor Workshop

Use multiple forms of input to engage your students in algebra. Animations, audio, multiple self-assessment tools and more are built into a comprehensive digital text that has successfully completed the California state adoption.

#### **Kinetic Books**

Kinetic Books, Seattle, Washington

1 B (Convention Center)

#### **EW 106.1**

#### Math Connections: A Standards-Based Mathematics Curriculum

#### (General Interest) Exhibitor Workshop

This presentation will look at three activities that demonstrate how the standards-based program Math Connections helps students at all levels of ability achieve success in mathematics. We will show data on how schools have increased student results on state assessments—the greatest gains being for the lower-level students.

#### Jim Kearns

It's About Time, Armonk, New York

Torrey (Marriott)

#### **EW 107**

#### Scott Foresman-Addison Wesley enVisionMATH: The Next Generation of Problem Solving

#### (K–6) Exhibitor Workshop

Are you ready to meet the needs of the next generation of learners in the mathematics classroom? Through activities in this exhibitor workshop, participants will learn strategies to engage a range of learners through problem-based interactive learning and pictorial representations for solving problems.

#### Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

ds-On Equations

on and Associates

intown, PA 18106

34

#### **EW 108**

#### "Cracking the Code of Algebra" or "Cracking One's Head on Algebra"

#### (4–9) Exhibitor Workshop

How does Hands-On Equations<sup>®</sup> enable 80 percent of inner city fourth graders to have success with such basic equations as 4x + 3 = 3x + 10? If algebra is a foreign language to your students, this presentation is for you!

#### Borenson and Associates, Inc.

Borenson and Associates, Inc., Allentown, Pennsylvania Columbia (Marriott)

#### 10:30 a.m.–12:00 noon

#### 109

#### Formative Assessment: A Pathway to Enhanced Learning

#### (Pre-K-2) Gallery Workshop

In education, it seems that each day brings a new classroom practice that teachers need to embrace and implement with their students. A closer look at formative assessment may help you recognize how you are already enhancing learning through this important practice, as well as how you can more fully engage in and learn from it.

#### **Renee Everling**

Math Solutions, Sausalito, California

16 A (Convention Center)

#### 110

#### A Glimpse of Singapore Math in the Primary Grades

#### (Pre-K-2) Gallery Workshop

Come learn strategies from the Singapore Primary Mathematics Curriculum that will help build a strong foundation in mathematics. Participants will use various manipulatives to engage in activities that will help students develop logical-thinking and problem-solving skills. Activities will be provided.

#### Johnette Roberts

City of Baker School System, Baton Rouge, Louisiana Elizabeth Ballroom B (Hyatt)

#### 111

#### Math Takes Center Stage

#### (Pre-K-2) Gallery Workshop

Connect literature, standards, and drama to create a command math performance. Experience teacher created math theater activities that enhance students' learning. See how easily literature and drama can be infused into your teaching and leave with scripts, Web tools, and Web sites to produce your own class math videos.

#### **Charyl Kerns Hills**

Council Rock School District, Newtown, Pennsylvania Manchester Ballroom I (Hyatt)

#### 112

#### Designing a Shape Gallery: Making Geometry Connections for Primary School Students

#### (Pre-K-2) Gallery Workshop

Explore activities from an NSF grant to create units based on *Curriculum Focal Points*, enrichment teaching, and learning strategies. Young students make connections between twoand three-dimensional shapes and explore symmetry and perspective as they create a shape gallery. Participants will leave with engaging, research-based activities.

#### M. Katherine Gavin

University of Connecticut, Storrs

#### Tutita Casa

University of Connecticut, Storrs

#### Janine M. Firmender

University of Connecticut, Storrs

Marina F (Marriott)

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#### 113

#### Using Visual Aids and Games to Develop Basic Fact Strategies

#### (3-5) Gallery Workshop

Students must be confident with a variety of computation methods. This presentation will show how mental computation can be developed using a sequence of strategies that begins with number facts and broadens as it extends to larger numbers. Participants will leave with many practical activities and games to use immediately in their classrooms.

#### James L. Burnett

ORIGO Education, Saint Charles, Missouri

8 (Convention Center)

#### 114

#### SMART Board™ + Manipulatives = A Winning Combination

#### (3–5) Gallery Workshop

Success in math begins with the conceptual understanding of number sense. Manipulatives and the SMART Board are powerful tools that help lay the foundation for number sense. Participants will actively engage in hands-on activities that move students through the three levels of learning—concrete, transitional, and abstract.

#### Carolyn Belson

Retired, Chesapeake Public Schools, Virginia

#### Sharon Huber

Chesapeake Public Schools, Virginia

Manchester Ballroom E/F (Hyatt)

Learn more about Stenhouse Professional Resources at BOOTH #923

## Stenhouse Books for Teaching Math

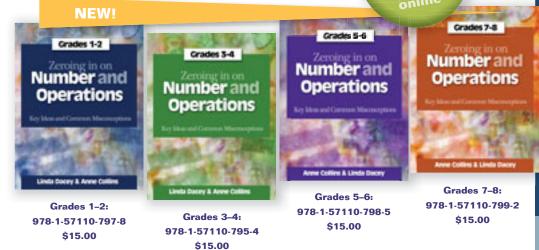
## Linda Dacey & Anne Collins

#### The Zeroing in on Number and Operations series

features easy-to-use tools for teaching key concepts in number and operations and for addressing common misconceptions. Each book in the series, which is organized by grade level, provides thirty research-based, classroom-tested modules that zero in on the key mathematical strategies and concepts essential for that grade level while highlighting the importance of teacher language in the development of those skills. The spiral-bound, flipchart format makes it easy to access the important sections in each module, including:

- summaries that identify the mathematical focus and associated challenges and misconceptions
- instructional strategies and activities that develop conceptual understanding and computation skills
- ideas and activities for adjusting activities to meet individual needs
- reproducibles for instructional use
- resources for further reading

PREVIEW Sample Pages



Zeroing in on Number and Operations Set 978ZERO79W | \$60.00 For more than fifteen years, Stenhouse has been a leading publisher of professional books and videos for K-12 language arts teachers.



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#### 10:30 a.m.-12:00 noon

#### 115

#### **Teach Problem Solving Using ThinkFun's Hands-On Program**

#### (3-8) Gallery Workshop

This program will not only teach your students problem solving but also be the best part of their day! Use hands-on brain games and puzzles to teach problem-solving steps, strategies, and state of mind, the tools to empower students to tackle problems. Teacher-tested and approved, empowering students everywhere. Come play, learn, and be inspired!

#### Tanya Lee Thompson

ThinkFun, Inc., Alexandria, Virginia

15 A (Convention Center)

#### 116

#### Slow Down to Think Mathematically: **Connecting Concepts and Context**

#### (3-8) Gallery Workshop

This presentation will help teachers focus students on thinking mathematically rather than just getting to the right answer quickly. Participants will work on and discuss sample grades 4-8 problems from Gillan's Problems without Figures and receive a copy of the book to use with their students.

#### Patsy Wang-Iverson

Gabriella and Paul Rosenbaum Foundation, Stockton, New Jersev

#### **Richard Askey**

Retired, University of Wisconsin-Madison

#### **Marian Palumbo**

Bernards Township Public Schools, Basking Ridge, New Jersey

Marina E (Marriott)

#### 117

#### How Does Your Body Measure Up? (3-8) Gallery Workshop

Not every classroom can have an X-ray machine or a CAT scan to look inside the body, and books can only provide a static representation. Using measurements like length, weight, and volume, students will begin to understand the true workings of the human body.

#### Jeanine L. Haistings

William Jewell College, Kansas City, Missouri

San Diego Ballroom A (Marriott)

#### 118

#### Visualizing and Mentally Calculating Percents

#### (3–8) Gallery Workshop

Attendees will create visual models of percents and then be able to calculate percents mentally. Next, attendees will solve word problems involving percents using number sense and not confusing algorithms. Finally, they will understand the relationships among percents, fractions, and decimals.

#### Sandy Hindy

Ventura County Mathematics Council, California

3 (Convention Center)

#### 119

#### Maximize Technology: Meet the Challenge to Reach All Math Students

#### (3-8) Gallery Workshop

To meet learning needs effectively, see how teachers can use a broad range of strategies involving technology, manipulatives, and paper that integrate a variety of resources to promote deeper understandings of fractions, area, and algebraic thinking. Participants will receive a CD and a lesson to use in Monday's class.

#### **Rudy Neufeld**

Neufeld Learning Systems, London, Ontario, Canada Manchester Ballroom A (Hyatt)

#### 120

#### Jump toward Better Understanding of Linear Functions through Multiple **Representations**

#### (3-8) Gallery Workshop

Participants will experience the problem Jump Frog Jump and discover the power multiple representations have in developing algebraic thinkers. Jump Frog Jump addresses concepts of linear functions and rate of change from earliest grades through high school algebra. Hands-on activities and TI-73 calculators will be incorporated into the presentation.

#### **Gloria Beswick**

Partnership Institute for Mathematics and Science Education Reform, Louisville, Kentucky

#### **Rhonda Niemi**

Jefferson County Public Schools, Louisville, Kentucky San Diego Ballroom C (Marriott)

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#### 10:30 a.m.-12:00 noon

#### 121

#### Nonstandard Units Are Custom Units: Linking Measurement to Proportional Reasoning

#### (3–8, Preservice and In-Service) Gallery Workshop

Nonstandard units arise in impromptu measurement and in traditional cultures where objects are custom-made for the user. They also introduce proportional thinking. Activities will involve body proportions, connecting body measurements to standard units, and reinterpreting mathematical topics through custom units. Bring scissors if possible.

#### Susan Addington

California State University, San Bernardino

#### **Madeleine Jetter**

California State University, San Bernardino

Elizabeth Ballroom F (Hyatt)

#### 122

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#### The Study of Change as a Preparation for Algebra

#### (6-8) Gallery Workshop

This opportunity to better understand and interpret graphs can help you provide students with knowledge they need to succeed in algebra and beyond. The antics of Wile E. Coyote, a race between a turtle and a rabbit, and graphing one's own motions will provide a venue for making sense of graphs representing change.

#### Susan Nickerson

San Diego State University, California

Judith Sowder

San Diego State University, California

17 A (Convention Center)

#### 123

#### Thinking Proportionally with Origami Cubes

#### (6-8) Gallery Workshop

Participants will construct origami cubes and explore what happens to the surface area and volume of the cube when the dimensions of the initial square change. They will also engage in proportional-reasoning activities and discuss the rubrics based on these models.

#### **Diane Devine**

Peabody Public Schools, Massachusetts

Betsy A/B/C (Hyatt)

#### 124

#### Aha! Multiple Instructional Strategies That **Build Concepts for All Students**

#### (6-8) Gallery Workshop

Just when you think you've seen and heard it all: come join us and learn multiple instructional strategies that build solid math concepts for fractions, decimals, percents, and number operations for all students. Get ready to be involved with lots of differentiated activities. Walk away with a CD and lessons that you can use on Monday!

#### Brenda Morgan

Houston Independent School District, Texas

#### Lisa Friedberg

Irvine Unified School District, California

Salon 6 (Marriott)

#### 125

#### **Promote Positive Mathematical Dispositions with Games and Puzzles**

#### (6–8, Preservice and In-Service) Gallery Workshop

Build productive dispositions-beliefs about abilities and the nature of mathematics. Promote proficiency, positive attitudes, and diligence through games, puzzles, and group problem solving.

#### Vicki Ann Vierra

Ventura County Office of Education, Camarillo, California 14 A (Convention Center)

#### 126

#### **Unwrapping Surface Area**

#### (6-12) Gallery Workshop

How are prisms and cylinders alike? How are pyramids and cones alike? Unwrap students' confusion by exploring 2-D nets! Use geofix manipulatives and common containers to develop an understanding of surface area and how to generalize the many formulas. Students' engagement, discourse, and a castle blueprint activity will be discussed.

#### Laurie Boswell

The Riverside School, Lyndonville, Vermont

Elizabeth Ballroom G (Hyatt)

#### Helping At-Risk Students Visualize Mathematics through Technology

#### (6–12) Gallery Workshop

At-risk students struggle with visualizing math concepts. Using graphing software and interactive whiteboard technologies, the presenter will show how these technologies enhance students' understanding of algebra and geometry. The activities, professional development, and technology helped the presenter's district earn state and national awards.

#### James William Kearns

Salem State Collaborative, Massachusetts

5 A (Convention Center)

#### 128

## Building Conics with Patty Paper and on the TI-Nspire™

#### (9-12) Gallery Workshop

Participants will use patty paper to fold the three conic sections—the parabola, ellipse, and hyperbola. Using the definition for each, and the techniques that were just used in the paper folding, the participants will create the envelope in which each conic sits and then find the actual conic (the set of points that fits the definition).

#### Art Mabbott

Seattle Schools, Washington

11 A (Convention Center)

#### 129

#### Nspired<sup>™</sup> Connections: Rich Tasks That Connect Concepts and Contexts

#### (9–12) Gallery Workshop

Explore rich tasks, designed for the TI-Nspire, that investigate applications of mathematics to real-life contexts. The speaker will analyze these interactive tasks through multiple representations and the connections between them. See how inquiry and engagement can lead to deep mathematical thinking.

#### Marc Garneau

Curriculum and Instructional Services, School District 36, Surrey, British Columbia, Canada

Marina D (Marriott)

#### 130



#### Real-World Investigations Connecting Data Analysis, Probability, and Statistics (9–12, Higher Education) Gallery Workshop

Does sleep deprivation impair students' performance two days later? Using experimental data, cards, and technology,

investigate whether the results can be explained by chance. Did a company carry out a fair lottery to choose employees for promotion? Perform simulations to help decide.

Daren Starnes holds the endowed Master Teacher chair in Mathematics at the Lawrenceville School, where he teamteaches a course with a different colleague each term. He has led numerous AP Statistics institutes for new and experienced AP teachers and has been a reader, table leader, and question leader for the AP Statistics exam. From 2004 to 2009, he served on the ASA/NCTM Joint Committee on Statistics and Probability, chairing the committee in 2009.

#### **Daren Starnes**

The Lawrenceville School, New Jersey

**Douglas Pavilion C (Hyatt)** 

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#### 131

#### The Fundamental Theorem of Calculus, Integration, and Differentiation: Putting It All Together

#### (9–12, Higher Education) Gallery Workshop

Working through a series of paper-and-pencil and technology-based classroom activities, participants will try hands-on investigations designed to help students improve their conceptual understanding of the fundamental theorem of calculus. Activities will focus on connections between integrally defined functions and their derivatives.

#### Mike Koehler

Blue Valley North High School, Overland Park, Kansas Manchester Ballroom G (Hyatt)

#### 132

## Unfolding Mathematics from Geometry to Precalculus and Beyond

#### (9-12, Higher Education) Gallery Workshop

This is not your parents' origami! Fold paper to explore and illustrate ideas from geometry, precalculus, and beyond. Investigations will include parabolas, ellipses, convergence, and regularity.

#### Paul J. Karafiol

Walter Payton College Prep High School, Chicago, Illinois Scott Galson

Walter Payton College Prep High School, Chicago, Illinois Salon 5 (Marriott)

#### 10:30 a.m.–12:00 noon

#### 133

#### Nesting Boxes and Students' Work Samples: Building Teachers' Subject-Matter Knowledge of Geometry

#### (Preservice and In-Service) Gallery Workshop

The presenter's research study suggests that teachers' geometric reasoning and spatial sense can be enhanced when they analyze, categorize, and assess students' work samples. Attendees will become familiar with this research study, and they will engage in activities aimed at furthering teachers' mathematical subject-matter knowledge.

#### Sherri Cianca

Niagara University, Lewiston, New York

9 (Convention Center)

#### 134

## Challenging Geometric Constructions with The Geometer's Sketchpad®

#### (Preservice and In-Service) Gallery Workshop

Strategies for discovering constructions that have proven unusually interesting to preservice and in-service high school teachers will be investigated. Constructions will include maxima and minima problems using transformations.

#### Shlomo Libeskind

University of Oregon, Eugene

**Douglas Pavilion A (Hyatt)** 

#### 11:00 a.m.-12:00 noon

#### 135

R

#### Research-Based Practices and Practical Suggestions for Implementing Them in Your Classroom

#### (General Interest) Session

Many instructional practices are called "research-based," but are they really? Learn about important research-guided practices identified in the NCSM PRIME Leadership and Teaching Framework that can significantly increase students' achievement, the conditions under which they do so, and practical ideas for incorporating them into your instruction.

#### **Diane J. Briars**

National Council of Supervisors of Mathematics, Pittsburgh, Pennsylvania

6 B (Convention Center)

#### **LR** 136

#### Building Math and Science Connections in Preschool and Kindergarten

#### (Pre-K-2) Session

Teachers will discuss how to integrate concepts in science and mathematics through an analysis of the content and process standards. They will investigate developmentally appropriate activities to determine connections and discuss how to foster cognitive process in preschool and kindergarten age children.

#### **Glenda Pepin**

Clemson University, South Carolina

Sandra Mammano Linder

Clemson University, South Carolina

11 B (Convention Center)

#### 137

#### The National Research Council (NRC) Report on Early Mathematics

#### (Pre-K–2, Higher Education) Session

The NRC recently completed a study of early childhood math, synthesizing and analyzing the past twenty years of research from a number of disciplinary fields. The authors of the report will draw implications for practice and policy that will help all children, especially vulnerable children, get a strong start in learning math.

#### Douglas H. Clements

University at Buffalo, State University of New York

**Sybilla Beckmann** University of Georgia, Athens

Karen C. Fuson

Northwestern University (Emerita), Evanston, Illinois

#### Herbert P. Ginsburg

Teachers College Columbia University, New York, New York Julie Sarama

University at Buffalo, State University of New York

6 A (Convention Center)

#### **LOR 138**

#### Assessing Mathematical Understanding: Using One-on-One Mathematics Interviews with Grades K–2 Students

#### (Pre-K–2, Higher Education, Preservice and In-Service) Session

High-quality mathematics experiences in the primary grades build a strong foundation for future learning. This session will share useful assessment tasks along with video clips of grades K–2 students that help teachers understand what to ask and what to look for when assessing their students.

#### Linda Griffin

Northwest Regional Educational Laboratory, Portland, Oregon

#### Lisa Lavelle

Education Northwest, Portland, Oregon

17 B (Convention Center)

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#### 11:00 a.m.-12:00 noon

#### 139

#### Math Fact Fluency: How and Why We Teach for Flexible Thinking

#### (Pre-K–5) Session

This session will provide participants with multiple instructional strategies, activities, and games that can be used to help students develop fluency with addition, subtraction, and multiplication facts. All suggested strategies are based on significant research and have been successfully applied in public schools serving diverse populations.

#### Sam Strother

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Boise State University, Idaho

16 B (Convention Center)

#### 140

#### Communicating Mathematical Thinking: Young Problem Solvers Show What They Know

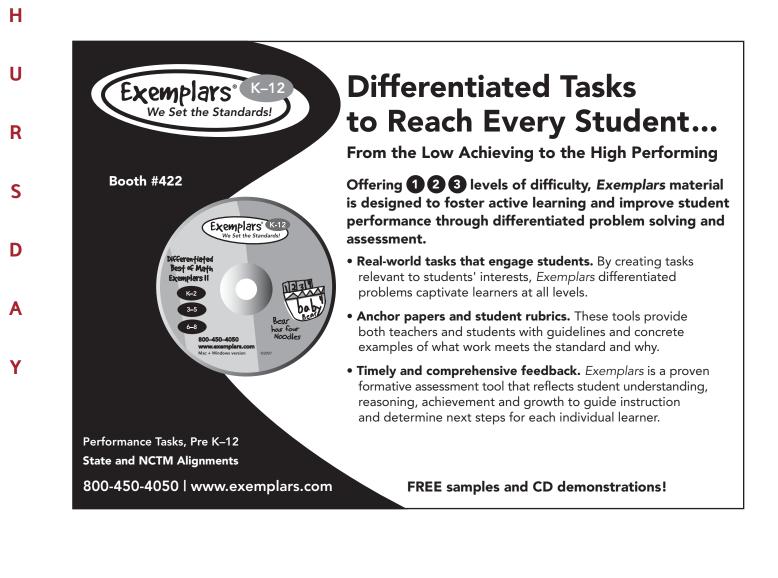
#### (Pre-K-5) Session

How do young students use math materials, pictures, numbers, and words to show what they know? Examples of how students solved a variety of open-ended, literaturebased mathematical problems will be shared. A focus of the problem-solving experiences was having students communicate their mathematical thinking and showing how they solved the problem.

#### Janice Novakowski

Richmond School District, Vancouver, British Columbia, Canada

#### Manchester Ballroom B (Hyatt)



#### 11:00 a.m.–12:00 noon

#### 141

#### Math for All! Equal Opportunity Education in the Math Classroom

#### (Pre-K-5, Preservice and In-Service) Session

Have a better understanding of how to differentiate math instruction easily to meet the needs of a variety of learning styles. Learn how to implement these strategies into classrooms through a variety of engaging activities that are motivating for learners using few or inexpensive, easy-tomake materials.

#### Marilyn R. Lance

Houghton Mifflin Harcourt, Austin, Texas

#### **Nicole Hamilton**

Houghton Mifflin Harcourt, Boston, Massachusetts

Edward A/B/C/D (Hyatt)

#### 142

## Supporting English Language Learners (ELLs) in Math Class

#### (Pre-K-5, Preservice and In-Service) Session

Discussing ideas in math class facilitates understanding, but ELLs may be at a disadvantage. This session will show teachers how to structure experiences so ELLs can accomplish two goals-developing their mathematical thinking and, at the same time, developing proficiency in English.

#### **Bernard George Bresser**

University of California at San Diego

#### **Kathy Melanese**

University of California at San Diego

Salon 1/2 (Marriott)

#### 143

#### Algebra in Elementary School?

#### (Pre-K-5, Preservice and In-Service) Session

Many in-service teachers have difficulty recognizing that many of the topics and concepts they currently teach are actually preparing their students for success in formal algebra. What does algebra look like in grades K–3? How can we prepare teachers to take advantage of opportunities to nurture algebra skills in students at lower grades?

#### **Amy Rushall**

Northern Arizona University, Flagstaff

Gregory A/B (Hyatt)

#### 144

#### Building a Community of Mathematical Thinkers through the Use of Math Olympiad Problems

#### (3–5) Session

The speaker will explore rich problems provided by the Math Olympiad for Elementary and Middle School students and discuss how these problems are used to create an environment of mathematical thinkers. She will also share her experience as the coach of a team of grades 4–6 students and provide a packet of sample problems and solutions.

#### M. Lynn Breyfogle

Bucknell University, Lewisburg, Pennsylvania

6 D (Convention Center)

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#### 145

#### Speaking the Language of Mathematics

#### (3–5, Preservice and In-Service) Session

Talking about math ideas helps students expand their understanding, but talking about math is not easy. Math has a complicated language with challenging vocabulary that tests even the most capable students. This session highlights classroom-tested, research-based, vocabulary strategies that are interactive and fit in any math program.

#### Susan O'Connell

Quality Teacher Development, Ellicott City, Maryland Marina G (Marriott)

#### Lor 146

#### Quilts, Topology, Origami, Tessellations, and More: Connecting Mathematics with Art

#### (3-8) Session

Art is full of amazing connections with mathematics! The speaker will share ideas of how to connect mathematics to art in elementary school classrooms using a variety of activities. These activities will include quilts, topology, origami, tessellations, pop-up cards, geometric sculpture, and more. He will also share examples of students' work.

#### Elaine Tuft

Utah Valley University, Orem

2 (Convention Center)

#### LCR 147

#### You Are What You Eat: Integrating Science and Mathematics

#### (3-8) Session

This session will explore research based activities integrating science and mathematics in the context of smart energy choices. Students will transform into researchers who ask the important questions related to nutritional choices, purposefully collect and analyze data, and then professionally report their findings.

#### Sarah Selmer

West Virginia University, Morgantown

#### Johnna Bolyard

West Virginia University, Morgantown

#### Jim Rve

West Virginia University, Morgantown

15 B (Convention Center)

#### 148

#### **Building a Foundation for Understanding** Fraction Operations: Using Concrete Contexts

#### (3-8) Session

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Misconceptions are common with fraction operations. The use of context can assist in dispelling common misconceptions. This session will examine the use of context in teaching fraction operations, particularly multiplying and dividing fractions. Solving and creating context problems will be examined.

#### Janet Andreasen

University of Central Florida, Orlando

Jennifer M. Tobias Illinois State University, Normal

Elizabeth Ballroom A (Hyatt)

#### 149

#### **Differentiated Instruction for Conceptual** Understandings

#### (3-8) Session

This session presents a variety of instructional processes for differentiation, including C-R-A and scaffolded questioning, aligned differentiated assessments for progress monitoring, and multiple product representations. Specific examples and tools to implement differentiated instruction systematically for conceptual understandings will be shared.

#### Jodi O'Meara

Jodi O'Meara, Inc., Parrish, Florida

Elizabeth Ballroom H (Hyatt)

#### Lor 150

#### Speaking, Writing, and Problem Solving (3-8, Preservice and In-Service) Session

Try "speak, write, reflect, revise"-a cooperative learning process that effectively connects problem solving with rich classroom discourse and writing. See how every student contributes to a classroom of successful problem solvers and how students' written words guide math instruction. Do this tomorrow in your classroom!

#### Robyn Silbey

Montgomery County Public Schools, Gaithersburg, Maryland 10 (Convention Center)

#### LCR 151

#### Algebra Connections: Developing Students' MP<sup>3</sup> (Mathematical Passion, Perseverance, and Promise)

#### (6–8) Session

Participants will explore problems and investigate related extensions designed to develop the passion, perseverance, proficiency, power, and promise of a wide range of students, using algebraic reasoning and multiple representations to analyze patterns, make predictions and generalizations, and develop recursive and explicit rules and formulae.

#### Linda Jensen Sheffield

Northern Kentucky University (Emerita), Highland Heights 5 B (Convention Center)

#### 152

#### I Notice, I Wonder, I Can Think!

#### (6-8) Session

Develop students' ability to think through technology and challenging, complex problems. Empower your students with the power of thinking. Focus on questions and observations as a method leading to problem-solving skills. Redirect students from solution-orientated thinking to reasoning and inquiry as a method to developing problem-solving skills.

#### Barbara Delaney

Bellingham Memorial Middle School, Massachusetts

#### Ashley C. Miller

China Grove Middle School, North Carolina

#### Marie Hogan

Traweek Middle School, West Covina, California

Salon 3 (Marriott)

#### 11:00 a.m.–12:00 noon

#### 153

#### Aim for Algebra: Algebra Intervention— Not Business as Usual

#### (6-12) Session

Aim at intervention: learn about essential elements for algebraic intervention by examining a successful, conceptually based, standards-aligned program that supports struggling students through modules targeting common barriers to algebraic success, provides teacher support for each lesson, and implements flexibly for grade levels and schedules.

#### Mardi A. Gale

WestEd, Redwood City, California

20 D (Convention Center)

#### 154

## Bringing Connections to the Pythagorean Theorem "Full Circle"

#### (6-12) Session

Examining connections between, and representations of, mathematical ideas is vital if students are to visualize concepts rather than memorize formulas. See how visualizing connections among the Pythagorean theorem, the distance formula, and the equation of a circle helps connect ideas, enhancing the transfer of knowledge to new situations.

#### **Cheryl Malm**

Northwest Missouri State University, Maryville

#### **Christine C. Benson**

Northwest Missouri State University, Maryville

6 F (Convention Center)

#### 155

#### **Using Mathematics in Tennis**

#### (6–12) Session

Much mathematics is included in tennis–measurement, geometry, data, and algebra. This session will offer many ideas that show how mathematics can be used when playing tennis.

#### **Robert Reys**

University of Missouri-Columbia

#### **Rustin Reys**

Park Hill High School, Ka nsas City, Missouri San Diego Ballroom B (Marriott)

#### **LCR 156**

#### Math Is All around You (6–12) Session

#### (6–12) Session

Mathematics learning is enhanced when your students make the connections across mathematics topics and across different subject areas. See lessons that connect algebra, probability, science, social studies, language arts, and more!

#### Fred Dillon

Board of Directors, National Council of Teachers of Mathematics; Strongsville City Schools, Ohio

14 B (Convention Center)

#### Lor 157

## Connect with Mathematical Curves in the Real World

#### (6-12) Session

Conic sections, spirals, catenaries, fractals, and other curves will be presented in many different ways, (some humorous, some real), with hands-on activities, digital photos, and calculator/computer applications. Connections within mathematics and other sciences will be a main focus.

#### Scott Oliver

Adlai E.Stevenson High School, Lincolnshire, Illinois

4 (Convention Center)

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Fax: 405-325-7184 matheta@ou.edu www.mualphatheta.org

## Why Should We Assign Homework in Math?

#### (6–12) Session

The speaker will share the numerous types of assignments he has used in classes ranging from Algebra 1 through AP Calculus BC. He will discuss what some of the research says, and what it does not, about homework, and there will be an opportunity to share what practices have worked for other participants.

#### James Wysocki

Chadwick School, Palos Verdes Peninsula, California Salon 4 (Marriott)

#### 159

#### Coaching in an Urban District: Math + Science + Coaching = Success (6–12) Session

How can you create an effective professional learning community in a large, urban district? The speaker will share the program design and interim results of an ongoing math and science professional development and coaching academy. Teams of teachers increase their content and pedagogy knowledge and cultivate leadership skills.

#### Wanetta Jones-Allen

Houston Independent School District, Texas

6 E (Convention Center)

#### 160

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#### Connecting Vocabulary and Conceptual Understanding: Strategies, Assessments, and Research Findings

#### (6–12, Higher Education) Session

Vocabulary strategies promoting conceptual understanding and examples of students' work done in middle school through college algebra will be shared. The speakers will discuss assessments that provide diagnostic information and share research findings on students' understanding of primary concepts such as equation, exponent, domain, and function.

Susan Gay University of Kansas, Lawrence

#### Ingrid Peterson

University of Kansas, Lawrence

7 B (Convention Center)

#### 161

#### Let's Talk Mathematics: Supporting Mathematical Discourse in Your Classroom

#### (6–12, Preservice and In-Service) Session

This presentation focuses on specific discourse moves that teachers can use in order to support students' learning during mathematical discussions. During this session, teachers will analyze an episode of teaching that illuminates these discourse moves and then discuss how to implement these moves in their classroom.

#### Amy F. Hillen

Kennesaw State University, Georgia

**Elizabeth Hughes** University of Northern Iowa, Cedar Falls

Douglas Pavilion D (Hyatt)

#### 162

#### Now That Calculators Can Do Algebra, What Is Left to Learn in Algebra Class?

#### (9–12) Session

Affordable calculators can now do most of the operations that once formed the core of the algebra curriculum; however, there is plenty left to learn, and many tasks that only people can do. Take a look at how to harness the new power and to clarify what we still need to learn and do ourselves.

#### Loring Coes

Rocky Hill School, East Greenwich, Rhode Island

Douglas Pavilion B (Hyatt)

#### 163

## So You've Got a SMART™ Board: Now What?

#### (9-12) Session

This session will demonstrate and discuss various ways to use your SMART Board for teaching and learning mathematics, from algebra to calculus, including use of SMART Notebook Math, the new notebook software for mathematics classrooms. Bring your successful SMART Board strategies to share with others, too!

#### Roger Day

Lead Author, McGraw–Hill K–12 Mathematics, Pontiac, Illinois

**Chad Shepherd** Pontiac Township High School, Illinois

Brian Schmalzer Glenbrook South High School, Illinois

Tami S. Martin

Illinois State University, Normal

Manchester Ballroom C (Hyatt)

#### Mathematics in the NBA Draft, Electoral College, and Olympic City Voting

#### (9-12) Session

The NBA draft lottery uses combinatorics and probability to order the teams. The electoral process uses apportionment to determine presidential elections. The voting for a host city uses an application of elimination-method voting. These three examples provide a context for students to see mathematics outside the classroom.

#### Anthony W. Griffith

Westminster School, Simsbury, Connecticut Manchester Ballroom H (Hyatt)

#### 165

#### Making Sense of Data Analysis

#### (9-12, Higher Education) Session

This presentation will focus on how some specific data sets have been used in an elementary statistics class to help students make sense of and understand the statistical processes used to obtain and interpret the results. Strategies on how to teach for understanding and make sense of the processes using these data sets will also be discussed.

#### Martha Tapia

Berry College, Rome, Georgia

20 A/B/C (Convention Center)

#### 166

#### **High School High-Stakes Testing and Remedial Math in College**

#### (9-12, Higher Education) Session

Is there a mismatch between success on high-stakes high school tests and college expectations? Come learn about the results of survey research on secondary school and teachers' practices that may explain the paradox of higher test scores and increasing numbers of students requiring remediation in college.

#### Laura Bridge

Greater Richmond Council of Teachers of Mathematics, Richmond, Virginia

Elizabeth Ballroom D/E (Hyatt)

#### 167

#### The Impact of High School Curricula on **College Mathematics Achievement and Course-Taking Patterns**

#### (9-12, Higher Education) Session

Results will be discussed of an ongoing, four-year, multiuniversity, NSF-funded research project examining college-level mathematics ach ievement, persistence, and course-taking patterns as a function of students' high school curricula. Thirty-five higher education institutions and 27,000 students are represented in the data.

#### Tom Post

University of Minnesota-Twin Cities, Minneapolis

#### **Michael Harwell**

University of Minnesota-Twin Cities, Minneapolis

Manchester Ballroom D (Hyatt)

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#### 168

#### Exploring Grades 10–12 Teachers' Beliefs about Mathematics, Teaching, and Learning

#### (9–12, Higher Education, Preservice and In-Service) Session

What are grades 10-12 teachers' ideas and beliefs about mathematics education and the reform movement? This session will give an opportunity to explore our beliefs about mathematics, teaching, and learning, and to learn more about the many paradigms of mathematics education. Explore beliefs using clicker technology.

#### Lorraine M. Baron

Central Okanagan School District, Kelowna, British Columbia, Canada

Manchester 1/2 (Marriott)

#### 169

#### A Secondary School Preservice Teacher **Content Course Focused on Problem** Solving

#### (Higher Education) Session

To strengthen licensure and students' knowledge of high school curriculum and ground investigation in good practice, the speakers created a course based in problem solving, reasoning, and critical thinking. Participants will experience rich problems, see students' reflections from the course, and discuss the impact on teacher education programs.

#### **Janet Mays**

Elon University, North Carolina

Alan Russell Elon University, North Carolina

#### Amanda Ketner

Elon University, North Carolina

6 C (Convention Center)

#### 11:00 a.m.-12:00 noon

#### 170

#### Using Beyond Crossroads to Teach the **Millennial Generation** (Higher Education) Session **Presidents' Series presentation**

This session will demonstrate using Beyond Crossroads to address teaching strategies for the millennial generation. These students are now entering college classrooms with a different set of expectations and values than previous generations. The speaker will present specific ways to engage these students while maintaining academic integrity.

#### **Robert Farinelli**

Community College of Allegheny County, Pittsburgh, Pennsylvania

Elizabeth Ballroom C (Hyatt)

#### 171

#### Mathematics Anxiety and College Algebra

#### (Higher Education) Research Session

The presenter will provide information about mathematics anxiety pertinent to the classroom teacher. The session will include the results of a three-semester study examining math anxiety of students enrolled in a college algebra course using tutorial software as an integral part of course delivery. Audience discussion will follow the presentation.

#### **DesLey V. Plaisance**

Nicholls State University, Thibodaux, Louisiana

Molly A/B (Hyatt)

#### 11:30 a.m.-12:30 p.m.

#### **EW 171.1**

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#### Autograph<sup>®</sup>: Empowering All Students to Graph, Visualize, and Understand **Mathematics**

#### (General Interest) Exhibitor Workshop

Show four-color representations of graphs of functions, geometric transformations, systems of equations in two or three variables of revolution. Autograph is the leading program for helping students visualize complex topics in algebra through calculus. See how teachers use Autograph in classrooms and how it works seamlessly with the SmartBoard, Excel, and Word.

#### It's About Time

It's About Time, Armonk, New York

Torrey (Marriott)

#### **EW 172**

#### Interactive Whiteboard in an Inquiry-Based Classroom

#### (K–5) Exhibitor Workshop

Are you looking to utilize an interactive whiteboard in an inquiry-based classroom? Learn how to use activities on your interactive whiteboard to bring new depth to your class.

#### Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

#### **EW 172.1**

#### The Cutting Edge of Singapore Math: Problem Solving, Creative Thinking, and Enquiry Thinking

#### (1-6) Exhibitor Workshop

This exhibitor workshop describes important Singapore approaches that have shown results in inculcating mathematical problem solving skills, creative thinking, and enquiry thinking. Participants will have the opportunities to learn various methods that help students excel in mathematics grades 1-6.

#### Fong Ho Kheong

Houghton Mifflin Harcourt, Boston Massachusetts

Columbia (Marriott)

#### **EW 173**

#### Math Upgrade Interactive Prealgebra Lessons Using Songs, Video, and Games (3–8) Exhibitor Workshop

Math Upgrade features music and animation to make prealgebra concepts understandable. Find out how teachers transform their classes using interactive, whole-class lessons and individual online courses. Join us for math, music, and fun!

#### Learning Upgrade LLC

Learning Upgrade LLC, Escondido, California

1 B (Convention Center)

#### 12:30 p.m.-1:30 p.m.

#### 174

#### The Common Core Standards Initiative

#### (General Interest) Session

Building on crucial work of NCTM and others, the National Governors Association, the Council of Chief State School Officers, and 48 states have begun developing common standards in mathematics. Participants will learn about the effort and discuss how NCTM members can play an active role in implementation of these standards across the states.

#### Dane Linn

National Governors Association, Washington, D.C.

#### Gene Wilhoit

Council of Chief State School Officers, Washington, D.C. 20 A/B/C (Convention Center) Join Us For Music, Math, and Fun!

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## Math Upgrade Interactive Pre-Algebra Lessons Using Songs, Video, and Games

#### Session Thursday 11:30 am - 12:30 pm Room 1B Convention Center Free Course For Each Attendee!

Math Upgrade features music and animation to make pre-algebra concepts understandable. Find out how teachers transform their classes using interactive whole class lessons and individual online courses. Join us for math, music, and fun!

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#### 175



#### Math and Philosophy: What did Plato, Kant, and Russell Think about Mathematics?

#### (General Interest) Session

The speaker will discuss what the great philosophers thought about mathematics and see if their thinking is still relevant in today's world.

#### Kichoon Yang

Executive Director, National Council of Teachers of Mathematics, Reston, Virginia

6 D (Convention Center)

#### 176

#### Fixing 27 Common Myth-Takes of 23 Myth-Conceptions in 42 Myth-Tical Minutes (General Interest) Session

#### Presidents' Series presentation

Beginning with the misunderstanding of the number line through the operations, algebra, and on to calculus, here are the causes (and the cures) for the most common errors in mathematics by students.

#### Alan Zollman

School Science and Mathematics Association, DeKalb, Illinois

Manchester Ballroom B (Hyatt)

#### Lor 177

#### Can Grades Pre-K–2 Students Use Algebraic Reasoning?

#### (Pre-K–2) Session

Participants will explore the main concepts of algebraic reasoning with connections to literature and problem solving. Activities will include students' work from the NCTM Navigating through Algebra series.

Donna E. Weaver

Norfolk Public Schools, Virginia

#### **Diana J. Batliner** Norfolk Public Schools, Virginia

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10 (Convention Center)

#### **L**CR 178

#### Project M<sup>2</sup>'s Approach: Connecting Math and Language Arts through Communication

#### (Pre-K-2) Session

Learn how to implement the cornerstones of a balanced language arts program to encourage high-level math thinking. Participate in discussion-based activities and review writing from students in urban and suburban classes that developed their knowledge of advanced math ideas along with their reading, writing, listening, and speaking skills.

#### Tutita Casa

University of Connecticut, Storrs

**M. Katherine Gavin** University of Connecticut, Storrs

Janine M. Firmender

University of Connecticut, Storrs

16 B (Convention Center)

#### 179

## Measuring Number Sense in Preschoolers through a Curriculum-Based Measure

#### (Pre-K-2) Session

This research evaluated a curriculum-based assessment of number sense (quantification, counting, set comparison, numerals, addition, patterning) in preschool children. The measurement tool is an interactive game played between assessor and child. Factor analysis indicated the tool is valid and reliable for teachers to use to guide instruction.

#### Sally Moomaw

University of Cincinnati, Ohio

6 F (Convention Center)

#### 180

#### Effects of a Professsional Development Intervention on Low-Income Children's Knowledge of Mathematics and Teachers' Practice

#### (Pre-K-2) Research Session

This presentation will describe a prekindergarten mathscience curriculum, the professional development of Head Start teachers, prekindergarten children's outcomes, and findings from the first three years of data collection. Suggestions for helping teachers become successful facilitators of math-science activities will be shared.

#### **David Brown**

Texas A & M University—Commerce

Gregory A/B (Hyatt)

#### LOR 181

#### Generating Mathematical Discourse: Establishing an Environment That Supports Mathematical Proficiency

#### (Pre-K–5) Session

Teachers who have successfully established discourse-based learning environments will share selections from classroom videos of mathematics lessons. They will discuss strategies they use for teaching children to discuss, listen, and learn from each other.

#### Lisa Ann de Garcia

Brigham Young University, Provo, Utah

Amy Smith San Diego Unified School District, California

Adriane Stewart San Diego Unified School District, California

Jeralyn Treas San Diego Unified School District, California

#### Stephanie Hasselbrink

San Diego Unified School District, California

#### 5 B (Convention Center)

#### 182

#### Concept Mapping for Mathematics Connections: Linking Concepts and Context

#### (Pre-K–5, Preservice and In-Service) Session

Attendees will be provided with an opportunity to engage actively in hands-on/minds-on "concept mapping" assessment techniques in mathematics that will reach students at the concrete, pictorial/representational, and symbolic levels. Critical thinking, problem solving, and decision making will be emphasized while connecting math concepts.

#### Nancy L. Gallenstein

Coastal Carolina University, Conway, South Carolina

#### **Marilyn Larmon**

University of Southern Mississippi, Hattiesburg

6 B (Convention Center)

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#### 183

#### From Concrete Manipulatives to Abstract Numeric Symbols: Bridging the Gap

#### (Pre-K-5, Preservice and In-Service) Session

Many students have difficulty moving from manipulatives to numeric representations. This discussion will attempt to convert the giant leap from concrete to abstract into a series of small, manageable steps. This technique uses schematic representations in which each representation is just slightly more abstract than the one before it.

#### Arlene Goldblatt

Southern Connecticut State University, New Haven

2 (Convention Center)

#### 184

#### Home and School Connections: Presidential Award Teachers Share Ideas!

#### (Pre-K-8) Session

Learn how experienced math teachers involve parents and community. Find ways to help parents understand where their children are headed, what students should know, and what they be able to do. Hear how parents' involvement affects learning. Discover resources for teachers and parents from NCTM and the U.S. Department of Education. Some are free!

#### Sara Normington

Catlin Gabel School, Portland, Oregon

Lisa K. Cartwright

R

Pullman School District, Washington

Lisa M. Hall Jacob L. Adams Elementary School, Richmond, Virginia

Stacie Kaichi-Imamura Hawaii Department of Education, Honolulu

#### Leslie Marrie Lasater

Campus School, Middle Tennessee State University, Murfreesboro

#### Sandy Schoff

Anchorage School District, Alaska

Martha C. Short

Consultant, Jackson, Missouri

#### Joy Wolfe

Rogers Public Schools, Arkansas

Elizabeth Ballroom H (Hyatt)

#### 185

#### Mathematical Stretches: Math Warm-Ups to Begin the Day

#### (Pre-K-8, Preservice and In-Service) Session

Athletes know the wisdom of beginning their workouts with stretching so they can maximize their performances. The same is true for students. This session will offer specific ideas for easily implemented "math stretches," in which students draw on their background knowledge and make math connections as they warm up for math with brief tasks.

#### Laney Sammons

Hubbard Elementary School, Forsyth, Georgia

Elizabeth Ballroom C (Hyatt)

#### 186

#### Being SMART<sup>™</sup> in Your Math Lessons

#### (3-5) Session

Participants will see how to use the SMART Board as a mathematical tool, from manipulatives to timers and other interesting features. Come learn how to enhance your classroom.

#### Adam Meador

Bingham Elementary School, Springfield, Missouri

Manchester Ballroom C (Hyatt)

#### 187

#### **Exploring Logic Problems with Elementary School Students**

#### (3–5, Higher Education, Preservice and In-Service) Session

Many students have difficulty solving word problems involving logic. This presentation will describe a lesson that gives students in the primary grades the opportunity to explore a variety of solution strategies to a logic word problem.

#### **Zhixia You**

University of Nevada, Reno

#### Robert J. Ouinn

University of Nevada, Reno

6 E (Convention Center)

#### LCR 188

#### Fractions and Geometry with **Manipulatives**

#### (3-5, Preservice and In-Service) Session

Help your students develop visual, proportional, logical, and algebraic thinking skills to deepen their understanding of fraction and geometry concepts using manipulatives such as tangrams, pattern blocks, and a few new surprises.

**Barbara** Irvin

Consultant, Plano, Texas

15 B (Convention Center)

#### 189

#### **Differentiating Instruction in the Middle School Mathematics Classroom**

#### (3-8) Session

Participants will gain insight into ways differentiated instruction can be effectively implemented into their classrooms. Differentiating instruction can be an overwhelming task to both new and veteran teachers. This presentation will give teachers ideas on how to meet their students at challenging and motivating levels.

#### John T. Neral

Oakland Public Schools, New Jersey

Salon 4 (Marriott)

#### 190

#### Around the World in 60 Minutes: A Cultural Excursion through Probability

#### (3-8, Preservice and In-Service) Session

Play probability games from diverse cultures around the world. Analyze situations using applets and simulations; record data using graphs, trees, and lists to relate theoretical and experimental probability. Take a quick glimpse at pop culture through the Monty Hall problem and more! Souvenirs will provided at the end of the tour.

#### Nirmala Naresh

Miami University, Oxford, Ohio

Iris DeLoach Johnson Miami University, Oxford, Ohio

6 C (Convention Center)

#### 191

#### What's Your Mindset? Transforming Mathematics Learning through Emerging Technologies

#### (3–12) Session

Emerging technologies are often not yet widely adapted or fully actualized, but hold the potential to engage learners, deepen their understanding, and extend mathematical and real-world connections. Learn more about some tools and devices that show remarkable promise for transforming the mathematics classroom.

#### Jon Wray

Howard County Public Schools, Ellicott City, Maryland Manchester 1/2 (Marriott)

#### 192

## Strategy Games for the Last Five Minutes of Class

#### (3-12) Session

Sometimes you finish a lesson early and don't want to start something new. Learn some mathematics games that are a good use of time. The winning strategies will be explored during the session.

#### **Diane Resek**

San Francisco State University, California

Salon 3 (Marriott)

#### 193

#### Using Geometry as a Lens for Exploring Other Content Strands

#### (3-12, Preservice and In-Service) Session

Learn to integrate concepts that are too often viewed in isolation by using geometry as the organizing agent. Geometry is a driving focal point for fundamental concepts of number, algebra, measurement, data analysis, and probability. See how a myriad of concepts take on a new life and richer meaning when viewed through a common lens.

#### William Renwick Speer

University of Nevada, Las Vegas

Marina G (Marriott)

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#### LOR 194

#### Problem Solving and Technology Implementation in an Inclusion Classroom

#### (6-8) Session

Learn how the speakers are creating a problem-solving environment in classrooms that include English language learners and special-education students. They will share problems and accompanying activities—some of which use Sketchpad, applets, and other technology—that can help turn students into problem solvers.

#### **Annie Fetter**

The Math Forum @ Drexel, Philadelphia, Pennsylvania

#### Michelle O'Donnell

Woodlynne School, New Jersey

14 B (Convention Center)

#### LOR 195

#### Bringing Math to Life with History (6–8) Session

Have you ever wondered where mathematics comes from?

Providing a historical context to the math you teach can help students to make connections among people, places, and ideas. Integrating history and biography into your middle school math classroom can help you engage students in learning standards-based content and concepts.

#### Christine Latulippe

California State University Polytechnic, Pomona

4 (Convention Center)

#### **196**

#### Teaching for Understanding with *Mathematics Teaching in the Middle School (MTMS)*

#### (6–8) Session

The *MTMS* journal provides opportunities for educators to reach students of all abilities while teaching for understanding. Presenters will share classroom-tested ways they have used the journal to challenge students while building conceptual knowledge.

## Mathematics Teaching in the Middle School Editorial Panel

National Council of Teachers of Mathematics, Reston, Virginia

7 B (Convention Center)

#### 197

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#### Using Context to Support Algebraic Reasoning

#### (6–8) Session

During this interactive session, participants will explore middle school students' understandings and strategies used to solve context-based problems involving algebra. Participants will discuss how to integrate context problems into the classroom.

#### George J. Roy

University of South Florida—Saint Petersburg

Farshid Safi

College of New Jersey, Ewing

Douglas Pavilion B (Hyatt)

#### 198

#### Binary System, Braille Alphabet, Wordplay, Jon Arno Lawson's Poetry, and Mathemagic

#### (6-8) Session

The speaker will explore diverse and unexpected places where the binary system appears, such as the Braille alphabet; recreational wordplay; the underlying structure of *The Voveller's Bestiary*, a children's poetry book by poet Jon Arno Lawson, numerical patterns; mathematical magic tricks; and shuffling a deck of cards.

#### **Ron Lancaster**

University of Toronto, Ontario, Canada

Elizabeth Ballroom D/E (Hyatt)

#### 199

#### Connecting Logarithms to Logistics: Mathematics Activities for Global Competitiveness

#### (6-12) Session

How can you introduce your students to the high-paying careers of the future and make them globally competitive while teaching to national standards? This hands-on session introduces activities from a context-based, grade 6–12 mathematics curriculum that integrates supply chain and logistics concepts to increase relevancy and students' engagement.

#### Allison Medley

North Canton City Schools, Ohio

#### **Leslie Gardner** University of Indianapolis, Indiana

Edward A/B/C/D (Hyatt)

#### LOR 200

#### Quantitative Reasoning in Science, Technology, Engineering, and Mathematics (QR in STEM): Integrated Science and Mathematics

#### (6–12, Higher Education) Session

QR in STEM is a mathematics and science partnership project that integrates biology, chemistry, earth sciences, physics, and mathematics in the context of energy and environment. The speakers will share performance tasks developed through a collaboration of scientists and teachers and provide the evidence of impact on students' learning.

#### **Robert Lee Mayes**

Science and Mathematics Teaching Center, University of Wyoming, Laramie

#### Jim Verley

University of Wyoming, Laramie

17 B (Convention Center)

#### LOR 201

#### Using Mathematics to Help Cure Hunger, Disease, and Global Warming

#### (9-12) Session

Solar cookers can help with global warming while reducing disease and hunger. The focal property of a parabola makes it a good shape for a solar cooker that can be repositioned to point directly at the sun. Examine alternatives to the parabola for the shape of a solar cooker made of clay and aluminum foil that cannot be moved.

#### Philip Todd

Saltire Software, Tigard, Oregon

#### Irina Lyublinskaya

City University of New York—College of Staten Island

11 B (Convention Center)

#### Geometric Means, and What They Mean

#### (9-12) Session

The geometric mean is a versatile concept, with applications in dynamic processes, exponential growth, and higher-dimensional geometry. Participants will learn surprising properties of geometric means, generalizations you have probably never seen, and strategies for incorporating them across the curriculum from algebra to calculus.

#### **Michael Weiss**

Oakland University, Rochester, Michigan

6 A (Convention Center)

#### 204

#### **Proof!** Finally, a Logical Approach!

#### (9-12) Session

The development of proof begins with deductive reasoning by way of games. The goal is to use communication, reasoning and logic skills needed in proof. Participants will justify and argue strategies as they come to conclusions. Three types of proof will be modeled: flowchart, paragraph, and twocolumn.

#### Mark Noel Cote

Beaver Lake Middle School, Issaquah, Washington Elizabeth Ballroom A (Hyatt)

#### 205

#### Solving a Mystery: Who Wrote the **Disputed Federalist Papers?**

#### (9-12) Session

Disputes about authorship arise in the press, the legal system, and even among historians. One such dispute was a "mystery" concerning some famous documents in United States history, the Federalist papers. Find out how frequency distributions were used to investigate this mystery and connect mathematics to social science.

#### Natalie Jakucyn

Glenbrook South High School, Glenview, Illinois Manchester Ballroom D (Hyatt)

#### 206

#### Assessing More than Procedures without Losing Your Weekend

#### (9-12) Session

If conceptual understanding is not assessed, then students will not value it. The speaker will explore assessing conceptual understanding without overburdening teachers. Examples of items assessing conceptual understanding and students' related work will be shared. Participants will write items that assess conceptual understanding.

#### Rebecca K. Walker

Grand Valley State University, Allendale, Michigan San Diego Ballroom B (Marriott)

#### 207

#### **Computer Algebra Systems (CAS): From** Where Did They Come, and Where Might They Go?

#### (9-12, Higher Education) Session

Beginning on mainframes, CAS evolved to desktop versions and into handheld computers. What is CAS, and what has been its impact on teaching and learning? What might mathematics educators expect from CAS in the future? Ideas from those involved in the development of CAS will be shared, and audience speculation about the future will be encouraged.

#### Ed Dickey

University of South Carolina, Columbia

20 D (Convention Center)

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#### 208

#### Striving to Teach Mathematics for Social Justice: A Learning Experience

#### (9-12, Higher Education) Session

Teaching math for social justice, or using math as a way to understand and critique the world, is an exciting idea. Educators, however, may be intimidated at the prospect of creating lessons that use local contexts to engage all students in learning math. This session will show an attempt at adapting a Standards-based curriculum to create such a lesson.

#### Joel Amidon

University of Wisconsin-Madison

Salon 1/2 (Marriott)



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#### 209

#### Preparing for Your Institution's NCATE Program Review

#### (Higher Education) Session

Learn to navigate the NCATE program review process and prepare the required documents. This session provides information about the overall program review system, as well as specifically what is needed to prepare mathematics education program reports. Report templates, samples of assessments, and mistakes to avoid will be explored in this session.

#### Monique Lynch

National Council of Teachers of Mathematics, Reston, Virginia

Manchester Ballroom H (Hyatt)

#### 210

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#### Changing Mathematics Preparation for Elementary Education: Using Discourse with Undergraduates

#### (Preservice and In-Service) Session

Using discourse in the classroom can help elementary education students achieve conceptual understanding of mathematics. This session will teach effective discourse strategies to use with preservice elementary school teachers to prepare them to teach mathematics effectively with a focus on fostering conceptual understanding.

#### Mary Elizabeth Matthews

Boston University, Massachusetts

#### Ziv Feldman

Boston University, Massachusetts

Molly A/B (Hyatt)

#### 1:00 p.m.–2:00 p.m.

#### **EW 211**

#### CMP2: An Award Winning Middle School Math Program

#### (5–8) Exhibitor Workshop

See the latest technology to support teachers and students using Connected Mathematics. Also, review recent research results that show the effectiveness of this award-winning mathematics curriculum.

#### Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

#### **EW 212**

#### Algebra Upgrade Interactive Lessons: Using Songs, Video, and Games (9–12) Exhibitor Workshop

Algebra Upgrade features music and animation to make challenging concepts understandable. Find out how teachers transform their classes using interactive whole class lessons and individual online courses. Join us for algebra, music, and fun.

#### Learning Upgrade LLC

Learning Upgrade LLC, Escondido, California

1 B (Convention Center)

#### 1:00 p.m.-2:30 p.m.

#### 213

#### Numerical Reasoning in First Grade

#### (Pre-K–2, Higher Education, Preservice and In-Service) Gallery Workshop

The presenter will share an instructional sequence using the arithmetic rack, which helps children develop numerical relationships. Video clips of the instruction will show how children moved away from unitary counting to using mental-reasoning strategies of five-referenced and ten-referenced numbers and doubles for addition and subtraction.

#### Patty King

U.S. Math Recovery Council, Nashville, Tennessee

9 (Convention Center)

#### 214

#### Shuffling into Math: Primary School Math Games Using Cards and Dice

#### (Pre-K-5) Gallery Workshop

Come prepared to play card and dice games that help your primary school students achieve success in basic numeration, operations, place value, and graphing. Excellent ideas for implenting a math games component into your regular and after school programs will be shared. Reproducible gameboards and students' samples will be provided.

#### Jane Felling

Box Cars & One-Eyed Jacks, Edmonton, Alberta, Canada Elizabeth Ballroom F (Hyatt)

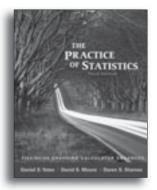
Make time to explore the Exhibit Hall for the latest in educational resources.

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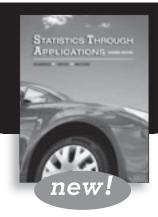
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#### 1:00 p.m.-2:30 p.m.

#### 215

#### Shazam! Students Creating Math Story **Problems Using Graphic Literature** (Pre-K-5) Gallery Workshop

Attendees will experience integrating the use of several graphic novels and other graphic texts into the math curriculum. The presenters will show how students can develop their own math problem-solving stories. Come prepared to laugh, enjoy, and explore math concepts using the latest literacy phenomenon in children's texts.

#### **Robyn B. Rhodes**

Bushland Independent School District, Texas

#### Gina D. McCown

Bushland Independent School District, Texas

**Beverly Sutterfield** 

Bushland Independent School District, Texas

San Diego Ballroom A (Marriott)

#### 216

#### **Response to Intervention: Supporting** Struggling Learners with Differentiated Instruction and Intensive Interventions

#### (Pre-K-8) Gallery Workshop

Are you looking for ways to support students who struggle with mathematics? Join the speaker as she discusses evidence-based strategies for providing intensive interventions. Engage in hands-on activities, hear ideas for organizing the classroom to provide differentiated support, and receive handouts containing references and resources.

#### Linda Forbringer

Southern Illinois University Edwardsville

Douglas Pavilion C (Hyatt)

#### 217

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#### **Understanding Multiplication and Division Problems: Not a Problem!**

#### (3-5) Gallery Workshop

Solving word problems can be challenging for students. Using a hands-on approach, the speaker will explore and examine the categories of multiplication and division problems. Leave with an in-depth understanding of these structures as you write some problems of your own. Help your students be strong problem solvers!

#### Sally Kingsley Goss

Howard County Public Schools, Ellicott City, Maryland

11 A (Convention Center)

#### 218

#### **Fraction Sense**

#### (3-5) Gallery Workshop

Proficiency with fractions is crucial for success in algebra. As teachers, we strive to develop number sense. But how do we develop "fraction sense?" This presentation will focus on instructional strategies that will develop students' fraction sense when implemented daily and intentionally. Classroom structures and activities will be shared.

#### John SanGiovanni

Howard County Public Schools, Ellicott City, Maryland Marina F (Marriott)

#### 219

#### What's Your Problem?

#### (3–5, Preservice and In-Service) Gallery Workshop

You can help your students become problem solvers through the use of problem-solving strategies. Experience using, and teaching with, these strategies as well as ideas for instruction and assessing students' work. Receive rich tasks to use with your students. Come prepared to solve some problems!

#### Linda M. Gojak

John Carroll University, University Heights, Ohio San Diego Ballroom C (Marriott)

#### 220

#### Exploring Geometric Shapes as a Visualization of Basic Algebraic Ideas

#### (3-8) Gallery Workshop

From early grades, geometry can and should be used to help students visualize and better understand connections between quantities. The activities presented in this gallery workshop may help students practice notions of area and length while preparing them for understanding important algebraic ideas.

#### Natalya Vinogradova

Plymouth State University, New Hampshire

Manchester Ballroom A (Hyatt)

#### 221

#### Visions of Fraction Divisions

#### (3-8, Higher Education) Gallery Workshop

Want to see the real picture of fraction division? Algorithms for partitive and measurement fraction division should be "seen" from pictures that promote understanding rather than easily forgotten rote procedures. Hands-on activities will reveal why some fraction problems have exact answers whereas others have whole-number answers with remainders.

#### **George Douglas Poole**

East Tennessee State University, Johnson City

17 A (Convention Center)

#### 1:00 p.m.–2:30 p.m.

#### 222

#### 3D Paper Mechanisms: Learning Algebra and Geometry through Paper Engineering

#### (3–8, Preservice and In-Service) Gallery Workshop

Become a paper engineer! Learn to make your own threedimensional, animated paper mechanisms using cardstock and tape. To understand and design their mechanisms, students measure distances and angles, search for patterns in data, develop their own linear equations, and solve them algebraically, geometrically, or both ways.

#### **Gary Scott**

University of Southern California, Los Angeles

#### **Gary Benenson**

City College of New York, New York

Douglas Pavilion A (Hyatt)

#### 223

## Computational Thinking and Data Analysis in the Middle School Classroom

#### (6-8) Gallery Workshop

Data in the form of numbers, words and images through cell phones, text messages, Internet surfing, and computer gaming fill students' daily lives. Promote understanding of data in a student-relevant context while building thinking skills. Explore activities and strategies to help students analyze data, identify trends and gain meaning from data.

#### Lisa Howells

iPlant Collaborative-Tucson, Arizona

14 A (Convention Center)

#### 224

#### When Your Textbook Isn't Enough: Teaching Algebra Right the First Time

#### (6–8) Gallery Workshop

Research indicates teaching procedural skills in algebra before conceptual understanding leaves students with superficial perceptions. Engage students with labs and learning activities that deepen algebraic thinking leading to procedural skills. The "big ideas" developed in this presentation are relational thinking about equality and inverse operations.

#### **Paul Agranoff**

AIMS Education Foundation, Saint Francis, Minnesota 16 A (Convention Center)

#### 225

## Use Multiple Entry-Level Problems to Reach All Students

#### (6–8) Gallery Workshop

One way of achieving equity in the mathematics classroom is through the use of multiple entry-level problems. Participants will solve problems, examine students' responses, and receive related resources. They will also discuss the importance of involving all students in the problem-solving process.

#### **Marilyn Elaine Strutchens**

Auburn University, Alabama

5 A (Convention Center)

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#### 226

#### Effective Strategies for Connecting Mathematics and Language for English Learners

#### (6-8) Gallery Workshop

Teachers who know the mathematics they teach are better at teaching it to their students. Teachers need to understand how English mathematics language challenges English language learners. This presentation will give teachers insight into the interplay of language, culture, and mathematics understanding.

#### **Harold Asturias**

Lawrence Hall of Science, University of California at Berkeley

Betsy A/B/C (Hyatt)

#### 227

#### Question and *Shout:* Making Concept Connections through Questioning Strategies

#### (6-8) Gallery Workshop

Experience a process for strengthening students' mathematics performance on assessments using questioning strategies and language concepts. Participants will expand their questioning process, improve skills in question construction, and learn to self-assess questions so that every student is more successful on various mathematics assessments.

#### Jennie Marie Bennett

NUMBERS Mathematics Professional Development, Houston, Texas

Manchester Ballroom I (Hyatt)

#### 1:00 p.m.-2:30 p.m.

#### 228

## Engage All Students with Interactive and Visual Environments

#### (6–8) Gallery Workshop

Students are surrounded by highly visual and interactive environments. Yet math instruction centers on auditory and sequential procedures. Students must be engaged using a more active approach. See how hands-on investigations, informative comics, and videos can be used to engage students and develop essential conceptual math understanding.

#### Sheldon J. Erickson

Fresno Unified School District, California

Marina D (Marriott)

#### 229

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#### Building the Diagonal Cube (6–8) Gallery Workshop

Using a protractor, the speaker will draw seven adjacent isosceles triangles on strips of colored paper, weave the strips to create the 3-D cube, and observe clockwise observation of each face to discover 24 color combinations, modeling the maximum number of ways to arrange four elements of a set. Instructions and supplies will be provided.

#### Jane A. Whitmire

Central Washington University, Ellensburg

Salon 5 (Marriott)



#### 230

## Solving Rate Problems with Pattern Blocks

#### (6–12) Gallery Workshop

Question: "Mary fills 3 balloons per minute. Joe fills 5 balloons every two minutes. How long will it take them to decorate for the prom if they need 440 balloons?" Pattern blocks provide visual models for problems of this type. Experience an intuitive, unique solution path in a hands-on gallery workshop. Classroom-ready resources will be available.

#### Robb Sinn

North Georgia College and State University, Dahlonega

#### Dianna Spence

North Georgia College and State University, Dahlonega Manchester Ballroom G (Hyatt)

#### 231

#### Connections: Linking Research-Based Instructional Strategies with Standards-Based Mathematics

#### (6–12) Gallery Workshop

Do you know how to integrate reading, writing, vocabulary, cooperative learning, and diverse learning styles without losing crucial content? Engage in a lesson that uses strategies to support a deep understanding of mathematics. Teachers from a large, urban district are seeing increased engagement and achievement from using these strategies.

#### Rosann Hollinger

Milwaukee Public Schools, Wisconsin

#### Laura Maly

Milwaukee Public Schools, Wisconsin

3 (Convention Center)

#### 232

#### Technology, Assessment, Inquiry: TI-Nspire™ Navigator and SMART™ Technology

#### (6–12) Gallery Workshop

Experience hands-on activities with the latest handheld learning tool. Hear about inquiry learning resources focused on improving instruction of tough-to-teach, tough-to-learn algebra and geometry topics. See how the TI-Nspire Navigator can be used with interactive whiteboards for formative assessment or review and preparation for high-stakes tests.

#### Sean Bird

Covenant Christian High School, Indianapolis, Indiana Manchester Ballroom E/F (Hyatt)

#### 1:00 p.m.-2:30 p.m.

#### 233

#### Looking for Patterns and Developing **Algebraic Representations**

#### (6-12) Gallery Workshop

Explore hands-on activities designed to help students move from concrete models of problem situations to algebraic representations. Data will be graphed and analyzed using the TI-Nspire.

#### **Elizabeth Gasque**

Retired, Charleston, South Carolina

#### Judy Hicks Retired, Arvada, Colorado

Marina E (Marriott)

#### 234

#### **Building Quadratics and Other Polynomials** from Linear Functions

#### (9–12) Gallery Workshop

Students do not always see quadratic functions' link with linear functions. The speakers will share activities to develop an understanding of quadratic functions and higher-order polynomials from graphs and tables of linear functions, extending linear contexts to explore relationships among linear, quadratic, and higher-order polynomials.

#### Charlene E. Beckmann

Grand Valley State University, Allendale, Michigan

**Denisse R. Thompson** University of South Florida, Tampa

Rheta N. Rubenstein University of Michigan-Dearborn

8 (Convention Center)

#### 235

#### **Transitioning You and Your Statistics** Students to TI-Nspire<sup>™</sup> Handhelds

#### (9–12) Gallery Workshop

Explore data analysis and related inference topics in this overview of the extraordinary capabilities of the Nspire. This hands-on gallery workshop will focus on differences between the TI-84 Plus and the TI-Nspire while emphasizing opportunities for maximizing scores on the AP Statistics exam. Activity worksheets will be provided.

#### Lee E. Kucera

Capistrano Valley High School, Mission Viejo, California Elizabeth Ballroom B (Hyatt)

#### 236

#### **One-Variable and Two-Variable Functions** through the Lens of 3-D Geometry in a **Dynamic Environment**

#### (9-12) Gallery Workshop

Develop a twofold meaning for the concept of a graph of a function involving both algebraic and geometric understandings. Through the dynamic environment of Cabri 3D, visually and graphically give linked meaning to the worlds of algebra, geometry, and calculus.

#### **Colette Laborde**

University of Grenoble, Isère, France

#### **Barbara Pence**

San Jose State University, California

Elizabeth Ballroom G (Hyatt)

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#### 237

#### **Connecting Calculus with the Roller** Coaster

#### (9-12, Higher Education) Gallery Workshop

A roller coaster is the perfect context for bringing to life and understanding the concepts of calculus. Multiple representations, including the use of GeoGebra, Amusement Park Physics, and Data Studio software, as well as hands-on activities, will provide connections between calculus and roller coasters. It's a ride you can't miss.

#### Mike Long

Shippensburg University, Pennsylvania

15 A (Convention Center)

#### 238

#### **Exploring Exponential Functions Using the TI-Navigator™ System**

#### (9-12, Preservice and In-Service) Gallery Workshop

We'll use calculator features and some simple experiments to model exponential growth and decay and then use the features of TI-Navigator to assess understanding.

#### **Roberta Koss**

Teachers Teaching with Technology (T<sup>3</sup>), Dallas, Texas Salon 6 (Marriott)

#### 2:00 p.m.-3:00 p.m.

#### 239

#### Pick a Concept and Find a Context, or Pick a Context and Find a Concept

#### (General Interest) Session

A major issues for presenting mathematics in context is how this is done. If a context is chosen, does it meet your needs for concepts? If a concept is chosen, can you find a context for that concept? Examples from different grade levels will be discussed. What's your favorite context for a concept?

#### Johnny W. Lott

Past President, National Council of Teachers of Mathematics; University of Mississippi, Oxford

Elizabeth Ballroom H (Hyatt)

#### 240

## Identity and Power in Classrooms: Moving beyond the Achievement Gap

#### (General Interest) Research Session

Authors and the editorial panel for the equity special issue of *Journal for Research in Mathematics Education* will engage participants in discussions about the roles of identity and power (e.g., racism, sexism, ability, classism, language, politics) in mathematics learning and teaching, emphasizing implications for classroom practice.

#### Beatriz S. D'Ambrosio

Miami University, Oxford, Ohio

Elizabeth Ballroom D/E (Hyatt)

#### LOR 241

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#### Discovering Grades Pre-K–2 Mathematics in the Visual Arts and Children's Literature (Pre-K–2) Session

Explore Mondrian's quadrilaterals, Matisse's patterns, Arp's chance collages, Warhol's 2D and 3D shapes, and number sense in works by Pollock and Lichtenstein. Explore children's literature that features the visual arts, and learn how to connect the literature to mathematical concepts. Discuss the research on math-art connections.

#### Robin Anne Ward

Rice University School Mathematics Project, Houston, Texas

5 B (Convention Center)

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#### 242

#### Enhancing Think-Pair-Share: Mathematical Communication in Early Childhood Classrooms

#### (Pre-K-2) Session

This session will engage participants in mathematical activities for early childhood students that foster an understanding of number and patterns. Classroom protocols designed to help teachers foster mathematical communication and listening skills in their students will be shared.

#### Andrew M. Tyminski

Purdue University, West Lafayette, Indiana

Signe Kastberg Indiana University Purdue University Indianapolis

Elizabeth Winarski Project School, Indianapolis, Indiana Sue Ellen Richardson

Indiana University Purdue University Indianapolis

7 B (Convention Center)

#### 243

## Making Math Move and Connect through Centers

#### (Pre-K-2) Session

Make your math move, connect, and meet individual students' needs through innovative centers. Participants will interactively learn how to set up, move, and assess your students through powerfully connected, hands-on learning centers. Your students will power forward in learning as they move through math centers.

#### Lynn Gannon Patterson

Murray State University, Kentucky

Manchester Ballroom D (Hyatt)

#### New to Teaching?

Get answers to pivotal questions and concerns of new and soon-to-be teachers at the New Teacher Strand on Friday.

#### Geometric Thinking in Young Children: An **International Research Perspective**

#### (Pre-K-2, Higher Education, Preservice and In-Service) Session

The presenters will share findings from a study addressing geometric thinking in five- and six-year-olds conducted in Queensland, Australia. Classroom-tested lessons will be shared that connect effective teaching practices to students' learning of important geometric concepts. Implications for teaching and learning will be discussed.

#### **Trena Wilkerson**

Baylor University, Waco, Texas

**Betty Ruth Baker** Baylor University, Waco, Texas

Jordan Sandefur Baylor University, Waco, Texas

Julie Leary Baylor University, Waco, Texas

**Kimber Fowler** Baylor University, Waco, Texas

**Alison Macari** Baylor University, Waco, Texas

Gregory A/B (Hyatt)

#### 245

#### Promoting Deductive Thinking through **Problem Solving with Storybook** Characters

#### (Pre-K-2, Preservice and In-Service) Session

Do you read storybooks and have the characters pose problems that require students to use deductive thinking and problem-solving strategies to solve? This session will share examples of how primary grade teachers used storybooks to promote mathematical reasoning and will provide participants with strategies to use in their own classrooms.

#### Jane M. Wilburne

Penn State Harrisburg, Middletown, Pennsylvania

#### Jane Keat

Penn State Harrisburg, Middletown, Pennsylvania

6 D (Convention Center)

#### LCR 246

#### Poetometry: Empower All Students by **Connecting Geometry and Poetry**

#### (Pre-K-5) Session

Poetometry is an integrated mathematics and poetry project. This session will describe the powerful connections between geometry and poetry. Children learn geometric concepts in the context of poetry. They compose poems, construct figures, and investigate geometric properties. Elementary school students' poetometry will be showcased.

#### Donna Gee

Angelo State University, San Angelo, Texas

**Marilyn Eisenwine** Angelo State University, San Angelo, Texas

Judith A. Hakes

Angelo State University, San Angelo, Texas

11 B (Convention Center)

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#### 247

#### The Mathematics and Literature Connection: Moving beyond The Doorbell Rang

#### (Pre-K-5) Session

This session will showcase research and practical applications related to the integration of mathematics and children's literature. A framework will be provided that will guide attendees to support students in making authentic and meaningful mathematical connections stemming from children's literature.

#### **Jeffrey Shih**

University of Nevada, Las Vegas

**Cyndi Giorgis** University of Nevada, Las Vegas

6 C (Convention Center)

#### LCR 248

#### Drill and Thrill: Mindful Practice That **Connects Skill with Understanding**

#### (Pre-K-5) Session

Whether one is learning soccer, piano, or mathematics, practice is necessary, but mindless practice is deadening. This session will give several concrete examples-with handouts and video-of highly focused, effective practice that children love and that build competence very quickly. How? Connect skill with thinking through mindful practice!

#### Liz Uccello

Cunniff Elementary School, Watertown, Massachusetts

#### **Shannon Sauder**

Cunniff Elementary School, Watertown, Massachusetts

#### E. Paul Goldenberg

Education Development Center, Newton, Massachusetts 15 B (Convention Center)

#### 2:00 p.m.-3:00 p.m.

#### 249

#### A Balanced Approach to Elementary Math Methods: Seeing is Believing

#### (Pre-K–5, Preservice and In-Service) Session

This presentation focuses on balanced mathematics—an integration of constructivist approaches with a math version of Response to Intervention—in an elementary methods course designed by a teacher, professor, and mathematician. A description of course components will be provided, and attendees will participate in a simulated classroom activity.

#### **Stephanie Baker Peacock** University of Texas at Austin

Taylor Martin

University of Texas at Austin

#### **Rose Tran**

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University of Texas at Austin Elementary School

Molly A/B (Hyatt)

#### 250

## Individual Assessments: The Key to Student's Skills and Understanding

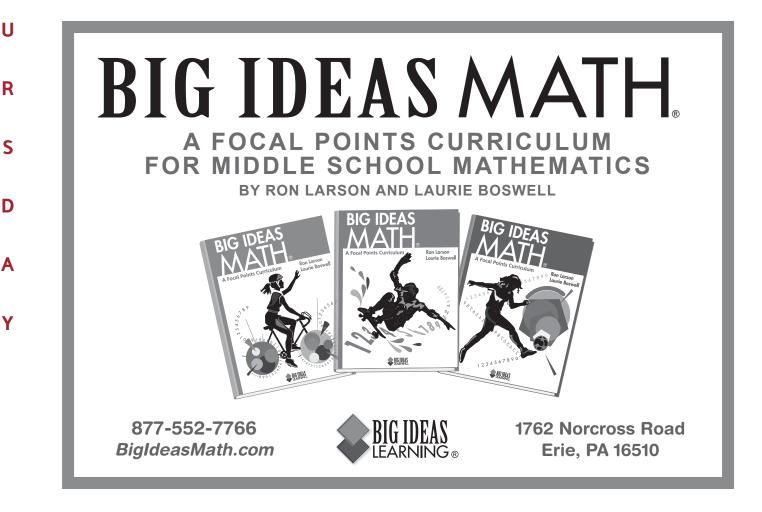
#### (Pre-K-8) Session

Number and operations is the cornerstone of elementary school math instruction. Teaching students effectively depends on having detailed and specific information about their understanding and skills. While paper and pencil work provides some information about students, individual assessments provide essential in-depth and unique information.

#### **Marilyn Burns**

Math Solutions, Sausalito, California

20 A/B/C (Convention Center)



#### How to Create Scoring Rubrics: Linking Appropriate Assessment to Math

#### (Pre-K-8) Session

Successful teachers set clear expectations for students' work. This session focuses on methods to develop rubrics that facilitate assessment. Attendees will create rubrics, use rubrics to assess sample work, review student-created rubrics, and share experiences. Sample rubrics and resources will be provided.

#### Audrey M. Quinlan

Seton Hill University, Greensburg, Pennsylvania Manchester Ballroom B (Hyatt)

#### 252

#### Connecting NCTM Articles to the Context of Teaching: Ideas for Growing Professionally

#### (Pre-K-8, Preservice and In-Service) Session

The speakers will share favorite articles from *Teaching Children Mathematics* and *Mathematics Teaching in the Middle School* and explain how to engage teachers in ways to maximize the connection of the article to our work in classrooms.

#### Jennifer Bay-Williams

University of Louisville, Kentucky

#### Karen Karp

Board of Directors, National Council of Teachers of Mathematics; University of Louisville, Kentucky

Edward A/B/C/D (Hyatt)

#### 253

#### Maximizing the Potential of Children's Literature in Teaching Mathematics: What We Can Learn from Teachers

#### (3-5) Session

Using children's literature to teach mathematics has long been a recommended practice, but its use often falls short of its potential. Listen to the stories of three teachers who have learned to maximize the potential of this practice. Guidelines and benefits emerge that should help others use children's literature in mathematics more effectively.

**Eula Monroe** Brigham Young University, Provo, Utah

Damon L. Bahr Brigham Young University, Provo, Utah

Salon 1/2 (Marriott)

#### LOR 254

#### Integrating Mathematics and Literature: Enhancing the Potential for Every Child

#### (3–5, Preservice and In-Service) Session

The use of creative ideas to integrate teaching across the curriculum is an important tool. Introducing mathematics units with quality literature creates a positive atmosphere that enables students to be successful and actively involved in mathematical learning.

#### Sally C. Mayberry

Florida Gulf Coast University, Fort Myers

14 B (Convention Center)

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#### 255

#### **Building Strong Algebraic Foundations**

#### (3–5, Preservice and In-Service) Session

This session will address how to build algebraic thinking daily in grades 3–5. The speaker will model differentiated instruction with a multitude of instructional strategies to create algebraic constants. Come prepared to sing, dance, and think algebra with five powerful activities to use three times a week with students.

#### **Kimberly Sutton**

Creative Mathematics, Arcata, California

6 A (Convention Center)

#### LOR 256

#### Two Sizes Too Small? Geometry Meets the Grinch (3–8) Session

This interactive session will explore size change transformations as we solve the Grinch Heart Task using a combination of by-hand and computer-based methods. This surprisingly rich problem, classroom-ready and student-tested, will reveal misconceptions your students have about proportionality and help you individualize your instruction.

#### Dana C. Cox

Miami University, Oxford, Ohio

Michael Todd Edwards

Miami University, Oxford, Ohio

10 (Convention Center)

#### 2:00 p.m.-3:00 p.m.

#### 257

#### Putting a Face on X: Connecting Number Sense to Algebraic Reasoning

#### (3-8) Session

Explore and connect the big ideas of fraction concepts and quantitative reasoning as well as students' common misconceptions about these topics. Using a number-line model and strategies developed to help build quantitative reasoning, participants will examine basic algebra concepts of variable and connect them to reasoning about x.

#### **Nadine Bezuk**

San Diego State University, California

#### **Steve Klass**

Encinitas Union School District, Encinitas, California

6 B (Convention Center)

#### 258

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#### **Focus on Fractions, Building Fraction** Sense: Why Not?

#### (3-8) Session

Number sense is important for all elementary and middle grade mathematics students. For far too many, number sense has become only a whole-number opportunity. It's way past time to extend number sense to fractions, decimals, ratio, and percent. Check out activities that work and that provide the foundation for developing rational number sense!

#### Francis (Skip) Fennell

Past President, National Council of Teachers of Mathematics; McDaniel College, Westminster, Maryland

6 F (Convention Center)

#### 259

#### Fractions Are a Pane in the Window

#### (3-8) Session

What topic strikes mortal fear into the hearts of students and parents? Fractions! Come see how to develop meaningful concepts of, and operations with, fractions using a model from students' everyday environment. After this session, windows will take on a new meaning for you. The same will be true for students after they see fractions in windows.

#### Dan Dolan

Project to Increase Mastery of Mathematics and Science, Middletown, Connecticut

20 D (Convention Center)

#### 260

#### Children's Book Project: Connecting **Children's Literature and Mathematics** Using Technology

#### (3-8, Higher Education) Session

Children's literature is a powerful tool for connecting a child's attention to mathematics. This presentation will introduce a book project appropriate for preservice teachers or for use in a grades K-8 environment. Electronic book versions will be presented, analyzed, and discussed.

#### John Francis McAdam

Marist College, Poughkeepsie, New York

#### Erika Moore

Marist College, Poughkeepsie, New York

Marina G (Marriott)

#### 261

#### Math Assessment: Engage Students through Projects, Problem Solving, and Writing

#### (6-8) Session

Use creative practical math application projects and extended-response problems to engage students in meaningful mathematics. Vocabulary strategies, journaling, and portfolios will be shared. Assessment rubrics and samples of students' work will be included.

#### Edna F. Bazik

National-Louis University, Chicago, Illinois

2 (Convention Center)

#### 262

#### Engaging Students in Understanding Functions with the Use of a **Communicator®**

#### (6-8) Session

Participants will experience how using the Communicator Clearboard can engage students in understanding the concept of a function and in connecting functions numerically, graphically, verbally, and analytically.

#### James R. Rahn

LL Teach, Inc., Bridgewater, New Jersey

San Diego Ballroom B (Marriott)

## LOR 263

## Math + (Science, Social Studies, or Language Arts) = Fun

## (6-8, Preservice and In-Service) Session

Math has many connections with science, social studies, and language arts. This session will combine a variety of activities, literature, and games to use an interdisciplinary approach to help motivate middle school students. It is designed to help students see that math exists outside the classroom and the textbook.

## Jeanne Ramirez Corpus Mather

University of Science and Arts of Oklahoma, Chickasha 17 B (Convention Center)

## 264

## **Conquering Measurement and Scale**

## (6-8, Preservice and In-Service) Session

Experience activities that make measurement and scale fun to teach and accessible to students. Problems designed to make conversions meaningful, a strategy to teach dimensional analysis, a tool that helps students transition from additive to multiplicative thinking when making scale drawings, and ready-to-use lessons will be included.

#### **Shelley Kriegler**

University of California at Los Angeles Math Content Program for Teachers and Students

#### Joanna Packham

University of California at Los Angeles Math Content Program for Teachers and Students

Manchester 1/2 (Marriott)

## LOR 265

## Connecting to the Real World with Alternative Assessment: It's Not Just Assigning Projects!

## (9–12) Session

Alternative assessment is not just assigning projects. Performance assessments, solving real-world problems, or communicating one's understanding is part of the process, but alternative assessment is measuring students' progress with validity and reliability in lieu of paper-and-pencil tests. Learn how without making yourself crazy in the process.

## Neil D. Cooperman

Millburn High School, New Jersey

16 B (Convention Center)

## LOR 266

## How to Incorporate Financial Planning Successfully into the Math Classroom

## (9–12) Session

Financial crisis: in the midst is the mathematics making it possible and solvable. High school students need the math skills to become financially independent. Stop waiting for someone else to teach the financial skills. Participants see portions of lessons and obtain resources to teach lessons on budgeting, investing, and using credit wisely.

#### Kimberly Hanson Nagorski

Big Lake High School, Minnesota

4 (Convention Center)

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## 267

## Financial Algebra: Real-Life Applications All Students Should Know

#### (9-12) Session

Financial Algebra is an algebra-based, technology-rich program incorporating topics from Algebra 1 and 2, and even precalculus, into the study of taxes, insurance, banking, budgeting, investing, home ownership, auto ownership, credit, and more. The program allows all students to extend and practice their algebra skills.

## **Robert Kenneth Gerver**

North Shore High School, Glen Head, New York

6 E (Convention Center)

## 268

## Teaching Limits So Students Will Understand Limits

## (9–12) Session

Ways to help your students understand limits and the uses of limits in precalculus and calculus—continuity, asymptotes, area, and the tangent line—will be discussed. Numerical and graphical concepts help the students understand the analytic (delta-epsilon) definition. The use of technology and computer algebra systems will be included.

## Lin McMullin

National Math and Science Initiative, Dallas, Texas Douglas Pavilion D (Hyatt)

## 2:00 p.m.-3:00 p.m.

## 269

## Using SMART<sup>™</sup> Board to Improve Teaching and Students' Understanding in **Mathematics**

## (9-12) Session

Learn how to make your math lessons come alive with a SMART Board! The speaker will show how abstract concepts can become accessible to students with SMART's Notebook software. Participants will also learn how to use other math software such as Autograph, The Geometer's Sketchpad and the TI SmartView Calculator with a SMART Board.

#### Sarah Jane Heller

Lynnfield High School, Massachusetts

Manchester Ballroom C (Hyatt)

## 270

## Innovative Applications of Computer Algebra Systems (CAS)

## (9-12) Session

A CAS environment can make sophisticated mathematics tractable. Computational models of mathematical objects allow students to experiment with mathematical phenomena (functions, graphs, polynomials) in ways that would be difficult to do by hand. Investigate with examples from the CME Project, an NSF-funded high school curriculum.

## Al Cuoco

Education Development Center, Inc., Newton, Massachusetts

Salon 4 (Marriott)

## 271

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## **High School to Higher Education: Challenges of Transition**

## (9-12, Higher Education) Session

It is increasingly important for students to continue with education beyond high school-for their future and for the future of our country. We can't wait until students are seniors to inspire them to apply to college and provide support for them to succeed. How can we pave the way for our students to make this crucial transition?

#### Susan Hudson Hull

Charles A. Dana Center, University of Texas at Austin Salon 3 (Marriott)

## 272

## Beyond the Two-Sample T-Test: ANOVA

#### (9-12, Higher Education) Session

This presentation will introduce one-way analysis of variance, including a discussion of hypotheses, conditions, the ANOVA table, the TSST statistic, F-distribution, decision, and concursion. Bring a TI-8X calculator if possible.

## John M. Arko

Glenbrook South High School, Glenview, Illinois Elizabeth Ballroom A (Hyatt)

## 273

## **Engage Students with Real-World Data** Analysis

#### (9–12, Higher Education) Session

Arrive with ideas to share for spontaneous data collection, participate in several data-collection activities that wake up even sleepy college students, and leave with data sets and projects that are not only useful in and out of class but also motivate students to practice as they build a historical perspective on data analysis.

## Janet Marie Winter

Pennsylvania State University, Reading

Elizabeth Ballroom C (Hyatt)

## 274

## Mathematics as Sense Making: Technology as a Vehicle

## (9–12, Preservice and In-Service) Session

Dynamic geometry, statistics, and algebraic technologies are tools for engaging students in mathematical thinking and sense-making. This session gives examples of activities that use technological tools for mathematical sense making and makes research-based suggestions for using technologies to deepen students' mathematical understandings.

#### M. Kathleen Heid

Pennsylvania State University, University Park

#### Rose Mary Zbiek

Pennsylvania State University, University Park

Manchester Ballroom H (Hyatt)

## 275

## **Develop Practioner Inquiry and** Professional Learning Communities Using Web 2.0

## (Higher Education, Preservice and In-Service) Session

Increase and enhance your understanding of readily available Web 2.0 technologies while exploring the applications in preservice and in-service teacher education. Learn powerful strategies for deepening teachers' knowledge of mathematics while enhancing their understanding of the learning processes of the students they teach.

#### Hope M. Yursa

Drexel University, Philadelphia, Pennsylvania

Douglas Pavilion B (Hyatt)

## **EW 276**

## Practice SMART! Assess SMART! Differentiate SMART! Britannica SmartMath!

## (Pre-K–5) Exhibitor Workshop

Participants will engage in lively and interactive, Web-based practice and assessment for elementary students. Move students toward computational fluency while using tools that allow teachers to differentiate, assess, track, and evaluate in real time. Students *enjoy* doing math at home or in the classroom.

## **Britannica Digital Learning**

Britannica Digital Learning, Chicago, Illinois

1 B (Convention Center)

## **EW 277**

## Change the Way Students See Math (8–12) Exhibitor Workshop

Prentice Hall Algebra 1, Geometry, Algebra 2° 2001 is changing the way students see math! Make math more meaningful for students by focusing on student engagement, problem solving, visual instruction, and conceptual understanding. Deliver instruction through a blended medium of digital and print components and reach today's digital natives.

#### Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

#### 3:00 p.m.-4:30 p.m.

## 279

## Can You Explain Your Thinking?

## (Pre-K-2) Gallery Workshop

Participants will learn about cognitively guided instruction (GCI) and implementing it in the classroom. This presentation will explore children's thinking using math word problems and math games. You will learn about the different levels of math word problems using CGI and a variety of fun math games.

## Cynthia Jane Graham

Plano Independent School District, Texas

Jessica Defrang Plano Independent School District, Texas

Jane Curry Baylor University, Waco, Texas

Betsy A/B/C (Hyatt)

## 280

## A Unit Story: Introducing Unit and the Number Line to Young Children

## (Pre-K-2) Gallery Workshop

See how unit and number are introduced after children are familiar with the meaning of addition and subtraction and comparing quantities. Storytelling and pictures accompanied by activities introduce students to the concept of unit. Participants will use continuous quantities and learn one way in which unit is taught to young children.

#### Fay Zenigami

Curriculum Research and Development Group, University of Hawaii, Honolulu

#### Claire Okazaki

Curriculum Research and Development Group, University of Hawaii, Honolulu

Elizabeth Ballroom G (Hyatt)

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## 281

## Using Music and Movement to Reach Your Grades K–1 English Language Learners in Math

## (Pre-K-2) Gallery Workshop

Come learn some fun songs with movements that will help your students learn to identify numbers and shapes, count to 100, make patterns, compare sets, and more! These multisensory techniques are particularly effective for children who are still learning English, and they will compliment any existing math program.

## Heidi Butkus

Bonita Unified School District, La Verne, California

Salon 5 (Marriott)

## 282

## Camping In, Math Style! (Pre-K–5) Gallery Workshop

Are you hiking through the world of mathematics looking for great ideas? Hike to math "trail posts," record ideas in your camp journal, and fill your backpack with great ideas! Learn how to replicate a Math Camping In experience for your classroom or building. Handouts (and s'mores) provided.

#### Kelli Shrewsberry

Teaching and Learning Collaborative, Columbus, Ohio **Jessica Cahill** 

South Western City Schools, Grove City, Ohio Mary Polen

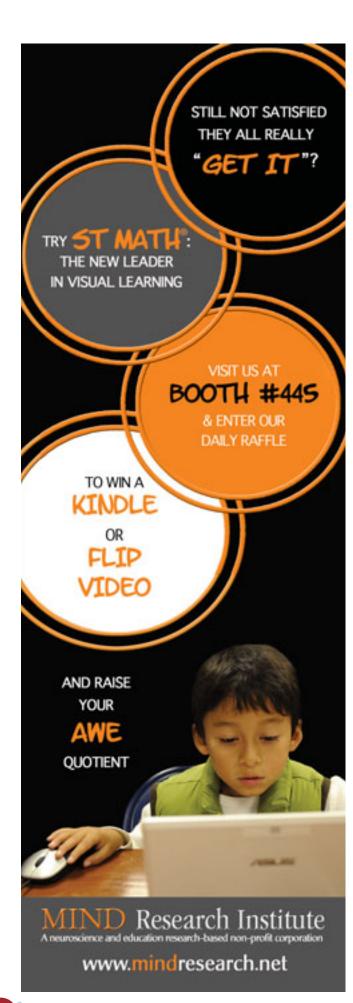
South Western City Schools, Grove City, Ohio

Phyllis Bates South Western City Schools, Grove City, Ohio

Jan Wilson

South Western City Schools, Grove City, Ohio

Manchester Ballroom I (Hyatt)



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## 283

# Bridging the Gap between the Standards and Teaching Data Analysis

# (Pre-K–5, Preservice and In-Service) Gallery Workshop

This presentation will engage participants in activities developed by a joint American Statistics Association–NCTM project to enhance statistics teaching in elementary school. One of the activities will compare the use of different data displays (tally charts, frequency tables, bar graphs, and line plots) to examine various aspects of a data set.

## Tim Jacobbe

University of Florida, Gainesville

Marina D (Marriott)

## 284

## Communicating Mathematical Thinking through Writing, Talk, and Problem Solving (Pre-K–8) Gallery Workshop

This gallery workshop will address practical ways of integrating writing and other types of communication strategies into your mathematics program. Teachers will participate in a variety of fun, easy-to-implement problem-solving activities that encourage students to learn mathematical concepts as well as communciate their own mathematical thinking.

## **Cathy Marks Krpan**

University of Toronto, Ontario, Canada

San Diego Ballroom A (Marriott)

## 285

## What's Rational about Fractions?

## (3–5) Gallery Workshop

Explore some activities to help your students connect with fractions and their contexts. Children's literature, manipulatives, and games will be used to supplement students' understanding of fractions. The speaker will also investigate how these activities can be differentiated to accomodate the different learning styles in your classroom.

## **Theresa Suetterlein**

Fairfax County Public Schools, Springfield, Virginia Elizabeth Ballroom B (Hyatt)

## 286

## Engaging Activities + Effective Instructional Strategies = Students' Success (3–5) Gallery Workshop

"Work smarter, not harder" to improve numeric competence. These strategies promote greater participation and sense making, ideal for intervention success and "family math" efforts. A ready-for-immediate handout will include engaging activities to improve students' performance and enhance mathematical reasoning.

## Leigh Childs

California Mathematics Council, San Diego

Elizabeth Ballroom F (Hyatt)

# Math Out of (Con)text: Bringing Concepts to Life

## (3–5) Gallery Workshop

Go beyond the textbook and teach all students for mathematical understanding. Turn traditional textbook problems into real-life, problem-based tasks that are accessible to all students without increasing your work load or budget. Create lessons for immediate use in the classroom that develop students' math competence, engagement, and understanding!

## Anna M. LaForgia

Council Rock School District, Newtown, Pennsylvania

## Julie Eastburn

Council Rock School District, Newtown, Pennsylvania Manchester Ballroom G (Hyatt)

## 288

# Number and Spatial Sense Supported by Technology

## (3-8) Gallery Workshop

Number sense and spatial sense are the two main components for elementary school education. They can be supported by direct manipulation and dynamic activities. Come discuss how the new Cabri for Elementary Education supports this and can engage students in activities to help them construct more robust and in-depth mathematical concepts.

#### Jean-Marie Laborde

Cabrilog, Grenoble, Isère, France

14 A (Convention Center)

## 289

## Using the Sieve of Eratosthenes in Beginning Number Theory Activities (3–8) Gallery Workshop

The sieve reveals an "x-ray" of the decimal system and number patterns. A sieve of the numbers 1–102 will identify prime numbers by "sifting" out composite numbers whose prime factors are labeled. Activities include patterns in the sieve, factors, multiples, twin primes, fraction families, and patterns in repeating and terminating decimals.

## **Diana Venters**

Key Curriculum Press, Berkeley, California

3 (Convention Center)

## 290

## Putting the Hands in Hands-On Teaching (3–8, Higher Education, Preservice and In-Service) Gallery Workshop

The focus of this presentation is to demonstrate how classroom teachers, at all levels, can enhance their teaching by using a hands-on approach to teaching in order to keep students actively engaged in the lesson. Manipulatives or other materials that allow students to gain a deeper understanding of a given concept will be incorporated.

## Eric J. Heinrich

Louisiana Tech University, Ruston

#### Julie A. Holmes

Louisiana Tech University, Ruston

15 A (Convention Center)

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## 291

## Will It Float? Will It Fit? Is It Faultless?

## (3-8, Preservice and In-Service) Gallery Workshop

Attendees will use Unifix cubes to estimate and build rectangular prism; measure, collect data, and use calculators to determine relationships between different circumferences; use water displacement to determine the volume of three dimensional objects; and develop an understanding of density as they determine what will sink or float.

## Kim Hartweg

Keokuk Community School District, Iowa

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Salon 6 (Marriott)
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## 292

## A Project Approach with Kaleidoscopes: Connecting Mathematics, Science, and Art

## (3–8, Preservice and In-Service) Gallery Workshop

Use the Project Approach to plan and implement a hands-on unit. Build simple mirror systems, a teleidoscope, and a kaleidoscope to take home. Investigate math-science-art integration, kaleidoscope sources, construction materials, resource books, and literature connections. Come if you believe math consists of doing as well as knowing.

## Nick Stupiansky

Edinboro University of Pennsylvania

Sandra Waite-Stupiansky

Edinboro University of Pennsylvania

**Douglas Pavilion C (Hyatt)** 

## 3:00 p.m.-4:30 p.m.

## 293

## Making Sense of the Census

## (6-8) Gallery Workshop

The census is about much more than simply counting the number of people in the United States! This year's census will provide math teachers with a plethora of data to use in classrooms. Participants will receive samples of census data and will construct box-and-whisker plots and scatter plots, both by hand and on the TI graphing calculator.

#### Jennifer M. Seay

Wicomico County Public Schools, Salisbury, Maryland

17 A (Convention Center)

## 294

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## Using Math Games to Encourage and **Enhance Students' Learning**

## (6–8) Gallery Workshop

Participants will gain hands-on experience exploring sample games and extensions. They will discuss strategies while reflecting on the mathematical significance of each game. The focus of the gallery workshop will be on number and operations and problem solving as defined in NCTM's Principles and Standards for School Mathematics.

#### Sarah Klimek

National Council of Teachers of Mathematics, Reston, Virginia

#### Sarah DeLeeuw

National Council of Teachers of Mathematics, Reston, Virginia

## 295

## Connecting Geometry, Algebra, and Measurement with Geofix

## (6-8) Gallery Workshop

Using Geofix shapes allows students to investigate and connect many concepts dealing with two- and three-dimensional geometry. Specific activities related to the NCTM Curriculum Focal Points will be addressed. How can algebra concepts be integrated with geometric concepts?

#### Don S. Balka

Saint Mary's College, Notre Dame, Indiana

Marina E (Marriott)

Manchester Ballroom E/F (Hyatt)

## 296

## Not Everything in Life Is Fair: Fair and **Unfair Games**

#### (6–8) Gallery Workshop

This presentation will investigate games using dice, coins, two-color counters, and other manipulatives to determine whether they are fair or unfair. If the games are unfair, the speakers will explore ways to make them fair.

## Betty B. Long

Appalachian State University, Boone, North Carolina

## **Deborah Ann Crocker**

Appalachian State University, Boone, North Carolina Marina F (Marriott)

## 297

## The Physical to the Cognitive: Building **Mathematical Connections**

## (6-8) Gallery Workshop

For algebra and geometry, learn how to build broader and deeper mathematical understanding for your students through the use of manipulatives. You will see how your students will gain crucial insights into the concepts and relationships that make math meaningful and engaging. This gallery workshop will greatly enrich your existing math curriculum.

#### **Guy Stuart Foresman**

Institute for Conceptual Instruction and California Association for the Gifted, Anaheim, California

#### **Brad Fulton**

Mistletoe Elementary School, Redding, California San Diego Ballroom C (Marriott)

## 298

## **Turning Work Problems into Hands-On** Puzzles

#### (6–12) Gallery Workshop

Do you want to make work problems hands-on? Are you tired of teaching the trick to solve work problems? These problems are rooted in our everyday lives, but everyday people rarely use the trick to solve them. Join us to learn how to turn work problems into hands-on puzzles to help students create a deep understanding of these interesting problems.

#### **Barbara Boschmans**

Plymouth State University, New Hampshire

#### Brian P. Beaudrie

Plymouth State University, New Hampshire

8 (Convention Center)

# Fibonnaci in Action! Bring the Golden Ratio to Life

## (6–12) Gallery Workshop

Learn how to integrate algebra, geometry, art, anatomy, history, and the natural sciences into a meaningful, actionpacked lesson. Through inquiry activities you can introduce one of the most famous sequences that will have your students moving, exploring, and most important, learning.

## Ricci Slobodnik

Northwest Career and Technical Academy, Las Vegas, Nevada

16 A (Convention Center)

## 300

## Exploring the Connection between Recursive Sequences and the Composition of Functions

## (9–12) Gallery Workshop

Multiple representations of recursive sequences will be examined through iterative techniques. Various learning styles will be addressed through modeling of real-world situations. See how handheld technology promotes algebraic thinking and a deeper understanding of sequences, functions, and limits to help students move from algebra to calculus.

## **Thomas Beatini**

Glen Rock High School, New Jersey

5 A (Convention Center)

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## 301

# Connecting Mathematics and Science through Data Analysis

## (9-12) Gallery Workshop

Participants will explore the use of graphing calculators and data collectors to simulate real-life problems connecting geometry and algebra to science. Explore using a motion sensor to map the ocean floor and using color to reflect light using a light sensor. All equipment will be provided for the activities. Sample lesson plans will be available.

## Judy Johnson

Portsmouth City Schools, Virginia

Douglas Pavilion A (Hyatt)



## 3:00 p.m.-4:30 p.m.

## 302

## Some Sequentially Organized Thoughts on the Nature of Randomness

## (9–12, Higher Education, Preservice and In-Service) **Gallery Workshop**

Much of mathematics is counterintuitive. Randomness definitely is. Participants will conduct two simulations of random events. Each simulation will be followed by an actual experiment of the simulated event. The simulated results will be compared to those of the actual event, and a discussion will follow.

## **Richard A. Little**

Baldwin-Wallace College, Berea, Ohio

#### Manchester Ballroom A (Hyatt)

## NE> 302.1

## New Teacher Workshop and Kickoff

## (Preservice and In-Service) Gallery Workshop

Do you have questions on how to make it all work? Together we have answers and ideas on management, parents, homework, keeping your sanity and more! Join others still in school, just starting their careers, or looking for help. Receive gifts, prizes, and good ideas.

#### **David Barnes**

National Council of Teachers of Mathematics, Reston, Virginia

11 A (Convention Center)

#### 303

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## **Developing Mathematics Learning Communities**

#### (Preservice and In-Service) Gallery Workshop

Mathematics learning communities use students' work to connect professional development to the classroom and to stimulate authentic discussions about how students learn mathematics with the goal of improving both students' and teachers' understanding of mathematics.

#### Wendy Cleaves

University of Massachusetts Medical School-Regional Science Resource Center, Shrewsbury

#### Dona Apple

University of Massachusetts Medical School-Regional Science Resource Center, Shrewsbury

9 (Convention Center)

## 3:30 p.m.-4:30 p.m.

## 304

## Weaving Mathematics and Culture through the Internet

## (General Interest) Session

Many Internet sites provide an avenue to weave together culture and mathematics. Explore investigations developed using Internet sites about masks, flags, and games from around the world. The speakers will share how to modify these investigations to meet a range of grade and ability levels.

#### Michaele F. Chappell

Middle Tennessee State University, Murfreesboro

#### **Denisse R. Thompson**

University of South Florida, Tampa

17 B (Convention Center)

## 305

## Do You Expect Me to Find All the Pebbles in the World? (Hermione Granger)

#### (General Interest) Session

How do you know you have found all of the answers? How do you know for sure something does not exist? Questions such as these naturally lead students to create general arguments. In this presentation we will have fun exploring tasks that lead to such questions and in turn general arguments.

#### Joanna Rachel Bartlo

Portland State University, Oregon

#### Sean Larsen

Portland State University, Oregon

2 (Convention Center)

## 306

## Predictors of Success in Algebra 1 and **Higher Mathematics**

#### (General Interest) Session

What does it take to be successful at Algebra 1, and what is preventing more students from success? Algebra can be for everyone. The results of a year-long, quantitative research study of 1500 high school students in a low-income community will be discussed along with its implications for both curricular and instructional changes.

#### Linda Faulk

Colton High School, California

6 C (Convention Center)

## LOR 307

## Learn↔Reflect Reflection Session

## (General Interest) Session

This is a culminating session for those who attended the Learn↔Reflect strand sessions. The session will be a facilitated discussion of four reflection questions.

#### **Professional Development Services Committee**

National Council of Teachers of Mathematics, Reston, Virginia

6 D (Convention Center)

## 308

## Yes, Virginia, Good Multiple-Choice Questions Do Exist!

#### (General Interest) Session

Results from well-written, multiple-choice questions can provide diagnostic information and reveal a student's possible error patterns and misconceptions. The key is to develop meaningful multiple choice questions. This session will give your specific steps and principles on writing good multiplechoice questions and interpreting the results.

#### Samantha Burg

MetaMetrics, Inc., Durham, North Carolina

Gregory A/B (Hyatt)

## 309

## **Building Strong Mathematical Foundations in Prekindergarten**

## (Pre-K-2) Session

A learning environment that offers choices, fosters natural language development, and uses appropriate questioning to stimulate and support a child's thinking lays a strong mathematical foundation. This session will focus on building prekindergarten math understanding through natural play situations and providing intentionally organized tasks.

## **Kim Bowen**

Math Perspectives, Bellingham, Washington

14 B (Convention Center)

## 310

# Integrating Algebraic Thinking with Number and Operations

#### (Pre-K-2) Session

This session will explore how many early elementary school number-and-operation activities can be easily modified to incorporate algebraic thinking and to provide differentiation for students at different levels. Examples will be drawn from a variety of elementary school math curricula, and samples of students' work will be shown.

## Pamela J. Wells

Grand Valley State University, Allendale, Michigan Elizabeth Ballroom C (Hyatt)

## 311

## Using Literature to Build Operation Concepts and Teach Number Facts

## (Pre-K-2) Session

An understanding of operation concepts occurs best when young children are connected to their learning. Stories help children to build mental pictures of the ideas. These mental pictures then help teach strategies that lead to mastery of number facts. This session will show how stories can teach all four operations beginning in kindergarten.

#### Calvin Irons

Queensland University of Technology, Brisbane, Australia Manchester Ballroom B (Hyatt)

## 312

## Generalizations, Connections, and Ideas: Exploring the Role of Algebra in Elementary School

## (PreK-5) Session

This session will focus on how algebra ideas are investigated in the elementary school classroom. Algebra concepts in kindergarten through fifth grade will be explored and analyzed through activities and explorations. Emphasis will be placed on generalizations about the operations, growing patterns, fractions, equality, and relational thinking.

## Zachary Champagne

Mandarin Oaks Elementary School, Jacksonville, Florida

Douglas Pavillion D (Hyatt)

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## 313

# Connecting It All: Four Frames Instructional Model

## (Pre-K-5) Session

Planned daily instruction includes spiral review, problem solving, direct instruction, and perfect practice. The direct instruction frame will include opportunities to explore number and place value as students develop an understanding of whole-number operations. Games will be shared in the perfect practice frame.

## Deborah S. Donovan

Educational Resources Group, Inc., Charleston, South Carolina

Elizabeth Ballroom H (Hyatt)

75

## **Developing Primary School Problem** Solving

## (Pre-K-5) Session

Participants will explore developing an understanding of number sense through a conceptual approach to problem solving. Teaching big ideas from the textbook will be discussed, as well as implementing games, the workshop model, authentic problems, and use of the open number line.

## **Ginalouise Pflanz**

Council Rock School District, Richboro, Pennsylvania

Manchester Ballroom C (Hyatt)

## 315

## Assessing for Understanding

## (3-5) Session

Connect powerful assessment and instructional practices to provide meaningful information for the classroom teacher. This session will share the development of an instructional plan with yearlong assessments that influence classroom practices to enhance and monitor students mathematical understanding in cognitively guided instruction.

## Mary Bridget Sweeney

Des Moines Schools, Iowa

## Josie Burg

R

Downtown School, Des Moines, Iowa

Tracey Donovan Downtown School, Des Moines, Iowa

Jessica Capper Downtown School, Des Moines, Iowa

5 B (Convention Center)

## 316

## Strengthen Mathematics Vocabulary Using **Popular Games and National Comedy** Theater

## (3-5) Session

Enhance students' mathematics success by incorporating recommendations from the National Reading Panel. Learn to use activities adapted from TV game shows (new and old), Whose Line is it Anyway?, and the National Comedy Theater. Actors from National Comedy Theater will demonstrate with participants.

## Mary C. Cavanagh

Arizona State University, Tempe

6 E (Convention Center)

## 317

## Braiding Together Language, Thinking, and Mathematics for Students' Conceptual Understanding

## (3-8) Session

Transform your teaching through cognitively-based planning. Students can do problem solving by creating mathematical models, make connections among the mathematical concepts, create their own meaningful representations, and solve problems involving the same concept in different contexts to build a generalized understanding.

## Arthur Hyde

National Louis University, Lisle, Illinois

## Susan Friedlander

Northbrook School District 28, Illinois

Marina G (Marriott)

## 318

## **Digging into Operation Sense: Helping Students Reason with Quantitative** Analysis

## (3-8) Session

Do students begin attacking problems through computation without considering what operation they need to be using? Quantitative analysis is a process of analyzing the structure of a problem to verify which operations apply before plugging in values to solve. Come explore a strategy that truly helps think about a math problem before solving it.

## **Beth Ann Schefelker**

Milwaukee Public Schools, Wisconsin

Connie Laughlin Milwaukee Public Schools, Wisconsin

Salon 3 (Marriott)

## 319

## Making Math Cool! with "The Rappin' Mathematician"

## (3-8) Session

This session will offer classroom teachers the tools, courage, and expertise to combat negative stereotypes of mathematicians as "nerdy" or "boring." Making Math Cool! will deliver hands-on activities and ideas to turn even the most hardened, tough-to-teach student into one that says, "Hey, that's pretty cool!"

## Alex Kajitani

Escondido Union School District, California

20 D (Convention Center)

# Check your e-mail at the Cyber Café located in the Exhibit Hall.

L. Con. Kan

## 3:30 p.m.-4:30 p.m.

## 320

## Reasoning Proportionally and Talking Math Lead to Success with Algebra

## (3-8) Session

Fundamental to success with algebra is reasoning proportionally and describing relationships. Keyboarding, skateboarding, snowboarding, and a variety of projects, problems, and games from the sciences, arts, history, literature, and sports will serve as the settings for developing skill with proportional reasoning and communicating.

## Carole Ellen Greenes

Arizona State University, Tempe

6 A (Convention Center)

## 321

# Another Algebraic "Whack on the Side of the Head!"

## (3-12) Session

The speaker was once asked how we could connect the concepts of algebraic thinking to the context of the algebra classroom. He will take a humorous, thought-provoking look at some common "mental locks," and we explore how we can turn dry algebraic procedures into powerful algebraic thinking tools.

#### Larry Campbell

Missouri State University, Springfield

Douglas Pavilion B (Hyatt)

## 322

## **Empowering Yourself as a Mathematics** Mentor

## (3-12, Preservice and In-Service) Session

This session will discuss effective strategies for developing mentoring skills both individually and collaboratively, including a mixture of presentation and interactive experiences to demonstrate skills you can develop to mentor others and improve your own teaching. Examples from different levels of mathematics teaching will be provided.

#### Linda Sue Hutchison

University of Wyoming, Laramie

## Judith Ellsworth

University of Wyoming, Laramie

Manchester Ballroom H (Hyatt)

## 323

## Learning to Adapt Curricula through Lesson Study

## (6-8) Session

Teachers face important decisions about how to implement curricula in the classroom. Lessons containing unfamiliar content, tools, or methodologies are especially challenging. In Japan, teachers work together through lesson study to implement new ideas. This presentation will examine the decisions teachers must make and how lesson study can help.

## **Thomas Fenger McDougal**

Asia-Pacific Mathematics and Science Education Collaborative, Chicago, Illinois

4 (Convention Center)

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## 324

## Activities and Applications to Facilitate Middle Grades Mathematics

## (6-8) Session

This session will present activities and applications that can be used in middle school classrooms. Activities have been class-tested.

## **Rick Billstein**

University of Montana, Missoula

Salon 4 (Marriott)

## 325

## Creating a Professional Learning Community through Coaching

## (6-8, Preservice and In-Service) Session

Instructional coaching can be a powerful catalyst for developing a professional learning community in mathematics. This session will show how coaching extended beyond individual teachers' classrooms to influence their awareness of inquiry, the selection and alignment of curriculum, and the formation of a vibrant grades 5–8 lesson study team.

#### Karma Nelson

Bozeman School District, Montana

#### Jennifer Luebeck Montana State University, Bozeman

David Yopp Montana State University, Bozeman

Elizabeth Burroughs

Montana State University, Bozeman

Manchester Ballroom D (Hyatt)

## 3:30 p.m.-4:30 p.m.

## 326

## Mathematics's Role in Developing a **College-Going Culture**

## (6-12) Session

What role does mathematics education play in developing a college-going culture for at-risk kids? Researchers will share midpoint results of a seven-year, longitudinal study focused on building a college culture. The speakers will discuss merits and challenges of mentoring and tutoring as students make difficult transitions in grades 8 and 9.

## **Rich Radcliffe**

Texas State University, San Marcos **Beth Bos** 

Texas State University, San Marcos

Salon 1/2 (Marriott)

## 327

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## Ping-Pong Balls and Lipstick: Teaching **Problem Solving Using Complex Estimation** (6-12) Session

How many ping-pong balls fit in a plane? How fast does hair grow? Multistep estimation problems such as these will be explored as a way to teach problem solving. This session will look at a unit that supports all the skills needed to solve complex estimation problems. A packet of problems and lessons will be provided.

## Eval Wallenberg

Urban Assembly School for Law and Justice, Brooklyn, New York

#### **Christopher Luzniak**

Urban Assembly School for Law and Justice, Brooklyn, New York

10 (Convention Center)

## 328

## A Checklist for Making Algebra Meaningful and Engaging

## (6–12) Session

It's a given that many students dislike, and have considerable difficulty in making sense of, algebra. Suggestions and rationale for some changes that build on prior learning experiences and forge connections with all content standards will be offered. Examples, activities, and projects that illustrate and illuminate will be provided.

#### Margaret J. Kenney

Boston College Mathematics Institute, Chestnut Hill, Massachusetts

San Diego Ballroom B (Marriott)

## 329

## Bridging the Gap between Concrete Activities and Abstract Homework

## (6-12, Preservice and In-Service) Session

Technology is only as good as the reasoning it inspires. Students often make no connection between an activity and their homework. This session will demonstrate appropriate, inappropriate, and innocuous uses of technologies, and ways to bridge between the concrete items students manipulate and the abstract ideas students represent on paper.

#### **Christine C. Benson**

Northwest Missouri State University, Maryville

## Jennifer Wall

Northwest Missouri State University, Maryville 6 B (Convention Center)

## 330

## **Reasoning and Sense Making in Geometry** across Grades 9–12

## (9–12) Session

Participants will engage in tasks and discussion that promote students' development of reasoning and sense making in high school geometry. Learn about students' reasoning habits and how to increase reasoning opportunities, as presented in the geometry topic book that supports NCTM's Focus in High School Mathematics document.

## Sharon McCrone

University of New Hampshire, Durham

Yuria Orihuela University of Miami, Florida

James King University of Washington, Seattle

15 B (Convention Center)

## 332

## SMART<sup>™</sup> Students in a Flash

## (9-12) Session

The presenters will share proven successful activities in Algebra 1 and 2 to enhance students' self-testing and review of mathematical objectives though the use of SMART Board technology combined with TI study cards. CD demos will be shared with participants.

## Antoinette Kidwell

Bryant Adult Alternative High School, Alexandria, Virginia Lynn Wills

Bryant Adult Alternative High School, Alexandria, Virginia Elizabeth Ballroom A (Hyatt)

## 3:30 p.m.-4:30 p.m.

## 333

## Integrating Advanced Algebra Applications into the Geometry Classroom (9–12) Session

This session will investigate advanced algebra concepts in a geometry environment. Participants will actively explore and extend geometry topics, using a review of the old (advanced algebra) and a preview of the new (precalculus). Included problems will involve probability, maximum and minimum (using a graphing calculator), and series.

#### **Ilene Hamilton**

Retired, Adlai Stevenson High School, Lincolnshire, Ilinois Elizabeth Ballroom D/E (Hyatt)

## 334

# Connecting with the Past: Lessons Learned from 19th-Century Textbooks

## (9–12, Higher Education) Session

Authors of early U.S. algebra textbooks described teaching philosophies that are surprisingly relevant today. Examining those philosophies gives us a chance to reflect on our own teaching practices. These antiquarian books can be used in the classroom as a teaching strategy. Participants will be able to examine a number of selected textbooks.

#### **Marcus Jorgensen**

Utah Valley University, Orem

11 B (Convention Center)

## 335

## **Connecting Mathematical Concepts to Students' Interpretations of Mathematical Representations**

#### (9–12, Higher Education, Preservice and In-Service) Research Session

Teachers' and students' interpretations of mathematical representations can differ significantly. Students do not always see what mathematicians see in representations. The speakers will investigate students' interpretations of representations and discuss implications for such in respect to learning, instruction, and assessment.

#### Kwaku Adu-Gyamfi

East Carolina University, Greenville, North Carolina

## Michael J. Bosse

East Carolina University, Greenville, North Carolina

## **Ron Preston**

East Carolina University, Greenville, North Carolina 16 B (Convention Center) 336

## Some Difficulties to Be Aware of When Using Interactive Geometry in the Classroom

## (9-12, Preservice and In-Service) Session

Interactive geometry can be used quite effectively by the teacher to foster mathematical exploration; however, cognitive difficulties may arise in the visual and conceptual analysis of the dynamic figures with which the students can interact. We have analyzed a few of such difficulties and believe it is fundamental to develop awareness of them.

## Anna E. Baccaglini-Frank

University of New Hampshire, Durham

Manchester 1/2 (Marriott)

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## 337

## Connection-Making in a Secondary Mathematics Methods Course

## (9-12, Preservice and In-Service) Session

Why does the test for divisibility by nine work? Why is the volume of a cone one-third the volume of a cylinder? These questions are typically answered using algebra and calculus. The presenters will share alternative explanations using geometry and other representations that led to connection-making in a secondary mathematics methods course.

#### **Bethany Noblitt**

Northern Kentucky University, Highland Heights Laura Bristol

Kentucky Center for Mathematics, Highland Heights

Molly A/B (Hyatt)

## 338

## Portfolios in Mathematics Teacher Education Programs: Tools for Documenting Transformation

## (Higher Education, Preservice and In-Service) Session

Portfolios present opportunities for preservice and in-service mathematics teachers to document struggles and transformations in knowledge, pedagogical skills, and dispositions. This session will focus on electronic portfolios rooted in the NCTM Principles and Standards as well as state standards and institutional conceptual frameworks.

#### William Lacefield

Mercer University, Atlanta, Georgia

7 B (Convention Center)

## A Study on How Mathematics Teachers Use Technology in Their Teaching: Three Cases

## (Higher Education, Preservice and In-Service) Session

To enrich teacher education programs in which teachers prepare teaching for students who live in a technologically advanced society, we need to know the relationship between what teachers learned in their teacher education programs and how they actually teach using technology. Research findings about the relationship will be presented.

3:30 p.m.-5:00 p.m.

## Hyeonmi Lee

University of Georgia, Athens

Edward A/B/C/D (Hyatt)

## 340

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Mathematics Standards and Assessments Require Reasoning, Sense Making, and Connections

(General Interest) Session Lifetime Achievement Awards

As we continue to build and implement

the NCTM Standards and assessment work, students must expect to make sense of the mathematics they are learning. They should reason about mathematics and connect it across content strands and to contexts throughout their experiences. Let's look at examples of tasks and student engagement in doing mathematics.

Presentation

## Henry S. Kepner

President, National Council of Teachers of Mathematics; University of Wisconsin—Milwaukee

20 A/B/C (Convention Center)

4:00 p.m.-5:00 p.m.

## **ew 341**

## Simplify Math Rtl: One Complete, Integrated Web-Based Solution

## (General Interest) Exhibitor Workshop

Learn about the first completely Web-based solution that connects the important components of Response to Intervention (RtI). The RtI Package for the Academy of Math delivers universal screening, scientifically based intervention, progress monitoring, case management and reporting.

#### AutoSkill International

AutoSkill International, Ottawa, Ontario, Canada

1 B (Convention Center)

## **CW 342**

## Pearson's New Middle Grades Math Program for Interactive Whiteboards (6–8) Exhibitor Workshop

Get a sneak peek at Pearson's all-new middle grades math program built for today's digital student. It has interactive Whiteboard lessons, online homework and assessments, and automatic grading and reporting.

#### Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

# The Young Mathematicians at Work Series

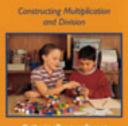


Constructing Number Sense, Addition, and Subtraction



Catherine Twomey Found: Maarten Dolk

## MATHEMATICIANS



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## MATHEMATICIANS

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In the first three volumes of this popular series **Catherine Twomey Fosnot** and **Maarten Dolk** help teachers support children's development in number sense and operation.

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- creating realistic contexts and representational models that develop children's capacity to mathematize their world
- building a collaborative community of mathematical thinkers engaged in inquiry.

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FRIDAY

Realizing the vision of high-quality mathematics education for all students, as described in NCTM's *Principles and Standards for School Mathematics*, requires the active participation of everyone in the education community. NCTM offers a wealth of materials designed to help you spread the message of the importance of improved mathematics education.

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Thursday	7:00 a.m. – 5:30 p.m.
Friday	7:30 a.m. – 5:30 p.m.
Saturday	8:30 a.m.–12:00 p.m.

\* Conference discount not valid on sale items.



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# **FRIDAY PLANNER**

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■ New Teacher Strand

**CW** Exhibitor Workshop

## **HIGHLIGHTS**

- Iris M. Carl Equity Address (Presentation 478)
- NCTM Business Meeting (Presentation 582)
- NCTM President-Elect's Address (Presentation 648)
- New Teacher Celebration! (Presentation 686)

## **Registration Hours**

7:00 a.m.-4:00 p.m.

Exhibits and Cyber Café Hours 8:30 a.m.-5:00 p.m. Bookstore and Member Showcase Hours 7:30 a.m.-5:30 p.m.

## **Fire Codes**

We have made every attempt to provide adequate seating for participants at the conference, but for your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To conform to fire codes, it will be necessary to ask persons sitting on the floor or standing to leave the room.

## 343

## There Is No "Achievement" Gap in Mathematics

## (General Interest) Session

We actually know what schools are doing that are successfully closing the achievement gap: they are focusing on closing instructional gaps by addressing the policies and practices that ultimately produce what we typically label the achievement gap. This session will address these instructional gaps and examine strategies for overcoming them.

#### Matt Larson

Lincoln Public Schools, Nebraska

20 A (Convention Center)

## 344

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## Improving Achievement and Closing Gaps in Math and Science: Lessons from Schools on the Performance Frontier

(General Interest) Session

Kati Haycock will tell us about highly effective schools that get unusually

strong results in math and science from all students, regardless of race or income. She will discuss the trends and the schools that beat them, as well as national math and science achievement trends, with a special focus on low-income and minority students.

Haycock serves as president of the Education Trust. Established in 1990, the Trust speaks up for what's right for young people, especially those who are poor or members of minority groups. Before coming to the Education Trust, she served as executive vice president of the Children's Defense Fund. A native Californian, she founded the Achievement Council and served as director of the outreach and student affirmative action programs for the University of California system.

#### Kati Haycock

The Education Trust, Washington, D.C.

20 B/C (Convention Center)

## 345

## The Mathematical Mysteries of a U.S. \$1 Bill

#### (General Interest) Session

Money intrigues and motivates everyone, young and old. Who could have predicted that our common \$1 bill could have a multitude of arithmetic, geometric, and origami connections for students of all ages? Hear the amazing story behind this rectangle, what it has to do with radar and bowties, and when \$1 can be worth much more than a dollar!

## David K. Masunaga

Board of Directors, National Council of Teachers of Mathematics; Iolani School, Honolulu, Hawaii

6 B (Convention Center)

## 346

# Renew Yourself by Teaching Math in Another Country

## (General Interest) Session

Whether you are a new teacher, a seasoned veteran, or retired, you have much to offer and learn by teaching in another country. A panel shares their experiences and responds to your ideas and questions about teaching internationally. This session was conceived and cosponsored by the U.S. National Commission on Mathematics Instruction.

#### **Stuart Moskowitz**

Humboldt State University, Arcata, California

## Cathy Seeley

Past President, National Council of Teachers of Mathematics; Charles A. Dana Center, University of Texas at Austin

#### Barbara Garii

State University of New York-College of Oswego

#### **Ana Ferreras**

Board on International Scientific Organizations, The National Academies, Washington, D.C.

Edward A/B/C/D (Hyatt)

## 347

# Math and Opera in the Prekindergarten Classroom

#### (Pre-K-2) Session

This presentation will explore a collaborative curriculum program that connects mathematical concepts with opera figures from the Commedia dell'Arte and brings them to life in the preschool or prekindergarten setting. Included will be videos of this project, participation in some of the activities, and songs from the curriculum.

#### Julie Herron

University of Alabama, Tuscaloosa

## Cecile Komara

University of Alabama, Tuscaloosa

15 B (Convention Center)

## 348

## Uno Means One: Grades Pre-K–2 Activities in Number, Measurement, and Spatial Relationships

(Pre-K-2) Session

## **TODOS: Mathematics for ALL presentation**

During math lessons children learn to respect differences and value variety. Based partly on the speaker's recent experiences in Mexico, the activities reinforce children's understanding of number, measurement, and spatial relationships. Communication and connections help students see that mathematics permeates all cultures and societies.

## **Kay Gilliland**

Mills College, Oakland, California

16 B (Convention Center)

## Games, Grids, Ten Frames: Number Sense for Primary Grades

## (Pre-K-2) Session

The speaker will explore card games, dice games, and arrays (ten frame and hundreds chart) to build number sense with grades K-2 students. She will use an arithmetic rack (rekenrek) to connect fives and tens to computation.

## Ann Carlvle

Gervirtz School, University of California at Santa Barbara Elizabeth Ballroom D/E (Hyatt)

## 350

## Math Buddies: A Three-Way Collaboration among Preservice Teachers, Preschoolers, and Their Parents

## (Pre-K-2, Preservice and In-Service) Session

The presentation will walk participants through the process of setting up a three-way collaboration. Participants will engage in four model learning activities and review journal comments and interviews with preschoolers, preservice teachers, and parents. The session will conclude with lessons learned and tips for avoiding pitfalls.

## **Eileen Cyr**

Springfield College, Massachusetts

14 B (Convention Center)

## 351

## This Isn't Language Arts: Vocabulary Instruction in Math Classrooms

## (Pre-K-5) Session

Want to know how to enhance vocabulary instruction in your math classroom? This session will discuss the importance of building mathematical vocabulary in elementary school classrooms as well as how teaching the language of math can be confusing. Various hands-on activities, games, literature, graphic organizers, and writing prompts will be shared.

## Carol A. Corcoran

Stetson University, DeLand, Florida

20 D (Convention Center)

## 352

## Math Fact Fluency: How Can Students' **Data Guide Its Development?**

## (Pre-K-5) Session

How does a student's math fact fluency develop over time? Which methods can be used to promote fluency across a broad range of students? See what the latest research reveals about math fact fluency through longitudinal performance data from a large-sample, online research platform developed under grants from the National Science Foundation.

## Paul Cholmsky

ExploreLearning, Charlottesville, Virginia

Salon 4 (Marriott)

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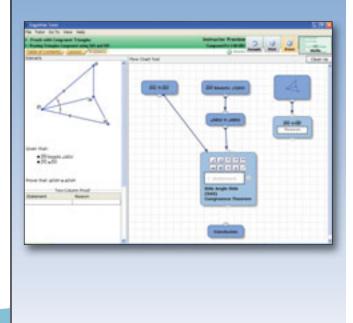
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## 353

## A Comprehensive Approach to Number Sense: Technology That Supports Professional Development

## (Pre-K–5) Session

Explore how Dr. Bob Wright's Learning Framework in Number, from Math Recovery and Add+Vantage Math Recovery, is used to improve achievement by providing a foundational and comprehensive understanding of number sense development and how technology can be used to help classroom teachers expand instructional approaches with this concept.

Tina Silvestri

Solon City Schools, Ohio

William LaRiccia Solon City Schools, Ohio

6 C (Convention Center)

## 354

R

## Learning about Mathematics in Conversation with Children

## (Pre-K–5, Preservice and In-Service) Session

What do teachers learn when children in first, second, and fourth grade are invited into a conversation about their mathematical thinking? Explore how conversations in mathematics assessment provide opportunities for children to illustrate their deep mathematical thinking and for teachers to develop different perspectives of mathematical ideas.

## Florence Glanfield

University of Alberta, Edmonton, Canada

M. Shaun Murphy University of Saskatchewan, Saskatoon, Canada

Gladys Sterenberg

University of Alberta, Edmonton, Canada

355

## Intervention, the Ultimate Connector: Integrating Concepts, Content, Contexts and Cultures

#### (Pre-K-8) Session

At some time, *everyone* needs intervention. This session will engage participants in fun activities, a variety of representations (concrete/visual/virtual), and active discussions to link concepts, content, context, and culture, thereby ensuring fairness and accessibility for all students, including the disenfranchised.

## Carolyn M. Moore

McGraw-Hill, Columbus, Ohio

Manchester 1/2 (Marriott)

Douglas Pavilion B (Hyatt)

## 356

## Improving Blackboard Organization to Enhance Students' Mathematical Thinking and Understanding

## (Pre-K-8) Session

Japanese teachers believe that effective use and organization of the blackboard, or bansho, helps improve students' mathematical thinking and understanding. For this reason, bansho is often examined during lesson study in Japan. Participants will learn ideas for enriching students' learning through effective use of the blackboard.

## Makoto Yoshida

William Paterson University, Wayne, New Jersey

## William Jackson

Scarsdale Public Schools, New York

Manchester Ballroom H (Hyatt)

## 357

## Scratch<sup>™</sup> Brings Geometry to Life!

#### (3–5) Session

Animation brings geometry, integers, and Cartesian planes to life. Scratch, a new programming language, was integrated into our curriculum. Projects and resources will be shared. Scratch supplements the Focal Points by extending the understanding of 2D shapes, transformations, and rotational symmetry. Scratch was developed at Massachusetts Institute of Technology and is free.

## Mary Queitzsch Zocchi

Watkins Elementary School, Washington, D.C.

**Ann Potter** 

Langley School, McLean, Virginia

2 (Convention Center)

## 358

## **Multiplication Matters**

#### (3–5) Session

Teaching and learning multiplication facts can be a trying process. On the basis of her dissertation research, the speaker has come up with a radically different approach to teaching multiplication facts that helps teachers and makes the process engaging for children. She will share her plan.

## Lynn Salvo

Consultant, McLean, Virginia

Elizabeth Ballroom H (Hyatt)

## How? What? Why? Creating Interdisciplinary Units of Study

## (3–8) Session

This session will discuss what research says in creating interdisciplinary projects and how it can guide design decisions. The speakers will share a math-and-science unit aligned to the Standards to discover what content-specific topics are being addressed. Various resources will also be given to support teachers in creating similar projects.

## Jean Sangmin Lee

Indiana University Bloomington

Vanashri S. Nargund Indiana University Bloomington

6 D (Convention Center)

## 360

## When Mathematicians Write: Making Meaning of Mathematics

## (3-8) Session

When students engage in the authentic work of mathematicians, they solve problems, communicate their solutions, collaborate, and deepen their understanding of concepts through writing. Come explore how writing in math helps students make meaning of mathematical language and differentiates a single math task for a spectrum of learners.

## Kateri Thunder

University of Virginia, Charlottesville

Jane Hansen University of Virginia, Charlottesville

Linde Rickert Charlottesville City Schools, Virginia

6 F (Convention Center)

## 361

# Dust Off Those Cuisenaire Rods: They're Still Real Cool!

## (3-8, Preservice and In-Service) Session

In this activity-based presentation, participants will discover and explore the rods as a means to understanding fundamental algebraic concepts. Ideas to be explored include rational numbers, patterns and functions, area, factoring, prime and composite numbers, and more. Join the fun, and use rods with us to go back to the future!

## John F. Thomson

Consultant, Rochester, New York

Salon 1/2 (Marriott)

## 362

# How Can We Improve Students' Success with Algebra?

## (3–12) Session

Why do many "successful" elementary school math students have so much difficulty with formal algebra? How do we diagnose common misconceptions and partial concepts that children may have developed regarding number and operations? Reveal "cracks" in our students' foundations that may be keeping them from engaging deeply in their algebraic studies.

## Debi De Paul

Educational Service District 123, Pasco, Washington

5 B (Convention Center)

## 363

## Helping Struggling Learners Increase Self-Monitoring through Writing to Solve Problems

## (3-12) Session

Many students with disabilities are poor self-regulators when solving word problems. This often hinders their progress and development in solving problems and understanding the content. Teachers will be provided with an instructional approach that uses writing to promote self-monitoring and strategic awareness for solving problems.

## Delinda van Garderen

University of Missouri-Columbia

Douglas Pavilion D (Hyatt)

## 364

## Inquiry into Equity: Using a Mathematics Cultural Proficiency Continuum

## (3–12) Session

Develop your school or district capacity for closing mathematics education opportunity and achievement gaps, using a new inquiry-based tool to identify and examine your instructional program's cultural proficiency. Learn how a leadership team of teachers are using this tool to close gaps for African American and English language learner students.

## Lisa Usher-Staats

Los Angeles County Office of Education, Downey, California

#### Stephanie Graham

Los Angeles County Office of Education, Downey, California 7 B (Convention Center)

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## 365

## Learning Geometry from a Sheet of Paper

## (6–8) Session

Middle school geometry will be taught by using an inexpensive manipulative—paper! Through paper-folding activities, using both regular paper and patty paper, many of the middle school geometry topics, and much of the vocabulary, will be shown. Come learn some new ways to teach geometry to your students.

## **Catherine Banks**

Texas Woman's University, Denton

#### Edith Hays

Texas Woman's University, Denton

Marina G (Marriott)

## 366

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## Teaching Math to Artists: Creative Math Projects in High School

## (6-12) Session

Math teachers at the Boston Arts Academy have developed a unique math program that infuses arts and project-based learning into a traditional math sequence. Come hear about some of our successes. Leave with project samples that will engage students, connect to their interest in the arts and allow students to explore rich math content.

## Mark Lonergan

Boston Arts Academy, Massachusetts

11 B (Convention Center)

## 367

## Linking Mental Math, Concepts, and Context in Grades 7–12 Mathematics

## (6–12) Session

With the use (and sometimes overuse) of calculators, we need to put a focus on mental math. This session will discuss ways to teach mental-math strategies, help students see the power of mental math, and show ways we can have students simultaneously practice mental-math strategies and the concepts and skills we are teaching.

James Olsen

Western Illinois University, Macomb

4 (Convention Center)

Pick-up a copy of the onsite Daily News for up-to-date conference information.

## 368



## Reasoning and Sense Making in Geometry: Even Italian Painters Sometimes Get It Wrong (6–12) Session

Geometry can be a difficult subject: it is often the first time a student is asked to think visually or logically. The speaker

will explore geometry areas that give students trouble and look at classroom-tested ideas that help facilitate students' learning. Students' work will be used to highlight reasoning and sense making.

Paul Kelley is a mathematics teacher at Anoka High School, Minnesota, where he has taught since 1987, focusing on teaching geometry and teaching using technology. He has written curriculum for his district for geometry, statistics, and trigonometry and served on several adoption committees. He cowrote *Navigating through Geometry in Grades 9–12* and has presented at many mathematics conferences.

#### Paul Kelley

Anoka High School, Minnesota

6 A (Convention Center)

#### 369

## Interactive Statistics: Exploring Statistical Concepts through Real-World Context

## (6–12) Session

Participants will explore real-world statistical concepts in context of the GAISE Pre-K–12 Report (www.amstat. org/education/gaise) by formulating questions, collecting, analyzing, and drawing conclusions from data. This session will enhance educators' understanding of statistics, clear up common misconceptions, and provide interactive activities.

#### Martha Aliaga

American Statistical Association, Alexandria, Virginia

#### Rebecca Nichols

American Statistical Association, Alexandria, Virginia Gregory A/B (Hyatt)

## 370

## What Do Mathematicians Do, Anyway? Explorations in Problem Solving

## (6–12, Higher Education) Session

Many students equate excellence in math with speed in problem solving and are unaware that mathematicians may spend years on a single problem. Learn about a method to encourage students to investigate a single problem at length and to communicate mathematical thinking. Receive detailed directions, a scoring rubric, and sources of problems.

#### Mary Pat Sjostrom

Chaminade University of Honolulu, Hawaii

10 (Convention Center)

## 371

## Create More Instructional Time: Effectively Integrating SMART<sup>™</sup> Boards, TI-Nspire<sup>™</sup>, and TI-Navigator<sup>™</sup>

## (6–12, Higher Education) Session

Buy time for your classroom by incorporating these fascinating technologies! Place your actual daily class notes online in color as PDFs and videos. Use Nspire documents as investigations, reviews, tutorials, study cards, and more. Learn to use the wireless Navigator system effectively. Obtain a CD with hundreds of ready-to-use activities.

#### **Tom Reardon**

Fitch High School, Youngstown, Ohio

Elizabeth Ballroom A (Hyatt)

## 372

# Infusing Technology into Math Education for Latino and At-Risk Students

## (6–12, Higher Education) Session

This session will report on five years of Title V and what technology worked best for Latino and at-risk students. These emerging learning technologies should be used to supplement mathematics education for today's media-hungry, twentyfirst-century student.

#### **Richard Gardner**

Alliant International University, San Diego, California

6 E (Convention Center)

## 373

## Linking Best Mentoring Practices and Online Support for Beginning Teachers

## (6–12, Higher Education, Preservice and In-Service) Session

A mentor or cooperating teacher plays a crucial role in beginning or student teachers' development. Strategies will be discussed for guiding them to effective mathematics teaching and dealing with their classroom challenges. The effectiveness of a new approach using on-line support for discussion and reflection will be presented.

## Nina R. Girard

University of Pittsburgh at Johnstown

Manchester Ballroom D (Hyatt)

## 374

## Using Interesting Problems to Link Concepts to Context

## (6–12, Preservice and In-Service) Session

Interesting problems from many aspects of real life and from mathematics itself will be connected to concepts in the middle school curriculum. Problems will be solved with audience participation and discussion of how they can be used in a packed program.

#### **Jack Price**

Past President, National Council of Teachers of Mathematics, Newport Beach, California

Manchester Ballroom B (Hyatt)

## 375

# Exploring Exponentials and Logarithms in an AP Calculus Class

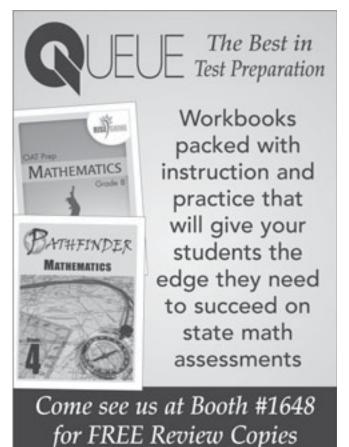
### (9–12) Session

Students need a deep understanding of functions in order to derive their integrals and derivatives. Too often students memorize formulas with little understanding of what the formulas mean. Come explore the calculus of functions and their inverses visually, numerically, algebraically, and verbally using technology and cooperative learning.

## Lyn Orletsky

Titusville High School, Florida

Molly A/B (Hyatt)



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## 376

## Probing Understanding: What Can We Learn from Students' Responses in Large-Scale Assessments?

## (9–12) Session

The speakers will examine geometry problems from assessment instruments used in a longitudinal study. They will share students' work and look at the strategies students used. Specifically, what strategies are successful students using? What are common misconceptions? What are the implications for geometry teaching?

## **Oscar Chavez**

University of Missouri-Columbia

## **Dan James Ross**

University of Missouri—Columbia

San Diego Ballroom B (Marriott)

## 377

# Board Games, Markov Chains, and Matrices

## (9–12, Higher Education) Session

What's the average length of a game of Chutes and Ladders? This question and others can be answered using Markov chains, a branch of probability closely tied to linear algebra. Participants will explore Markov chains using materials from an NSF-funded curriculum currently in development. Sample materials will be provided.

#### **Bowen Kerins**

Education Development Center, Inc., Newton, Massachusetts

Salon 3 (Marriott)

## 378

## Energy—the Sixth E: Enhancing the Five-E Model with Whistles and Bells

## (9–12, Higher Education) Session

This session will discuss the implementation of, and results from, having teachers working as a finely tuned, collaborating, dream-team machine. It will include how to integrate the "Five E" model with SMART board technology, TI-Nspire calculators, thinking maps, white boards, and different handson activities.

## Naomi Christine Molina de Wood

Cesar Chavez High School, Houston, Texas

#### Juanita Ramos

Cesar Chavez High School, Houston, Texas

#### Christie Ginson

Cesar Chavez High School, Houston, Texas Manchester Ballroom C (Hyatt)

## 379

# Authentic Discovery Learning Projects in Statistics

#### (9–12, Higher Education) Research Session

The speakers share results from a project funded by the National Science Foundation, including classroom-ready materials developed for using discovery learning projects in statistics, classroom implementation of these projects, and quantitative analysis of the success of these materials based on students' attitudes and content knowledge.

## Dianna Spence

North Georgia College and State University, Dahlonega

## Robb Sinn

North Georgia College and State University, Dahlonega 17 B (Convention Center)

## 380

## Developing Mathematical Thinking: Professional Development (PD) for Helping Teachers Meet the Needs of Diverse Learners

#### (Preservice and In-Service) Session

An overview of a PD model that increased achievement at elementary and middle school levels will be presented. PD facilitators and teachers from schools with high populations of English-language-learner and low-socioeconomic-status students will discuss their challenges and successes and how the program influenced their teaching.

## **Kimberly Bunning**

Boise State University, Idaho

Sam Strother Boise State University, Idaho

Gay Lynn Erb Meridian School District, Idaho

Melissa Langan Caldwell School District, Idaho

Elizabeth Ballroom C (Hyatt)

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## 8:30 a.m.–9:30 a.m.

## **EW 381**

## Interactive Digital Texts Engage Students in Algebra

#### (General Interest) Exhibitor Workshop

Use multiple forms of input to engage your students in algebra. Animations, audio, multiple self-assessment tools and more are built into a comprehensive digital text which has successfully completed the California state adoption.

## **Kinetic Books**

Kinetic Books, Seattle, Washington

1 B (Convention Center)

## 8:30 a.m.-9:30 a.m.

## **EW 381.1**

## Moving with Math: Assessment and Hands-On Lessons to Differentiate Instruction for Response to Intervention (Rtl)!

#### (General Interest) Exhibitor Workshop

Moving with Math® is the RtI Solution that will reach preK– high school students in all tiers with proven results! Attendees will participate in hands-on activities and learn what makes Moving with Math the intervention leader.

## **Math Teachers Press**

Math Teachers Press, Minneapolis, Minnesota

Torrey (Marriott)

## **CW 381.2**

R

## Writing in Mathematics

## (General Interest) Exhibitor Workshop

How do you incorporate writing into the mathematics classroom? Math for America (MfA) master teachers highlight how communicating about math strengthens students' learning and acts as an assessment tool. The presentation will explore the role of writing in math education, review real classroom scenarios and demonstrate learning logs and project-based writing.

#### **Robert LaColla**

Math for America, New York, New York

Jesseca Long

Math for America, New York, New York

Columbia (Marriott)

## **EW 382**

## Improving Student Success Through Better Engagement: MathXL® for School

## (6–12) Exhibitor Workshop

MathXL® for School allows teachers to focus on important aspects of teaching, such as measuring learning outcomes and identifying students who need help, while students receive a customized learning experience with automatic grading, immediate feedback, multiple help resources, and practice, practice, practice!

Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

# Visit www.nctm.org for lessons, activities, and teacher resources!

## 383

## Link Up with Geometry Activities throughout the Seasons

## (Pre-K–2) Gallery Workshop

Developing geometric concepts requires on-going learning activities to provide a solid foundation. Participants will create pattern-block animals, symmetrical rocks, and three-dimensional alphabet blocks. Link up with geometry activities that keep building geometry concepts throughout the year.

#### Charlene Steadman

North Kansas City Public Schools, Missouri

#### Elise Sabaski

North Kansas City Public Schools, Missouri

14 A (Convention Center)

## 384

## Mudpies, and Magnets, and Math, Oh My! (Pre-K-2) Gallery Workshop

Follow the Yellow Brick Road to math and science integration. Participants will experience hands-on, Standards-based activities that facilitate the development of math and science concepts. Activities presented will highlight areas such as measurement, data analysis, classification, and more.

#### Latrenda Knighten

Consultant, Baton Rouge, Louisiana

Betsy A/B/C (Hyatt)

## 385

## **Effective Uses for Ten Frames**

## (Pre-K–2) Gallery Workshop

Ten frames are an effective tool to use to support the development of number sense. Mathematical routines, games, and problem-solving lessons using the ten frames will engage participants. Research complimenting the use of ten frames will be shared.

## Melissa Conklin

Math Solutions, Sausalito, California

Salon 6 (Marriott)

## 386

## Place Value: The Foundation for All Mathematics Begins in Primary School

## (Pre-K–5) Gallery Workshop

Place value: what is it? Why is it important? How do you teach it and teach it well in kindergarten through third grade? Work on the development of place value through adding and subtracting whole numbers. See how place value is the foundation of future algebraic success for your students. You will really understand the value of place value!

#### Lori M. Hamada

Fresno County Office of Education, California

5 A (Convention Center)

# ARE YOUR STUDENTS STRUGGLING WITH FRACTIONS?

"Fraction proficiency is the most important foundational skill we can teach students as they prepare for algebra."

– National Math Panel

# The Case for Fraction Nation

- **Research-based** fraction instruction
- Adaptive Technology to meet each student's needs
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## 387

## Round Up Those Computational Skills

## (Pre-K-5) Gallery Workshop

Experience hands-on ways to unlock the number-algebra sense door for students with fun, engaging activities. The activities help students make connections between concepts and operations through the investigation of whole number operations, the discovery of patterns, and the value of estimation. All materials will be available electronically.

## Mary Alice Hatchett

Texas Council of Teachers of Mathematics, Austin

Manchester Ballroom G (Hyatt)

## 

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## Creating a Mathematical Community through Management and Motivation (Pre-K-5, Preservice and In-Service) Gallery Workshop

The mathematical learning that takes place in your classroom is only as rich as the community that has been created. Learn how to build a classroom environment that fosters mathematical understanding by using engaging activities that invite students' participation and support a range of learners.

#### **Kimberley Englert**

Jefferson County Public Schools, Louisville, Kentucky

**Elizabeth Todd Brown** University of Louisville, Kentucky

Jennifer Bay-Williams University of Louisville, Kentucky

**Ronnah Bogert** Jefferson County Public Schools, Louisville, Kentucky 3 (Convention Center)

## 389

## **Smarter Together! Rigorous Mathematics** for All Students through Complex Instruction

#### (Pre-K-8) Gallery Workshop

As classrooms become more diverse, teachers must find ways to support all students in learning rigorous mathematics; however, perceptions about academic ability can limit students' participation. The speakers will draw on the framework of complex instruction for tools for improving mathematical learning by addressing inequitable participation.

#### Marcy B. Wood

University of Arizona, Tucson

**Ginney Stokes** Lansing School District, Michigan

Lisa Jilk University of Washington, Seattle

Manchester Ballroom I (Hyatt)

## 390

## Making Mathematical Sense: Engage Your **Students with Attribute Pieces**

## (3-5) Gallery Workshop

Together we will explore counting, categorizing, and reasoning activities that will enable children to make important logical connections about the pieces. Come prepared to think with your hands. You will leave with a collection of new activities to help your students see more patterns and to answer some "why" questions.

#### Mary J. DeYoung

Hope College, Holland, Michigan

17 A (Convention Center)

## 391

## What's the Point? How to Teach Decimals in Real-World Context

## (3–5) Gallery Workshop

Do your students need to develop their decimal number sense further? This presentation will show teachers how to link decimals to fractions, percent, money, and the metric system. Participants will leave the session with ideas and activities that will engage their students with decimal concepts in a real-world context.

#### Connie Conroy

Howard County Public Schools, Columbia, Maryland

## **Heather Romich**

Howard County Public Schools, Columbia, Maryland Elizabeth Ballroom G (Hyatt)

## 392

#### It's a Tangram World

#### (3–5, Preservice and In-Service) Gallery Workshop

This seven-piece puzzle provides mathematical experiences including properties of geometric shapes, angle measurement, liquid measurement, geography, fractions, decimals, percent, and musical notation. Learn how to fold and cut a puzzle from a  $4 \times 6$  inch card, play games, solve puzzles, and strengthen math concepts with this amazing material.

#### Peggy McLean

Nueva School, Hillsborough, California

Salon 5 (Marriott)

Thank you to the Local Arrangements and Program Committee members. Your time and dedication made this year's Annual Meeting a huge success!

#### 393

## Benjamin Banneker: Reaching All Students—Observe Success in Action

(3-8) Gallery Workshop

## **Benjamin Banneker Association presentation**

Actions speak louder than words. See for yourself a typical class of elementary school students being taught high-level mathematics using Project SEED's successful Socratic pedagogy. Observe proven strategies for increasing feedback, focus, and conceptual understanding that raise achievement and prepare students for success in algebra and beyond.

#### William Glee

Project SEED, Berkeley, California

## Hamid Ebrahimi

Project SEED, Berkeley, California

11 A (Convention Center)

## 394

# Connecting Contexts to Concepts Using Fraction Division

## (3-8) Gallery Workshop

Using multiple representations and strategies to connect context with the concept of fraction division, the speakers will explore several advanced models for thinking about fraction division. Participants will discover methods of dividing with fractions that are most helpful to students, and they will leave with ideas for classroom implementation.

#### Steve Klass

Encinitas Union School District, Encinitas, California

#### Nadine Bezuk

San Diego State University, California

8 (Convention Center)

## 395

## Spirals, Knots, Tessellations, Puzzles: Challenging and Engaging Geometry and Art Projects

## (3-8, Preservice and In-Service) Gallery Workshop

Tessellate a circle with remarkable congruent shapes. Make a spiral of nesting squares. Design an ancient knot. Make a chambered nautilus of similar triangles. Cut a hexagon into congruent pentagons. These hands-on projects combine geometry with art and beautiful artifacts. Tested lesson plans from a geometry course for teachers will be included.

#### Patricia Baggett

New Mexico State University, Las Cruces

#### Andrzej Ehrenfeucht

University of Colorado, Boulder Manchester Ballroom A (Hyatt)

## 396

# From Skip Counting to Linearity: How Do We Get There?

#### (3–12) Gallery Workshop

In this presentation the journey from skip counting to linearity will be explored through the mathematical idea of recursion. Algebraic thinking throughout the grades provides the connections necessary for a deep understanding of mathematics. Participants will experience hands-on activities that make this transition accessible for all students.

#### Mary Mooney

Milwaukee Public Schools, Wisconsin

#### **Astrid Fossum**

Milwaukee Public Schools, Wisconsin

San Diego Ballroom A (Marriott)

## 397

**NE> 398** 

## Everyone Wins, When Everyone Plays! (6–8) Gallery Workshop

Games provide an enjoyable, effective, and interactive way for students to practice and master skills by helping students develop the ability to think critically, solve problems, and investigate ideas about probability. You will learn games that can be played the next day in class.

#### **Rochelle Fouts**

McGraw Hill, Chicago, Illinois

Marina D (Marriott)

## D

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## Math Tasks and Processes That Work for Middle Grades Students

#### (6-8, Preservice and In-Service) Gallery Workshop

Classroom management and learning in a classroom can be helped significantly by building good tasks and good processes. Find out what makes a good task, how to develop and use them in your class, and what processes support more learning and less trouble.

#### Jenny Simmons

Saltillo High School, Tupelo, Mississippi

#### **Barbara Dougherty**

Board of Directors, National Council of Teachers of Mathematics; Iowa State University, Ames

9 (Convention Center)

#### 399

## Buses Aren't That Small! Using Hot Wheels® to Examine Scale Factor

## (6-12) Gallery Workshop

This presentation will share an activity published in Mathematics Teaching in the Middle School that uses Hot Wheels cars to examine the concept of scale factor and that can be connected to the concepts of similarity and proportionality. Students' thinking and extensions to other real-world applications will also be addressed.

## Matthew S. Winsor

Illinois State University, Normal

Elizabeth Ballroom B (Hyatt)

## 400

R

## **Connecting Algebra and Geometry:** Activities to Promote Achievement for All Students

#### (6–12) Gallery Workshop

Participants will engage in a variety of classroom-ready activities designed to connect algebraic concepts to geometric concepts and representations. Activities will span introductory algebra, second-year algebra, and precalculus.

#### John A. Carter

Adlai E. Stevenson High School, Lincolnshire, Illinois

## Gwen Zimmermann

Adlai E. Stevenson High School, Lincolnshire, Illinois **Darshan Jain** 

Adlai E. Stevenson High School, Lincolnshire, Illinois

**Douglas Pavilion A (Hyatt)** 

## 401

## Using Literacy Strategies to Increase Mathematical Understanding

## (6-12) Gallery Workshop

Mathematics textbooks can contain more concepts per line, sentence, and paragraph than any other kind of textbook. This brings increased challenges for students. This presentation will incorporate literacy strategies that promote mathematical understanding, guide instruction, and engage students in powerful learning experiences.

#### Kathleen Dempsey

Mid-continent Research for Education and Learning, Denver, Colorado

Elizabeth Ballroom F (Hyatt)

## 402

## You Can Do It! Technology Can Help!

## (6-12) Gallery Workshop

Challenge students to make connections among mathematics, science, and technology using real-world phenomena. Use the TI-Nspire handheld technology, in conjunction with probes and other manipulatives, to explore linear, exponential, and quadratic functions.

#### Kathleen McKinley

School District of Lancaster, Pennsylvania

## Alwina F. Green

School District of Philadelphia, Pennsylvania

Marina E (Marriott)

## 403

## Strategies for Teaching Probability in the Middle Grades

## (6-12, Higher Education) Gallery Workshop

This gallery workshop will begin with probability experiments to generate data for experimental probability. Three strategies for computing theoretical data for these experiments-sample spaces, probability trees, and an area model-will be covered, with comparisons made between the experimental and theoretical probability.

#### Sue Sundberg

University of Central Missouri, Warrensburg

15 A (Convention Center)

## 404

## Students' Work: What's the Big Idea?

## (6–12, Preservice and In-Service) Gallery Workshop

How is this student's thinking developing? What is the core mathematical concept at stake? How can I respond in a way that engages and moves thinking forward while eliciting more information? Look at the insights gained from teams of researchers, mathematicians, and teachers looking at the work of students mentored in online problem solving.

## **Stephen Weimar**

The Math Forum @ Drexel, Philadelphia, Pennsylvania

Marina F (Marriott)

## 405

## **Discrete Mathematics: Classroom-Readv** Tasks for Cryptography, Graphs, Recursion, and More

## (9-12) Gallery Workshop

Discrete math is engaging, powerful, and fun. It "should be an integral part of the school mathematics curriculum" (NCTM 2000). Come sample a collection of classroom-ready tasks that will make your class come alive with problem solving, reasoning, sense-making, connections, and contemporary contexts.

#### **Eric Hart**

Maharishi University of Management, Fairfield, Iowa

San Diego Ballroom C (Marriott)

## 406

## Deal or No Deal: Fair or Not Fair?

#### (9-12, Higher Education) Gallery Workshop

Participants will engage in an interactive presentation where they will calculate mathematical measures of mean, median, expectation, and fairness in order to analyze the offers from the "banker" in the game show *Deal or No Deal* and predict offers as the game progresses until the final deal is accepted.

#### Jason Gershman

Nova Southeastern University, Fort Lauderdale, Florida 16 A (Convention Center)

## 407

## Multiple Representations of Calculus Concepts Using TI-Nspire™ CAS Technology

## (9–12, Higher Education) Gallery Workshop

Participants will be given hands-on experience using the handheld TI-Nspire computer algebra system (CAS). They will work on activities that represent calculus concepts algebraically, graphically, and numerically.

#### Patricia Sauquillo Brooks

Mount Carmel High School, San Diego, California Manchester Ballroom E/F (Hyatt)

## 408

# Under the Tip of the Iceberg: A Model for Assessment and Instruction

# (Higher Education, Preservice and In-Service) Gallery Workshop

This interactive presentation will highlight assessment activities and teacher-designed materials used in professional development with elementary, middle, and high school math teachers. Participants will explore and discuss how an iceberg model can be used to support teachers' classroom assessment practices and deeper understanding of mathematics.

#### David C. Webb

University of Colorado at Boulder

Douglas Pavilion C (Hyatt)

## 409

## Using Mathematics Homework with an Eye on Equity and on Mathematical Integrity

## (General Interest) Session

Homework is widely used in mathematics teaching, but it can also amplify inequities. How can homework be designed and used in ways that support mathematical development and that are sensitive to the differences in students' out-of-school contexts and responsibilities? The session will examine specific examples of homework and their design and use.

## **Deborah Loewenberg Ball**

University of Michigan—School of Education, Ann Arbor 20 A (Convention Center)



## Worksheets Don't Grow Dendrites: Twenty Instructional Strategies That Engage the Brain

# (General Interest) Session

If students don't learn the way we teach them, then we must teach them the way they learn. Experience 20 tegies that maximize understanding a

brain-compatible strategies that maximize understanding and memory. Explore research that shows why these strategies are preferable to others and ensure that brains retain important concepts, not only for tests, but for life!

Marcia Tate is a former executive director of professional development for the DeKalb County Schools, Decatur, Georgia. In her 30-year career with the district, she has been a classroom teacher, reading specialist, language arts coordinator, and staff development director. She has worked with administrators, teachers, parents, and business and community leaders and has authored five best-selling books.

## Marcia L. Tate

Developing Minds, Inc., Conyers, Georgia

20 D (Convention Center)

## 411

## Bridge across the Americas: Connections for Strengthening Math Education in Latin America

#### (General Interest) Session

This session will be an overview of past linkages between professional organizations in the United States and Latin America with proposals for how they can be evaluated and improved, in order to understand the impact of both systems on immigrant students.

#### **Rick Scott**

New Mexico Department of Higher Education, Santa Fe

#### Eduardo Mancera

Asociación Nacional de Profesóres de Matemáticas, Mexico City, Distrito Federal, Mexico

#### Eliana Rojas

University of Connecticut, Storrs

#### Gregory A/B (Hyatt)

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Grades 2-8+

# Powerful Data for Raising Math Achievement

- Screen for Intervention
  - Inform Instruction
  - Monitor Progress





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**SCHOLASTIC** 

## **From Fingers to Figures**

## (Pre-K-2) Session

The speaker will show how math history helps students develop their mathematical understanding of place value and number sense. She will demonstrate the development of counting and share the stories and materials. Mathematical concepts will be more evident and easily understood if students are given a historical background.

## **Doris Lindberg**

Carlssons Skola, Stockholm, Sweden

5 B (Convention Center)

## **413**

## Teaching and Assessing for Understanding (Pre-K–2) Session

Connect assessment and instructional practices to provide meaningful information for classroom teachers. This session will share the development of an instructional plan with yearlong assessments that help classroom practices monitor students' mathematical understanding. This plan correlates with strategies from cognitively guided instruction.

## Jennifer Marie Johnson

Des Moines Schools, Iowa

Barbara Leise Des Moines Schools, Iowa

**Chris Curtis Mathews** Des Moines Schools, Iowa

Natalie Franke Des Moines Schools, Iowa

John S. Johnson Des Moines Schools, Iowa

Manchester Ballroom D (Hyatt)

## 414

# The Singapore Math for Helping Children Solve Challenging Mathematical Problems

## (Pre-K-5) Session

The TIMSS results show that Singapore students are consistently doing very well at the grade 4 math. How do they solve complicated and algebraic problems before learning algebra? The speaker will show Singapore Math methods in greater depth, linking theory, practice, and connection. The model method and other math strategies will be examined.

## Ho-Kheong Fong

Univeristy of Bahrain, Bahrain

20 B/C (Convention Center)

## 415

# Avoiding Misconceptions and Decreasing the Need for Intervention

## (Pre-K-5) Session

If we focus on meaning and consider the crucial learning phases when children are beginning their study of mathematics, we can prevent many misconceptions that cause children to be unsuccessful in mathematics.

## Kathy Richardson

Math Perspectives Teacher Development Center, Bellingham, Washington

6 F (Convention Center)

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R

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## 416

## More than Just Rabbits: Why Fibonacci Matters

## (Pre-K-8) Session

In this playful, highly visual presentation, the presenter will reveal how you can use the story of Fibonacci to teach more than just number patterns. Learn how this medieval mathematician's tale connects with seven crucial disciplines: math, science, art, literature, history, language, and lasagna!

## Joseph D'Agnese

Henry Holt Books for Young Readers, New York, New York 15 B (Convention Center)

## 417

## Virtual or Not? Selecting Virtual Manipulatives for Effective Classroom Use (Pre-K-8) Session

Exploring mathematics with virtual manipulatives can be engaging and exciting. The question is, how can teachers effectively select a virtual manipulative for classroom use? The session will provide some guidelines and questions to consider that will help you take advantage of their potential.

## Johnna Bolyard

West Virginia University, Morgantown

**Patricia Moyer-Packenham** Utah State University, Logan

6 E (Convention Center)

## 418

# Can Students Get the Right Answers for the Wrong Reasons?

## (Pre-K-8, Preservice and In-Service) Session

Are your current assessments revealing what your students truly understand? Take a mathematical journey with Sarah and her teacher to identify why she is getting the right answers for the wrong reasons. Use informative diagnostic tasks designed to elicit Sarah's understandings, partial concepts, and misconceptions.

## Terri Morrison

Grafton Public Schools, Massachusetts

Elizabeth Ballroom H (Hyatt)

## 9:30 a.m.–10:30 a.m.

## 419

## Teach to the Test for Deeper Understanding

## (3-5) Session

Make the most of multiple-choice. Incorporate problem solving, critical thinking, and reading comprehension skills. These strategies are classroom-tested (pardon the pun) and proven to improve standardized test scores by as many as 30 percentile points while students gain deeper understanding of connections between math skills and concepts.

## Christine Losg

Consultant, Palo Alto, California

Edward A/B/C/D (Hyatt)

## 421

R

## Algebraic Thinking and the Language of **Number Puzzles**

## (3-8) Session

The language used in many number puzzles requires students to think algebraically. Participants will solve a collection of number puzzles and discuss the role that language plays in the algebraic thinking needed to solve the puzzles.

#### Wade Hampton Sherard

Furman University, Greenville, South Carolina

2 (Convention Center)

## 422

## Go Math: Mobile Applications to Support Families' Everyday Math Use

## (3-8) Research Session

The speakers interviewed families with middle school students to learn how families use and talk about math at home. From that, they developed mobile applications to support families' problem-solving activities and discussions in everyday math. They will present the applications and discuss potential math links between home and the classroom.

#### **Kristen Blair**

Stanford University, California

April C. Alexander Stanford University, California

**Shelley Goldman** Stanford University, California

Manchester Ballroom B (Hyatt)

## 423

## Changing the Culture of Language for the **Hispanic ELL Student in Mathematics**

## (3-8, Preservice and In-Service) Session

Mathematics language and the mathematics register includes more than just the mathematical concepts; they are also vehicles to communicate mathematically. In multicultural classes, language is not only a tool but also a target. Come hear the challenges that our English language learner (ELL) students experience and some solutions to those challenges.

#### Noemi R. Lopez

Harris County Department of Education, Houston, Texas 7 B (Convention Center)

## 424

## Mathematical Learning Styles: Teaching So **Everyone Can Learn**

## (3–8, Preservice and In-Service) Session

Research shows that there are two very distinct learning styles in mathematics—linear and holistic. This session will teach characteristics of the two styles as well as teach strategies that meet the needs of both types of students in the same classroom.

## Rita H. Barger

University of Missouri-Kansas City

Salon 3 (Marriott)

## 425

## How SMART<sup>™</sup> Is Your Chalkboard?

#### (6-8) Session

Transform your old math lessons into SMART lessons. Learn how to teach your current lessons using a SMART Board. See strategies to encourage students' participation at the board. Classroom teachers will present ways to create and use SMART Board manipulatives and games to generate engaging lessons. Audience participation is required!

#### Michelle Meehan

Kenmore Middle School, Arlington, Virginia

Jill Lyttle

Kenmore Middle School, Arlington, Virginia Elizabeth Ballroom A (Hyatt)

**Receive a free T-shirt:** join or renew your NCTM membership onsite at the NCTM Member Showcase.

## 426

## Casting for Knowledge in the Mathematics Classroom

## (6-8) Session

Over the last three years, 80 middle school educators in North Texas have participated in Teacher Quality Grant programs producing podcasts and vodcasts. This presentation will demonstrate how to create, edit, and publish broadcasts that will enhance middle school mathematics teaching.

#### Vanessa E. Huse

Texas A & M University—Commerce

## Maribeth L. McAnally

Texas A & M University—Commerce

Susan Bauer

Ursuline Academy of Dallas, Texas

Manchester 1/2 (Marriott)

## 427

# Use Rich Problems to Teach, Connect, and Extend Hard Middle School Concepts

## (6–8, Higher Education, Preservice and In-Service) Session

Develop rich problems that start with accessible questions but continue with probing questions that increase in difficulty to challenge the most able students. Rich problems provide all students the opportunity to succeed and allow the most able to continue to deepen knowledge about important concepts. A set of such problems is presented.

## **Carol Reed Findell**

Boston University, Massachusetts

Salon 4 (Marriott)

## **428**

## Using Small Groups with Linguistically Diverse Students

(6–12) Session

## **TODOS: Mathematics for ALL presentation**

You can use groups with linguistically diverse students. The speakers will summarize research on using groups with bilingual students, work on a proportional reasoning task you can use in your classroom, discuss cases of linguistically diverse students working on the task, and consider how to apply principles from this presentation to your teaching.

William Zahner

University of California at Santa Cruz

## Griselda Marlene Velazquez

University of California at Santa Cruz

17 B (Convention Center)

## 429

## Grow Beasts: Growing Students' Understanding of Ratio, Proportions, and Slope

## (6-12) Session

Grow Beasts: plunk 'em in water and four days later they've grown! Students measure, estimate, predict growth rates, measure some more, compile data, plot points, crunch numbers, and generally get excited, using math to make sense in an inquiry environment. Come to the session and time-warp through the process. Leave with a plan and a Grow Beast.

## Mark Roddy

Seattle University, Washington

Elizabeth Ballroom C (Hyatt)

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## **430**

## Using Technology to Differentiate Instruction and Activate Learning for All Students in Your Math Classroom

## (6–12) Session

SMART Boards and TI-Navigators in high school classrooms: share strategies for differentiating algebra instruction, and use these same tools in Algebra 2, statistics, and precalculus to deepen instruction. After a review of the SMART Board and the TI-Navigator, participants see new, advanced features that increase students' achievement.

## Donna Johnson

Caroline County Public Schools, Denton, Maryland Manchester Ballroom C (Hyatt)

## 431

## Newly Prepared Secondary School Mathematics Teachers in Urban Schools: Their Pedagogy and Students' Learning

(6–12, Preservice and In-Service) Session

## **Benjamin Banneker Association presentation**

This study examines the pedagogical approaches that urban secondary school mathematics teachers use in their classrooms and their effects on students' learning. Data was collected through questionnaires and interviews and analyzed using a phenomenological approach revealing mixed results.

**Pier Angeli Junor Clarke** Georgia State University, Atlanta

**Denise Natasha Brewley-Corbin** Georgia Gwinnett College, Lawrenceville, Georgia

Marsha McCrary-Barron Georgia State University, Atlanta

16 B (Convention Center)

## 432

## Mathematical Field Trips: Geometrical **Entree to Worlds of Art and Cultures**

## (6-12, Preservice and In-Service) Session

Examine multicultural artwork through the lens of geometry as you "visit" museums around the world. The presenters will share experiences of both actual and virtual fieldtrips that place geometry, symmetry, tessellations, and transformations in the context of art and culture. Students' work will be shared.

#### Cara Melina Goldberg

Boston University, Massachusetts

Pamela Ann Halpern Salem State College, Massachusetts

Manchester Ballroom H (Hyatt)

## 433

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## The Shape of Geometry and the Geometry of Shape

## (6-12, Preservice and In-Service) Session

Transformations, coordinate geometry, calculator and computer graphics, and the increased attention to applications have all caused, without any fanfare, changes in how we look at the shapes of figures. This talk will look at the changes in school geometry in grades 3-12 over the past half century from the standpoint of the concept of shape.

#### Zalman Usiskin

University of Chicago, Illinois

Elizabeth Ballroom D/E (Hyatt)

## 434

## CAS: More than a Turbo Pencil

## (9-12) Session

Handheld computer algebra systems (CAS) have been around for more than twenty years. This session will focus on how they can be used as instruments that have pedagogic value. Issues of equity, symbolic fidelity, and using CAS to make mathematically meaningful connections will all be addressed.

#### Mark Howell

Gonzaga High School, Washington, D.C.

6 C (Convention Center)

## 435

## **Ruling Out Chance**

## (9-12) Session

This session will examine the connections between probability and statistical inference. Activities will be presented that help students understand the concept of a sampling distribution and how the conclusions in hypothesis tests and the interpretation of confidence intervals and margin of error relate to probability.

#### Roxy Peck

California Polytechnic State University, San Luis Obispo Douglas Pavilion D (Hyatt)

## 436

## Using the Concept of Derivatives to **Investigate Integrals: A Lesson Study** (9-12) Session

How do you teach the concept of integrals prior to calculus? This session describes a lesson study connecting conceptual understanding of derivatives to integrals. You will watch video of eleventh graders working collaboratively using their knowledge of rate of change to predict graphs of original functions from graphs of derivatives.

#### Matsuo Marti

Jones College Prep High School, Chicago, Illinois

#### Jessica Fulton

Jones College Prep High School, Chicago, Illinois

John Remiasz

Jones College Prep High School, Chicago, Illinois

Marina G (Marriott)

## 437

## Algebra Goes to the Movies

## (9-12) Session

How can a teacher introduce the material in the next chapter of an Algebra 1 or 2 textbook in an interesting way? Let the students help. Connect your students' interests in movies with algebra through this unique and engaging poster project. Students will use communication, creativity, and evaluation to present the content of the new chapter.

## Lynda Wormell

California State University, Northridge

Salon 1/2 (Marriott)

#### 9:30 a.m.-10:30 a.m.

#### 438

# New Approaches to the Fourth Year of **High School Mathematics**

### (9-12, Higher Education) Session

Linear algebra can bring algebraic and geometric thinking together in ways that reinforce both. Participants will sample activities from a new, NSF-funded curriculum, drawing on vector algebra, geometry, and equations of lines and planes, and look at some of the rich applications of the subject. The only background required is second-year algebra.

#### **Kevin Waterman**

Education Development Center, Newton, Massachusetts

#### **Stephanie Ragucci**

Andover High School, Massachusetts

14 B (Convention Center)

#### 439

# Stimulating Interest in Statistics through the Use of Government Data

### (9-12, Higher Education) Session

Much statistical information of interest to students' daily lives are available on public Web sites maintained by federal statistical agencies. The speaker will show examples of this data, describe how to access it, and consider how to present it to stimulate students' interest in statistics and encourage them to consider careers in public service.

#### **Ron Wasserstein**

American Statistical Association, Alexandria, Virginia

4 (Convention Center)

# 440

#### **Unexpected Expectations**

#### (9-12, Higher Education) Session

Mathematical expectation provides a means of quantifying the expected outcome of an experiment involving more than one possible outcome. This talk will present the quirkier (paradoxical) issues that can arise, including Newcomb's paradox, Parrondo's paradox, and the Prisoner's Dilemma.

#### **Leonard Wapner**

El Camino College, Torrance, California

11 B (Convention Center)

### 441

# The Pythagorean Theorem and Ptolemy's Theorem

#### (9-12, Higher Education) Session

The speaker will look at the Pythagorean theorem again, and show the result using a less famous theorem in geometry called Ptolemy's theorem. Geometry problems for the classroom will be shown.

#### **Gail Marie Nord**

Gonzaga University, Spokane, Washington

Molly A/B (Hyatt)

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#### **442**

# Succeeding in Challenging Times: Where to **Start and What Next**

#### (9-12, Preservice and In-Service) Session

It's probably not what you expected. Learn how to get ready; how to start; how to take the next steps to be successful; and how to finish the year. From working with challenging students to challenging students, from administrators to parents, look for ways to engage toward success.

#### Mike Stewart

Ventura Unified School District, California

10 (Convention Center)

#### 443

# A "Founders of Mathematics" Project: More than a Biographical Listing

#### (Higher Education, Preservice and In-Service) Session

Tired of student's "cut and paste" papers? This Founders of Mathematics project requires insights from the student beyond summarizing. Students must estimate a founder's worth to a particular field as well as predict what it will take for the student to become "famous" in the course being taken. A "recipe for success" will be available.

#### Stephen LaVerne Brown

Olivet Nazarene University, Bourbonnais, Illinois **Douglas Pavilion B (Hyatt)** 

# 444

# **Response to Intervention (Rtl) and** Mathematics: Help for Struggling Students

#### (Higher Education, Preservice and In-Service) Session

The three-tiered RtI strategy will be discussed using examples of problem-solving instructional strategies that focus on teaching mathematics in context. Relevant research on RtI initiatives in mathematics, including technology resources, will be presented and synthesized into a take-home checklist.

#### **Dolores Burton**

New York Institute of Technology, Old Westbury

6 B (Convention Center)

#### 9:30 a.m.–10:30 a.m.

#### 445

# Doing What Works: A Multimedia Web Site Highlighting Research-Based Practices

# (Preservice and In-Service) Session

Explore learning what works, seeing how it works, and doing what works for mathematics topics included in the Web site "Doing What Works." Topics will include response to intervention in mathematics, encouraging girls in mathematics and science, crucial foundations of algebra, and major topics for school algebra.

#### **Clare Heidema**

RMC Research Corporation, Denver, Colorado

# Arlene Mitchell

RMC Research Corporation, Denver, Colorado San Diego Ballroom B (Marriott)

446

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# Challenging Preservice Elementary School Teachers to Confront their Mathematical Knowledge: Opportunities in Content and Methods Courses

#### (Preservice and In-Service) Session

Helping preservice elementary school teachers develop deep mathematical knowledge for teaching is a goal in elementary programs. The speakers will share course projects that we have found useful for helping preservice teachers confront their gaps and develop deep mathematical knowledge for teaching.

#### Kay A. Wohlhuter

University of Minnesota-Duluth

### M. Lynn Breyfogle

Bucknell University, Lewisburg, Pennsylvania

#### Amy Roth McDuffie

Washington State University—Tri-Cities, Richland 6 A (Convention Center)

#### **Come, Connect, Communicate**

#### Inclusion and special education

Meet with educators who share your interests in inclusion and special education to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Carlsbad (Marriott)

### **Come, Connect, Communicate**

#### Intervention, Grades Pre-K-2

Meet with educators who share your interests in intervention, grades pre-K–2, to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Del Mar (Marriott)

# **EW 446.1**

# Raising Math Achievement through Adaptive Technology and Differentiated Instruction

### (General Interest) Exhibitor Workshop

Learn about three innovative programs—Scholastic Math Inventory, Fraction Nation, and FASTT Math—that use computer-adaptive technology to provide universal screening, and adaptive instruction, and that build fraction and math fact fluency for grade 2 and up.

#### Scholastic/Tom Snyder Productions

Scholastic/Tom Snyder Productions, Watertown, Massachusetts

Torrey (Marriott)

#### **EW 447**

# Do Word Problems Scare the Daylights Out of Your Students?

#### (4–9) Exhibitor Workshop

Find out how Hands-On Equations<sup>®</sup> enables students to visually represent and solve word problems using game pieces, including age and consecutive number problems.

#### Borenson and Associates, Inc.

Borenson and Associates, Inc., Allentown, Pennsylvania Columbia (Marriott)

# **EW 448**

# Math Innovations: A New Middle Grades Mathematics Program

#### (6–8) Exhibitor Workshop

Developed using Curriculum Focal Points, Math Innovations encourages students to think like mathematicians with focus on verbal and written communication. Concepts are developed in depth with connections across grade levels in conjunction with computational fluency.

#### Kendall Hunt Publishing Co.

Kendall Hunt Publishing Co., Dubuque, Iowa

1 B (Convention Center)

#### **EW 449**

# CME Project: Math with a Twist (8–12) Exhibitor Workshop

Somewhere between an instructional approach that is traditional and one that is progressive lives another way to teach math: the CME Project. This four-year, NSF-funded project takes a problem-based, student-centered approach balancing instruction elements, forming good Habits of Mind, and developing a deep understanding of mathematics.

#### Pearson

Pearson, Upper Saddle River, New Jersey

1 A (Convention Center)

### 450

# Wake Up! Shake Up! Pick My Brain!

### (Pre-K-2) Gallery Workshop

Discover quick, motivational ways of engaging students with brain teasers, puzzles, and more. Get your lessons off with a bang, recover from midday slumps, or add pizzazz to daily routines. With quick, ready-to-use tasks for all year, your class will be brimming with not-so-typical, very cool investigations.

### **Giselle Irene Benoit-Humber**

Eastern School District, St. John's, Newfoundland and Labrador, Canada

#### **Colleen Cheryl King**

Eastern School District, St. John's, Newfoundland and Labrador, Canada

#### **Sharon Anne Power**

Eastern School District, St. John's, Newfoundland and Labrador, Canada

11 A (Convention Center)

# 451

# A Star Model Makes the Mathematics Shine for All

(Pre-K-2) Gallery Workshop

**TODOS: Mathematics for ALL presentation** 

#### **Presidents' Series presentation**

We all know that children learn in many ways and that multiple representations provide opportunities for all students to learn mathematics. Participants will experience classroom tasks, use a star model that emphasizes multiple representations to plan and initiate tasks, and consider the important mathematical ideas of the tasks.

#### Nora G. Ramirez

TODOS: Mathematics for ALL, Tempe, Arizona 15 A (Convention Center)

# 452

# Singing to the Tune of Integrating Math, Literature, and Music

# (Pre-K-2) Gallery Workshop

This presentation will incorporate child-created songs into the elementary school classroom to reinforce math skills. Using Stuart Murphy's Math Start books as a springboard, the speaker will introduce participants to songs that integrate math, music, and literature.

#### **Minerva Harrell Smith**

Discovery School @ Reeves Rogers, Murfreesboro, Tennessee

Elizabeth Ballroom B (Hyatt)

# 453

# Ten, It's Bigger than You Think

# (Pre-K-2) Gallery Workshop

When you think of a student with good number sense, what comes to mind? Can your students link what they know about ten to larger numbers? The lessons in this participatory presentation build on early number sense, including counting; more, less and equal; writing and recognizing numerals; partpart-total relationships; and anchors of 5 and 10.

#### **Cheryl Akers**

Howard County Public Schools, Columbia, Maryland

#### Randi Blue

Howard County Public Schools, Elkridge, Maryland Manchester Ballroom I (Hyatt)



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# 454

# Using Mathematical Connections to Build Fact Fluency

#### (Pre-K-2, Preservice and In-Service) Gallery Workshop

Asking students to make the leap from counting to memorizing addition facts may hinder their understandings and fluency with basic facts. This interactive presentation will focus on methods for getting students fluent with facts by moving them from counting strategies to derived facts and making mathematical connections along the way.

#### **Christina Tondevold**

Initiative for Developing Mathematical Thinking, Boise State University, Idaho

16 A (Convention Center)

# 455

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# A Visit to the Zoo = Having Fun with Math (Pre-K-5) Gallery Workshop

Plan a trip to a zoo by using math as a means of reaching all your students at all levels. Participants will explore different ways of finding the best way to see all the animals, vote for their favorite animal, and get ideas for using discrete math. Participants will leave with a wealth of ideas to help their class plan the zoo trip.

#### Susan L. Weiss

Solomon Schechter Day School, Newton, Massachusetts Elizabeth Ballroom F (Hyatt)

#### 456

### Response to Intervention (Rtl): A Framework for Effective Math Instruction (Pre-K-5, Preservice and In-Service) Gallery Workshop

RtI focuses on integrating assessment, instruction, early prevention, and the student's learning process. Little is known still of how RtI can be integrated into math instruction. This gallery workshop will use examples from RtI math projects in grades pre-K-2 to explain the approach and provide a stepby-step guide on how to implement RtI in a classroom.

#### Michael P. Mueller

Hospital for Sick Children, Toronto, Ontario, Canada **Douglas Pavilion A (Hyatt)** 

#### •Nib 457

# Engaging the Struggling Students: **Building Understanding and Skill with** Numbers

#### (Pre-K–5, Preservice and In-Service) Gallery Workshop

How do we help struggling students (and all students) build the core understandings of number along with the skills to use apply math? Learn activites and approaches to engage in the development of important number concepts. Learn how to engage your students as they go from understanding to skill development.

#### Neil Pateman

University of Hawaii, Honolulu

#### Joseph Zilliox

University of Hawaii, Honolulu

8 (Convention Center)

### 458

# The Question-Discourse Connection: What Questions Should You Be Asking?

# (Pre-K-8, Preservice and In-Service) Gallery Workshop

We all want to involve our students in thought-provoking discourse, but how do we get there? A variety of question types will be described, including those based on the revised Bloom's taxonomy, question stems, alternative-response questions, and talk moves. Criteria for "quality questions" will be explored.

#### Sharon Young

Seattle Pacific University, Washington

Marina E (Marriott)

#### 459

# Picture This: A New Sketchpad® in Grades 3–6

#### (3-5) Gallery Workshop

The latest release of The Geometer's Sketchpad adds new, dynamic opportunities for exploring transformations with digital photographs. Attendees will receive teachers' notes and students' worksheets for a variety of activities. Bring a laptop with battery power so that you can jump right in!

#### Daniel Scher

Key Curriculum Press Technologies, New York, New York San Diego Ballroom A (Marriott)

#### 10:30 a.m.-12:00 noon

#### 460

# Games as Assessment? How to Get More from Game Time

# (3-8) Gallery Workshop

Math games engage students and offer a great opportunity for assessment. Participants will play games and learn strategies to gather data formally and informally about students as they play. The presenters will share resources and discuss challenges of expanding the role of games in your classroom to strengthen reasoning, writing, and more!

#### Sara Torpey

Linden Public Schools, New Jersey

Paul V. Ridgway

Encyclopaedia Britannica, Chicago, Illinois

3 (Convention Center)

#### 461

# Moving beyond Ratio Tables in the Development of Proportional Reasoning (3–8) Gallery Workshop

Participants will explore proportional-reasoning problems and analyze the potential of the problems. The goal will be to understand the evolution of proportional reasoning with tasks

that demand higher levels of reasoning than can be solved with ratio tables.

#### Signe Kastberg

Indiana University Purdue University Indianapolis

Beatriz S. D'Ambrosio Miami University, Oxford, Ohio

Kathleen Lynch-Davis Appalachian State University, Boone, North Carolina Manchester Ballroom G (Hvatt)

#### 462

# Hands-On Activities and Questions That Stimulate Number Sense with Fractions

### (3–12) Gallery Workshop

Experience lessons showing how to use manipulatives and questioning to teach fractions, equivalent fractions, and operations with fractions. All activities and questions focus on students making sense of the mathematics being taught. Lessons are based on three stages of learning—concrete, pictorial, and abstract.

#### Barbara Schallau

East Side Union High School District, San Jose, California

Salon 6 (Marriott)

# **463**

# Infusing Technology into the Classroom

(3–12, Preservice and In-Service) Gallery Workshop

#### **Benjamin Banneker Association presentation**

Participants will sample five free and five inexpensive methods to "infuse twenty-first century learning" into the classroom. This hands-on presentation will introduce ten ways to enable students to experience complex concepts through engaging engineering, math, and science applications.

#### Vanessa R. Wimberly

School District of Philadelphia, Philadelphia, Pennsylvania Manchester Ballroom E/F (Hyatt)

# 464

# Milking Graphs for All They Are Worth! (6–8) Gallery Workshop

Is a graph worth 1000 words? Can we find the mean, median, and mode from a pie chart? Bar graph? Histogram? Box plot? Pictogram? What else do graphs tell us? Can we draw a histogram from a pie chart and vice versa? You will use graphs like never before and leave with activities your students can sink their teeth into on Monday.

#### Polina Dina Sabinin

Boston University, Massachusetts

#### Jenny K. Tsankova

Roger Williams University, Bristol, Rhode Island

17 A (Convention Center)

F

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#### 465

# In the Real World, No Measurement Is Exact: Precision and Accuracy in Middle School

#### (6-8) Gallery Workshop

This gallery workshop will help middle school teachers and trainers of teachers experience ideas related to precision and accuracy in a hands-on method using calculators and manipulatives. Participants will receive handouts and a CD of activities for a teaching unit.

#### Mary Sarli

Edgewood Independent School District, San Antonio, Texas Marina F (Marriott)

#### 10:30 a.m.-12:00 noon

#### 466

# Generalizing Algebraic Expressions Using Picture Patterns

# (6-8) Gallery Workshop

Join the speakers as they explore patterns using tiles and snap cubes. Use these patterns to help your students learn to write an algebraic expression for the *n*th term of a sequence. Leave with classroom ready activities that focus on using pictures rather then numbers to develop these algebraic expressions.

#### Vivian Flora Cyrus

Morehead State University, Kentucky

#### **Christie Perry**

Morehead State University, Kentucky

San Diego Ballroom C (Marriott)

# **467**

R

# Don't Box Me In! Statistical Analysis and Interpretation

#### (6–12) Gallery Workshop

Come construct a human box plot. Box plots are an important tool to compare data sets. Twenty-first century students need to be savvy consumers of data. Learn a variety of classroomtested ways to build students' understanding of this researchbased tool, including unpacking data sets of box plots and possible bar graph data displays.

#### Lee Ann Pruske

Milwaukee Public Schools, Wisconsin

Paige Richards

School District of South Milwaukee, Wisconsin

Betsy A/B/C (Hyatt)

# 468

# Let's Play with Robots: Making Connections among Technology, Geometry, and Algebra

#### (6–12) Gallery Workshop

Want to play with a robot and learn mathematics? Come explore geometric and algebraic activities while using robotics! Participants will receive lessons and activities that allow students to make connections among technology, algebra, and geometry. The presenters will also share students' feedback from such activities.

#### Rachelle Meyer Baylor University, Waco, Texas

**Trena Wilkerson** Baylor University, Waco, Texas

#### **Geoff Price** Carver Academy, Waco, Texas

Elizabeth Ballroom G (Hyatt)

### 469

# Interesting Ideas, Manipulatives, and Activities for Teaching Geometry Topics

### (6–12, Preservice and In-Service) Gallery Workshop

Participants will use hinged mirrors, rubber bands, patty paper, paper plates, and other manipulatives, as well as interesting problems, to develop and apply geometry concepts and review vocabulary such as similarity, triangle heights, transformations, central angles, polygons, polyhedra, area, and more.

#### **Chris Mikles**

College Preparatory Mathematics, Sacramento, California

Salon 5 (Marriott)

# 470

# Hot Air Ballooning: An Integrated Calculus-Chemistry Unit

#### (9–12) Gallery Workshop

Connect science and math with this integrated, exciting, hands-on unit. Participants will make a small balloon, watch videos of students designing and flying their balloons, and receive the unit plan along with rubrics.

#### **Robin Washam**

Office of the Superintendent of Public Instruction, Olympia, Washington

#### **Russ Ballard**

Kentlake High School, Kent, Washington

5 A (Convention Center)

# 471

# Taking Advantage of Increasing Computer Access to Connect Mathematical Ideas

#### (9–12) Gallery Workshop

Participants will use the public domain software CPMP-Tools to solve problems that encourage mathematical reasoning and sense-making and contribute to recognizing connections among mathematical ideas. Bring your laptop with battery power.

#### Beth Ellen Ritsema

Western Michigan University, Kalamazoo

Douglas Pavilion C (Hyatt)



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#### 10:30 a.m.-12:00 noon

#### 472

# Six Degrees of Separation: Making Connections

### (9–12) Gallery Workshop

How are E.T. and the Sistine Chapel, the Konigsberg Bridge and submarines, and the London Underground and networks connected? Help students discover threads that connect people, events, ideas, and innovations through presentations, center activities, projects, and games. Connections provide real-world context to make sense of mathematical ideas.

#### **Chris Rumsey Mackmin**

Braden River High School, Bradenton, Florida Linda Shepard

Braden River High School, Bradenton, Florida

Manchester Ballroom A (Hyatt)

# 473

R

# ProofBlocks: A Visual Approach to Logic and Proof

### (9–12) Gallery Workshop

Learn a new, visual format for introducing geometric proof that uses manipulatives to support the development of logical reasoning. Participants will try out the ProofBlock format themselves on whiteboards and leave with the resources and worksheets necessary to implement it in their own classrooms.

#### Jennifer Dirksen

San Mateo High School, California

#### Jinna Hwang

Francis Polytechnic High School, Sun Valley, California Marina D (Marriott)

#### 474

# Rationally Speaking: Exploring Rational Functions with Illuminations and ExploreLearning Activities

#### (9–12, Higher Education) Gallery Workshop

Participate in classroom-ready activities from NCTM's Illuminations and ExploreLearning's gizmos that help students make connections among rational functions, their graphs, and various contexts. How to integrate the computer simulations successfully with whole-group instruction will be discussed.

#### Jennifer Wall

Northwest Missouri State University, Maryville

#### Margaret Buerman

Northwest Missouri State University, Maryville 9 (Convention Center)

 $f = \frac{9}{5}c + 32$ 

#### •NT> 475

# Struggling Math Students: Strategies to Challenge Challenging Students

#### (9–12, Preservice and In-Service) Gallery Workshop

New high school math teachers are often assigned classes of students having challenges with math. Learn strategies for engaging students, building success, and learning math all at the same time.

11:00 a.m.-12:00 noon

#### **Connie Schrock**

Emporia State University, Kansas

14 A (Convention Center)

# 476

# Women and Mathematics Education: Where We Are Today

(General Interest) Session

**Presidents' Series presentation** 

#### Women and Mathematics Education presentation

This session will describe the advances and challenges that women and girls in mathematics deal with today. What has changed and what has not changed will be the focal points.

#### Judy Werner

Slippery Rock University, Pennsylvania

10 (Convention Center)

# 477

# My Favorite Mathematical Paradoxes

#### (General Interest) Session

Nothing beats a good paradox for convincing people that they should know some mathematics: these are the speaker's favorite mathematical paradoxes gathered over the years. Some will be familiar, but they put a new spin on some old classics. There should be something new for almost everyone.

#### **Dan Kennedy**

Baylor School, Chattanooga, Tennessee

20 A (Convention Center)



#### 11:00 a.m.-12:00 noon

#### 478



# Connections for Equity: Math, Language, Culture, and Context

(General Interest) Session

# Iris M. Carl Equity Address

We don't teach mathematics; we teach students who come to us with diverse academic backgrounds, cultures, and

languages—even if they were born in the United States. The speaker will discuss strategies for differentiating instruction to address these differences and to promote learning with understanding—for ELL and ALL.

The annual Iris M. Carl Equity Address was established to underscore the critical need for collective action in advancing understanding of equality and equity in education. Inaugurated in 2008, the address commemorates Iris Carl's lifelong commitment to educational equity and celebrates the vision and inspiration that she provided for achieving the goal of "more and better mathematics for all children." Each year a distinguished scholar who is recognized for leadership and action related to equality in mathematics education is invited to deliver this featured address.

#### Miriam A. Leiva

TODOS: Mathematics for ALL, Harrisburg, North Carolina 20 B/C (Convention Center)

#### 479

# The Power of Articulation through a Mathematics Vertical Team

#### (General Interest) Session

Five nonunified, rural districts have made it to their ninth year as a successful mathematics vertical team. Using books and blogging has empowered this team not only to survive but also to thrive despite leadership changes and financial cutbacks. A panel will share how they have bridged grade level, school, and district boundaries for shared success.

#### **Stephanie Verners**

Fresno County Office of Education, California

Edward A/B/C/D (Hyatt)

#### **480**

# Understanding Title 1 and What It Can Mean for You and Your Math Students

# (General Interest) Session

Learn from two Title 1 state directors what Title 1 can (and cannot) do in districts, schools and classrooms. Learn why this is important for teaching and learning math and what you need to know to go back and connect with the right people in your school and district.

#### Nancy Konitzer

Arizona Department of Education, Phoenix

#### **Roberta Schlicher**

Virginia Department of Education, Richmond

11 B (Convention Center)

# 481

# A Closer Look at Primary Programs and Developing Number Sense

#### (Pre-K-2) Session

Math programs at the primary level vary in how they develop number sense and base ten unitizing. Even when similar tools are used, strategies and implementation may vary and affect student understanding differently. Drawing from Asian and U.S. texts/programs, we will discuss the implications of these differences.

#### Mary N. Leer

School District of Lancaster, Pennsylvania

#### Makoto Yoshida

William Paterson University, Wayne, New Jersey

14 B (Convention Center)

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# **482**

# A Foundation in Number Sense Affects All Grades

#### (Pre-K-2) Session

See how one school has analyzed number sense from kindergarten to second grade. This presentation will include discussing the importance of number sense for the success in future grades and how we have developed a number-sense recovery program for our youngest students.

#### **Katie Gilmore**

Mount Vernon Woods Elementary School, Alexandria, Virginia

#### **Megan Gregory**

Mount Vernon Woods Elementary School, Alexandria, Virginia

#### Elizabeth Sampson

Mount Vernon Woods Elementary School, Alexandria, Virginia

2 (Convention Center)

#### **483**

# Teaching with a SMART™ Board: It's a SMART Thing to Do

#### (Pre-K-2) Session

Are you looking for more ways to use a SMART Board in your classroom? Learn how to use SMART Board technology in everyday math lessons and receive a list of Web sites that include math games and lessons that meet each of the NCTM strands for primary school students. Be prepared to get involved in this fun, interactive session!

#### Heather Youngblood

Springfield Public Schools, Missouri

#### **Cary Sikes**

Springfield Public Schools, Missouri

Elizabeth Ballroom A (Hyatt)

#### **484**

# The Amazing Race: A Mathematical Adventure

# (Pre-K–5) Session

Looking for a fun theme to stimulate your family math night? Come to our session to hear about an exciting theme that provides rigorous mathematics activities within a social studies and geography theme. Participants will receive an extensive handout as well as many good tips for planning a successful family math night.

#### Rebecca Sue Borowski

Ponderosa Elementary School, Fayetteville, North Carolina Kathelyn Denman

Ponderosa Elementary School, Fayetteville, North Carolina Marina G (Marriott)

# 485

R

# Response to Intervention (RTI) for Teaching Number Concepts and Operations to Struggling Grades K–4 Students (Pre-K–5) Session

Join the speaker as she discusses how to meet the needs of all students using the RTI model for teaching number concepts and operations to children in grades K–4. Discussion will include topics such as intervention levels, strategies, assessments, and specific examples of lessons you can immediately use with students.

#### **Kimberly Rimbey**

Rodel Foundation of Arizona, Scottsdale, Arizona

6 C (Convention Center)

# 486

# Seeing Is Believing: Communication and Problem Solving Using Lesson Studies

# (Pre-K–5, Preservice and In-Service) Session

The presentation team from a grades K-5 urban elementary school will engage participants in a multimedia presentation and discussion of their journey to increase students' achievement in mathematics through a modified lesson study approach focused on problem solving and communication in mathematics. Professional development protocols will be shared.

#### Thelma A. Davis

Robert Lunt Elementary School, Las Vegas, Nevada

# Jennifer Spinos

Robert Lunt Elementary School, Las Vegas, Nevada

# Peter Schmit

Robert Lunt Elementary School, Las Vegas, Nevada

# Jamie Galgana

Robert Lunt Elementary School, Las Vegas, Nevada

#### Virginia Usnick University of Nevada, Las Vegas

Elizabeth Ballroom D/E (Hyatt)

# **487**

# Singapore Math: Contextual Word Problem Solving Leads to Conceptual Mastery

# (Pre-K–8) Session

"Sam bought 3 shirts and 2 pairs of pants for \$67.30. Each pair of pants costs \$2.40 more than each shirt. What was the cost of 1 pair of pants?" This Singapore Math fifth-grade problem is an example of a challenging, real-life problem that students solve using bar models rather than algebra. Learn the how and why of Singapore Math.

#### Tricia Salerno

Benchmark School, Phoenix, Arizona

Salon 1/2 (Marriott)

# 488

# Math with Meaning–Success the Singapore Way: Foundations of Number Sense (Pre-K–8) Session

Attendees will learn practical—not theoretical—place-value, computation, and mental-math strategies used in Singapore, where students consistently score highest in international math studies. Learn how to emphasize conceptualization and incorporate computation and mental-math strategies into your existing math curriculum.

#### **Rolff Christensen**

Staff Development for Educators, Peterborough, New Hampshire

Manchester Ballroom H (Hyatt)

# 489

# Making Sense of Math: Demystifying the Algorithms My Teacher Taught Me

# (Pre-K–8, Preservice and In-Service) Session

Rule #1: Math makes sense. Rule #2: Everyone will be good at math. Experience how to help grades K-7 students learn the foundations to algebra through arithmetic. Get students to make sense of math without tricks and rules they don't understand. Learn how to support teachers in building in-class interventions focused on big math ideas.

#### Ivan Leonel Alba

San Diego Unified School District, California

7 B (Convention Center)

Make time to explore the Exhibit Hall for the latest educational resources.

#### 11:00 a.m.-12:00 noon

#### 490

# **Teaching Mathematics to Students** with Special Needs: Connecting and Collaborating

#### (3–5, Preservice and In-Service) Session

Hear the results of a coplanned and cotaught mathematics methods course for teachers of students with special needs. Aligned with NCTM Standards as well as recent Response to Intervention initiatives, successful activities and the results of teachers implementing these strategies in their classroom will be shared.

#### Amy Lingo

University of Louisville, Kentucky

#### Karen Karp

Board of Directors, National Council of Teachers of Mathematics; University of Louisville, Kentucky

#### Monica Delano

University of Louisville, Kentucky

# **Ginevra Courtade**

University of Louisville, Kentucky

**Douglas Pavilion D (Hyatt)** 

#### 491

# You're Doing Algebra: Making Algebraic **Reasoning Explicit for Young Learners**

#### (3-8) Session

Algebra remains the gatekeeper for advanced math classes, yet using algebraic reasoning begins in elementary school. Join the speakers to investigate math tasks across content strands that facilitate elementary and middle school students' algebraic thinking. Make generalizations about patterns in our number system and the world around us.

#### Temple A. Walkowiak

University of Virginia, Charlottesville

#### Kateri Thunder

University of Virginia, Charlottesville

#### **Beth Buchholz**

Albemarle County Public Schools, Charlottesville, Virginia

4 (Convention Center)

#### 492

# Making Memories in the Math Classroom (3-8) Session

Enter the wonderful world of recreational mathematics and math magic. Enthusiastic teaching will be modeled as mathematical concepts are presented in a spirit of play. Teachers will learn hands-on activities that connect concepts with context. Come prepared to experience the beauty and fun of mathematics.

#### **Charles Sonenshein**

Wright State University, Dayton, Ohio

Molly A/B (Hyatt)

# 493

# Making Connections: Long Division of Whole Numbers and Algebraic Expressions

# (3-8) Session

This session will feature middle school students from diverse linguistic backgrounds discussing connections they made between the long division arithmetic processes and understanding of whole numbers and algebraic expressions. Videotaped interview clips and discussion of analyses will be shared to highlight students' mathematical thinking.

#### Cynthia Oropesa Anhalt

University of Arizona, Tucson Joseph Cuprak

Tucson Unified School District, Arizona

Manchester Ballroom D (Hyatt)

# 494

# Fraction as Ratio on the Cartesian **Coordinate Plane**

#### (3-8) Session

The speaker will investigate how using the Cartesian coordinate plane to represent fraction as ratio can provide a visual representation of least common multiples, equivalent fractions, fraction addition and subtraction, and converting fractions to decimals and percents, all done graphically.

#### Anne M. Collins

Lesley University, Boston, Massachusetts

Salon 3 (Marriott)

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#### 495

# Paint Bucket Polygons: Geometry Concepts in High Definition

#### (3-8, Preservice and In-Service) Session

What is a polygon in elementary school? The answer is not as simple or closed as you may think! Experience activities the speakers have developed with children and their teachers to build more sophisticated notions of geometry. They discuss features of photo-editing software as a tool to foster discussion and debate.

**Suzanne Harper** 

Miami University, Oxford, Ohio **Michael Todd Edwards** 

Miami University, Oxford, Ohio

6 F (Convention Center)

#### 11:00 a.m.-12:00 noon

#### 496

# Good Questions: A Great Way to **Differentiate Instruction**

# (3-12) Session

Asking just the right questions allows for differentiating instruction to meet a broad range of students' needs without ignoring curricular requirements. Examples, along with students' responses, will be shared to show how a rich mathematical environment can be created for all students in the class, whether struggling, average, or gifted.

#### **Marian Small**

University of New Brunswick, Fredericton, Canada 20 D (Convention Center)

#### 497

R

# Increasing Mathematics Achievement through Simple, Research-Based Strategies (6-8) Session

This interactive presentation will explore strategies that help diverse learners connect to the content and increase mathematical achievement. Participants will walk away with seven effective, easy-to-use, research-based strategies that can be implemented immediately.

# Mary J. Mitchell

Kean University, Union, New Jersey

**Robin D. Roberts** Fairfax Public Schools, Virginia

5 B (Convention Center)

# 498

# Stem-and-Leaf Plots: It's Not a Botany Activity!

#### (6-8) Session

Stem-and-leaf plots organize data, but can students use the plots to analyze a situation? This session will explore organizing basic science experiment data in enhanced stem-and-leaf plots, relating them to multiple bar graphs, and identifying the information presented. Box-and-whisker plots will further illustrate characteristics of the data set.

#### Patricia Lucido

Rockhurst University, Kansas City, Missouri

# Cheryl Malm

Northwest Missouri State University, Maryville 6 D (Convention Center)

#### 499

# Infusing Algebraic Thinking into All Strands of the Math Curriculum

#### (6–8) Session

Do you sometimes think there just isn't enough time to teach algebraic thinking? Take heart. The presenters will share practical, classroom-tested ideas for including algebraic thinking as natural extensions of your current work in number, measurement, geometry, and chance and data.

#### Ann Lawrence

Consultant, Washington, D.C.

#### **Charlie Hennessy**

Holy Trinity School, Washington, D.C.

**Douglas Pavilion B (Hyatt)** 

# 500

# Adding, Subtracting, Multiplying, and **Dividing Fractions Using NCTM Resources** (6-8) Session

#### Have you ever wondered about the math of changing gears on your bicycle? Gear ratios are just one application of operating on fractions that you will explore in this session. You will gain hands-on experience investigating multiple ways of making operations on fractions more engaging for students, by using applets, games, and writing prompts.

#### Sarah DeLeeuw

National Council of Teachers of Mathematics, Reston, Virginia

#### Julia Zurkovsky

National Council of Teachers of Mathematics, Reston, Virginia

Manchester Ballroom C (Hyatt)

# 501

# Implementing the SIOP Model in the Middle School Mathematics Classroom (6-8) Session

Learn how to use the sheltered instruction observation protocol (SIOP) model to plan and deliver instruction in the math classroom. SIOP unifies a variety of methods and best practices for teaching content to English language learners (ELLs). See how to customize instruction for ELLs at different levels of English proficiency using research based strategies and techniques.

#### Melinda Riccardi

Fresno County Office of Education, California

### Jonathan R. Dueck

Fresno County Office of Education, California

San Diego Ballroom B (Marriott)



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#### 11:00 a.m.-12:00 noon

### 502

# **Findings from Four Countries Regarding** Prospective Teachers' Knowledge of **Addition of Fractions**

#### (6-8, Preservice and In-Service) Research Session

Prospective elementary school teachers in Northern Ireland, South Africa, Hong Kong, and the United States have similar difficulties understanding fraction addition. Participants will create and analyze fraction addition problems, making connections of concepts and context. They will see how the research findings connect to classroom practices.

#### **Rose Elaine Carbone**

Clarion University, Pennsylvania

Gregory A/B (Hyatt)

# 503

R

# Linear Functions: Much More than y = mx + b

#### (6-12) Session

Every linear function is not a line. Yet, many algebra students react to the equation y = 3x + 6 by making a table, plotting the points, and connecting them to form a line. This session will examine class-tested ways of helping students get a deep understanding of these important functions.

#### **Jim Rubillo**

Former Executive Director, National Council of Teachers of Mathematics; DeSales University, Center Valley, Pennsylvania

6 A (Convention Center)

#### 504

# **Telescoping Sequences: The Mathematics** of Recursively Imbedded Expressions

#### (6-12, Higher Education) Session

In their studies, most students will encounter simple imbedded expressions, like a fraction where both numerator and denominator contain fractions, or a radical inside a radical. The speaker will explore these types of expressions more deeply, relate them to sequences or recursion, and discover the unique reasoning that "telescoping" invokes.

#### **Mike Reiners**

Christ's Household of Faith School, Saint Paul, Minnesota 17 B (Convention Center)

## 505

# Fostering Conceptual Understanding through Reading-Math Connections

# (6–12, Higher Education) Session

The conceptual density of mathematics texts presents a challenge to secondary school students who struggle to understand how what they read translates into mathematics. This session addresses this challenge by focusing on reading strategy as a way to foster connections among texts and other forms of conceptual mathematics representations.

#### Antony T. Smith

University of Washington Bothell

#### Robin Angotti

University of Washington Bothell

Manchester 1/2 (Marriott)

# 506

# Making Connections: Multiple Representations in Algebra 1

#### (6–12, Preservice and In-Service) Session

Participate in activities that help find the connections between a rule, graph, table, and context. Learn ways to help students move from each representation to the others, developing deep understanding of multiple ways to solve problems. Teachers will receive ideas and materials that they can use in their own algebra classrooms.

#### **Glenda Arlene Wilkins**

California Mathematics Council, Forest Falls, California

16 B (Convention Center)

#### 507

# It's Their Web 2.0 World: You're Just Teaching in It

# (9-12) Session

So take advantage of all the opportunities that Web 2.0 provides! Look at practical, useable, classroom-tested ideas on expanding formative and summative assessments onto the Web and using free, and almost free, online instructional tools to enliven and enrich classes from Algebra 1 through calculus.

#### Calvin Armstrong

Appleby School, Oakville, Ontario, Canada

6 B (Convention Center)



#### 11:00 a.m.-12:00 noon

#### 508

#### **Polygons: Inside-Out and Beyond**

#### (9–12, Higher Education, Preservice and In-Service) Session

Reflect a regular polygon across an edge, and repeat. Explore fascinating results with any polygon. Form fractional and negative polygons, derive the formula, and consider polygons with an irrational number of sides, all on the TI-Nspire. A tns file will be given.

#### **Paul Williams**

Red Deer College, Alberta, Canada

Manchester Ballroom B (Hyatt)

### 509

# **Creating Connections with Inquiry Questions and Action/Consequence Documents**

#### (9-12, Preservice and In-Service) Session

This presentation will discuss types of inquiry questions that promote student understanding of mathematical content. Examples of such questions will be used with computerbased environments (action/consequence documents) where students are allowed to act on mathematical objects and transparently observe the consequences of their actions.

#### Wade Ellis

West Valley College, Saratoga, California

Elizabeth Ballroom C (Hyatt)

#### 510

# Teach AP Statistics Next Year, with **TI-Nspire**<sup>™</sup>!

#### (9–12, Preservice and In-Service) Session

Considering teaching AP Statistics? A member of the College Board's AP Statistics (Test) Development Committee will give you an introduction to the course using TI-Nspire, examples of typical problems, a guided timeline so that you can be prepared to teach the course successfully starting in August, and (hopefully) the confidence to do so.

#### John F. Mahoney

Benjamin Banneker Academic High School, Washington, D.C.

Salon 4 (Marriott)

# 511

# Building a Community of Scholars in a **Teacher Education Program**

#### (Higher Education) Session

The speakers are committed to placing highly qualified teachers in high-need schools. They will discuss their Mathematics Education Teaching Scholars program for future secondary school teachers, including criteria development, standards, and programmatic details.

#### Harry T. Washington

North Carolina State University, Raleigh

#### Hollylynne Stohl Lee

North Carolina State University, Raleigh

6 E (Convention Center)

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# 512

# **Rethinking Classroom Assessment with** a Purpose in Mind: An International Perspective

#### (Higher Education) Session

This session will explore classroom assessment in two-year colleges in the United States and in nonuniversity tertiary institutions in other countries. Cultural and educational experiences from different countries using classroom assessment to guide, improve, and modify teaching to enhance students' learning will be discussed.

#### **Richelle Blair**

Lakeland Community College, Concord, Ohio

Sadie Bragg

Burough of Manhattan Community College, New York, New York

Elizabeth Ballroom H (Hyatt)

### 513

# **Better Teacher Retention through Lesson** Study

#### (Higher Education, Preservice and In-Service) Session

The speaker will examine the collaborative practice of Japan's model of preservice introduction, Lesson Study, and how we are using this model at the university level. We are preparing preservice teachers to enter the education profession as partners who are ready to build learning communities centered on students' learning and styles in the field.

#### **Tracey Everett Carter**

Chicago Lesson Study Group, Chicago, Illinois

15 B (Convention Center)

#### **Come, Connect, Communicate**

#### Coaching

Meet with educators who share your interests in coaching to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Carlsbad (Marriott)

#### 11:00 a.m.–12:00 noon

# Come, Connect, Communicate

#### Intervention, Grades 6–12

Meet with educators who share your interests in intervention, grades 6-12, to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Del Mar (Marriott)

#### 11:30 a.m.–12:30 p.m.

# **ew 514**

# PowerTeaching: Mathematics an Equitation for Success!

#### (General Interest) Exhibitor Workshop

Developed by the Success for All Foundation, PowerTeaching: Mathematics is a curricular framework that is composed of research-proven instructional strategies that increase student achievement. PowerTeaching provides teachers with a clear and simple structure for framing their mathematics instruction no matter which curriculum or textbook they use.

#### **Success for All Foundation**

Success for All Foundation, Baltimore, Maryland

1 A (Convention Center)

#### **ew 515**

R

# Come Discover "We Discover Math" for Pre-K Students

# (Pre-K) Exhibitor Workshop

Newly released in fall 2009, "We Discover Math" is Kendall Hunt's research-based Pre-K mathematics program. Through children's literature, students explore the important mathematical content recommended by both NCTM and NAEYC.

#### Kendall Hunt Publishing Co.

Kendall Hunt Publishing Co., Dubuque, Iowa 1 B (Convention Center)

12:30 p.m.–1:30 p.m.

#### 516

# Using Upside-Down Teaching to Bring Out the Thinking of Every Student

#### (General Interest) Session

Communication and the other NCTM process standards can help us transform the way we teach from the primary grades through high school. When teachers structure classrooms so that students do the thinking and the talking, even challenging mathematics can become accessible to students, and even students who have struggled can become successful.

#### **Cathy Seeley**

Past President, National Council of Teachers of Mathematics; Charles A. Dana Center, University of Texas at Austin

20 A (Convention Center)

### **517**

# Spreadsheets: An Amazing Tool to Enliven and Animate Mathematics

#### (General Interest) Session

This talk will give numerous examples of how spreadsheets may be used to animate different graphs that arise in the secondary school curriculum.

#### Robert L. Devaney

Boston University, Massachusetts

6 B (Convention Center)

# 518

# Building a Productive Classroom Environment: Talking Mathematics and Connecting Ideas

#### (General Interest) Session

The language of mathematics is a powerful, but underdeveloped, skill in our classrooms. Helping students learn to talk mathematics and connect ideas is a challenge; however, the payoff is worth the effort. The speaker will focus on ways of developing mathematical discourse.

#### Glenda T. Lappan

Past President, National Council of Teachers of Mathematics; Michigan State University, East Lansing

Douglas Pavilion D (Hyatt)

# 519

# Coaching: It's Not Just for Athletics! (General Interest) Session

Come and hear how a math coach can assist with staff development, curriculum alignments, disaggregating data, differentiating instruction, resources and demonstrating master teacher skills. With the help of our coach, our school has received four gold-star performance awards in math from the Texas Education Agency.

#### Melissa Cooper McCracken

Huntsville Independent School District, Texas

6 C (Convention Center)

### 520

# It All Adds Up: Games to Strengthen Number Sense

### (Pre-K-2) Session

It'll all "add" up as you see student's number sense "multiply" with more than 20 fun games and activities. The best part is they require little to no preparation time, so you can "subtract" that and just start "adding" up all the learning you'll see on Monday.

#### Cary Sikes

Springfield Public Schools, Missouri

#### **Heather Youngblood**

Springfield Public Schools, Missouri

4 (Convention Center)

#### 12:30 p.m.-1:30 p.m.

#### **521**

# Word Problems: How Do They Make a Difference in Children's Development of Number Sense?

#### (Pre-K-2) Session

The presentation will discuss the main ideas of cognitive guided instruction, highlighting different types of word problems, and the development of children's strategies. The speaker will review several video clips from research and discuss how the distinctions among problem types are reflected in children selection of strategies.

#### Myoungwhon Jung

Northern Illinois University, DeKalb

Molly A/B (Hyatt)



# Knock, Knock! Who's There?

#### (Pre-K-5) Session

New ways to assess, that's who! Tired of the same old photocopied tests? So are your students! Take review and assessment to new levels that are engaging, thought provoking, and information

filled. See students' practice and assessments from podcasts to PowerPoints to videos to fit-for-a-frame. Open the door to a new way to demonstrate mastery.

Catherine Kuhns has more than 25 years of teaching experience in grades K–4 classrooms, currently teaching fourth grade. She is the author of several books, including *Number Wonders, Mathematical Art-o-Facts, Building Number Sense,* and *Word Problems for Model Drawing Practice (levels 1 and 5).* She enjoys working with fellow teachers and sharing her passion for making math meaningful, connected, and engaging.

#### **Catherine Kuhns**

Country Hills Elementary School, Coral Springs, Florida 20 B/C (Convention Center)

# 523

# Using Repeating Patterns to Think Functionally

#### (Pre-K-5) Session

Looking to go beyond "What's the core unit?" and "What comes next?" Young children are capable of thinking functionally at an early age, and exploring repeating patterns offers a solid starting point for this work. Come explore powerful strategies and activities that support the development of functional thinking in your students.

#### Melissa E. Hedges

Milwaukee Public Schools, Wisconsin

#### Beth Ann Schefelker

Milwaukee Public Schools, Wisconsin

6 F (Convention Center)

# 524

# A Comprehensive Approach to Improving Mathematics Achievement: A Math-Science Partnership in Rural Wyoming

#### (Pre-K-5) Session

Participants will discover a comprehensive assessment framework that identifies students' deficiencies in early numeracy. While identifying the deficiencies, participants will experience interventional activities that will help to build on conceptual understanding in numeracy.

#### Catherine Ann McAtee

Carbon County School District #2, Saratoga, Wyoming Elizabeth Ballroom C (Hyatt)

# 525

# Supporting Children's Sense Making in Number

(Pre-K-5) Session

#### **Presidents' Series presentation**

The speaker will share activities that foster number sense through the exploration of patterns and relationships. Emphasis will be on thinking in collections and constructing meaning for ten as a unit. The activities can be used immediately in the classroom.

#### **Anne Reynolds**

Kent State University, Ohio

Manchester Ballroom B (Hyatt)

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#### 526

#### Number Sense versus Nonsense

#### (Pre-K-5, Preservice and In-Service) Session

We all know you can't teach common sense, so can you really teach number sense? Yes, you can! Learn strategies to help students with number sense. The speaker will also discuss some of the "nonsense" teachers sometimes use to foster number sense, and how it may unintentionally hurt a child's mathematical understanding later on.

#### **Heather Nichol Larrabee**

Louisa County Public Schools, Mineral, Virginia

Elizabeth Ballroom H (Hyatt)

#### 527

# Zooming In on Number Lines: Connecting Whole Numbers, Decimals, and Fractions

### (3–5) Session

The image is fun and crystal clear. It's also deeply mathematical. The connections allow children to understand decimals and fractions and work as confidently and skillfully with them as with whole numbers. Practical ideas for your teaching will let you and students see numbers in a new way. Classroom video, handouts, PowerPoint will be available.

#### **Cindy Carter**

Rashi School, Newton, Massachusetts

14 B (Convention Center)

# SingaporeMath.com Inc

presents

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#### 528

# Base-Ten Blocks: What Is Their Educational Value?

# (3–5) Research Session

Children have to have the idea of "tens" to count objects by tens. The speaker asked 81 children in grades 2–4 to count (1) 123 cubes by tens and (2) 6 ten-blocks and 12 one-blocks. Base-ten blocks were found to make counting by tens easier but did not teach the idea of tens. In second grade, only 58 percent counted the base-ten blocks by tens.

# Constance Kamii

University of Alabama at Birmingham

Edward A/B/C/D (Hyatt)

# **529**

# Mathematics Education for the Twentyfirst Century: Spanning the Digital Divide (3–5, 9–12, Preservice and In-Service) Session

This interactive session will explore effective use of instructional strategies to meet the needs of all students in mathematics by integrating NCTM's *Principles and Stan-dards* with the National Educational Technology Standards and Performance Indicators for Teachers and the Technology and Pedagogy Content Knowledge model.

#### **Rhonda Bonnstetter**

Southwest Minnesota State University, Marshall

#### Debbie Van Overbeke

Southwest Minnesota State University, Marshall

Michelle Beach Southwest Minnesota State University, Marshall

Elizabeth Ballroom A (Hyatt)

# **530**

# Modeling and Relating Fractions and Ratios in the Multiplication Table

#### (3–8, Preservice and In-Service) Session

Learning and teaching paths will be reported from grades 3–6 classroom research on differentiating and then relating fractions and ratios. These approaches enable students to outperform older students and reach high levels of understanding. Making math drawings and using the multiplication table enables students at all levels to understand.

#### Karen C. Fuson

Northwestern University (Emerita), Evanston, Illinois

### Dor Abrahamson

University of California, Berkeley

7 B (Convention Center)

# 531

# Are You Surrendering in Teaching Fraction Operations?

#### (3–8, Preservice and In-Service) Session

This presentation will discuss how to incorporate different visual representations, including computer software and interactive Internet resources, to teach procedural knowledge and conceptual understanding of fraction operations. Participants will be guaranteed not to surrender in teaching fraction operations after attending this session!

#### Cheng-Yao Lin

Southern Illinois University Carbondale

#### Rong-Ji Chen

California State University San Marcos

#### Hsing Wen Hu

University of Wisconsin—River Falls

Manchester Ballroom H (Hyatt)

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# 532

# Skill Building versus Comprehensible Input: Live Demonstration of an EL Classroom

#### (3–12) Session

#### **TODOS: Mathematics for ALL presentation**

Teachers will experience firsthand how students learn in an English learner (EL) classroom by participating in a fishbowl activity that uses two live demonstrations. One will use a traditional approach; the other, effective comprehensible input strategies. A whole-group discussion will follow.

#### Pedro Vazquez

Bridgeport Public Schools, Connecticut

Herminio Manuel Planas Bridgeport Public Schools, Connecticut

15 B (Convention Center)

# 533

# Video Study Groups: The Focus Is on Your Students' Learning

### (3–12) Session

Video of students at work in each teacher's classroom will launch professional discussions about students' interactions, questions, and responses to instruction. This session will share lessons learned as well as protocols and sample video from the speakers' experience as facilitators of video study groups.

#### Lisa Lavelle

Education Northwest, Portland, Oregon

#### Linda Griffin

Northwest Regional Educational Laboratory, Portland, Oregon

Manchester 1/2 (Marriott)

#### 12:30 p.m.-1:30 p.m.

#### 534

# Solving Equations + Multiple **Representations = Students' Success**

#### (3-12, Preservice and In-Service) Session

Treat algebra as a handy language for "unlocking secrets" (equation solving) and building mathematical models. Participate in a variety of innovative, engaging, nontraditional approaches for solving equations. These methods have been researched and tested and are designed to empower your students and move them to mastery!

#### Donna M. Davis

Baltimore City Public Schools, Maryland Elizabeth Ballroom D/E (Hyatt)

#### 535

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# "How Steep It Is!" Connecting Geometric Angle and Algebraic Slope (6-8) Session

Prepare your students for the study of slope while helping them develop proportional reasoning. Help them describe, construct, and imagine their way from what they already know about steepness to the concept of slope.

#### **Diana Cheng**

Boston University, Massachusetts

20 D (Convention Center)

#### 536

# A Nontraditional Equation-Solving **Sequence for Struggling Learners**

#### (6-8) Session

Algebra for All: experience a nontraditional, multilesson, linear-equation-solving sequence, accessible to all learners, which employs the use of meaningful contexts, visuals, and manipulatives.

V = A x

#### Mark Goldstein

University of California at Los Angeles

#### Helen Chan

University of California at Los Angeles

5 B (Convention Center)

# 537

# Writing Activities in Mathematics for Middle and High School Students

#### (6–12) Session

Participants will learn writing-to-learn activities, such as annotation strategies for equations, graphs, or word problems, which will help students to monitor their understanding of those problems. They will also learn writing-as-assessment activities that will provide students with fun ways to demonstrate their knowledge of mathematical concepts.

#### Amy Alexandra Wilson

University of Georgia, Athens

#### Aaron Ross Wilson

Cottonwood High School, Salt Lake City, Utah

16 B (Convention Center)

# 538

### Connections, Blogs, and Lesson Study (6–12) Session

Learn about how to use connections through a lesson-study approach. Collaboratively planned lessons will be analyzed using technology, assessment alignment with instruction, and students' work. Student-response-centered blogs will be used to foster recognizing and using connections among mathematical ideas and in contexts outside mathematics.

#### José Francisco Sala García

Instituto de Educación Secundaria Sa Colomina, Ibiza, Balearic Islands, Spain

2 (Convention Center)

#### 539

# The Golden Ratio: Connections to the World around Us from Ancient to **Modern Times**

#### (6–12) Session

The golden ratio has been an integral part of art and architecture for centuries. Known as the golden mean, it appears in basic constructions, Egyptian pyramids, Greek statuary and temples, Islamic Art, and paintings from the Renaissance to modern times. Historical examples and the creation of relevant projects will be explored.

#### Stephanie H. Cooperman

Chatham Middle School, New Jersey

Salon 1/2 (Marriott)

**2011 Annual Meeting and Exposition** proposal deadline is May 1, 2010. Go to www.nctm.org/speak to submit your proposal!

#### 540

# Algebra Readiness Tests: Is There One?

# (6–12) Session

In spite of efforts to teach algebra at all grade levels and to include all students in algebra, educators continue to seek an "algebra readiness" test. But algebra readiness tests generally don't work. What can or should we use instead? We will consider alternatives to standard testing for "algebra readiness."

### Judith Mary Kysh

San Francisco State University, California

Salon 4 (Marriott)

# 541

# Sketchpad® Dynagraphs Reveal Domain, Range, Composition, and Inverses of Functions

# (6–12) Session

Dynagraphs are dynamic, behavioral representations of functions that promote an understanding of important properties of functions and are easily related to other representations. Dynagraphs emphasize the role of variables and the mapping of an input variable to an output variable. Participants will receive several ready-to-use activities.

#### **Andres Marti**

Key Curriculum Press, Emeryville, California

17 B (Convention Center)

#### •NT> 542

# Classroom Management and Motivation: How It Can Work for You

#### (6-12, Preservice and In-Service) Session

Understand how motivation and management works and does not work with students. What can you do? Learn to create situations and environments that motivate and engage students. Improve your classroom management skills, and support you in teaching math.

#### **James Middleton**

Arizona State University, Tempe

10 (Convention Center)

#### 543

# **Titilating Topics from Trigonometry**

#### (9–12) Session

There is more to trigonometry than the unit circle. This session will explore the relationships of sides, angles, and cevians in a triangle; some unusual trigonometric identities; trigonometric representation of complex numbers; and inverse trig functions.

#### **David Wilson**

Wake Forest University, Winston-Salem, North Carolina

11 B (Convention Center)

# 544

# Using Maps in Mathematics: A Connections Activity

# (9–12) Session

This activity connects mathematics to other subjects and areas such as cartography, art, and social justice and gives teachers a method for convincing their students of the merits of collaborative learning. There are three stages: motivation for collaborative group work, the four-color theorem, and social justice in maps.

#### **Brian Evans**

Pace University, New York, New York

6 D (Convention Center)

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# 545

# Algebra in Motion: Improving Algebra Understanding through Interactive Computer Animations

#### (9-12) Session

Harness the aptitude of your visual learners by exploring interactive computer animations (Sketchpad) that remove the abstraction from algebra and give it meaning. Appropriate teaching strategies also will be emphasized. Many assorted topics will be taken from Algebra 1, Algebra 2, and precalculus.

#### Audrey Weeks

Calculus In Motion, Burbank, California

**Douglas Pavilion B (Hyatt)** 

### **546**

# Engaging and Challenging Tasks for Capstone Mathematics

#### (9–12) Session

NCTM says, "Every student should study mathematics every year through high school, progressing to a more advanced level each year." This talk will present cognitively demanding problems and projects that solidify and connect a wide range of mathematical content that seniors have found engaging in a post–Algebra 2 alternative to precalculus.

### Gregory D. Foley

Ohio University, Athens

Gregory A/B (Hyatt)

#### 12:30 p.m.-1:30 p.m.

#### 547

# Be a SMART Educator: Enhancing Mathematics Instruction using SMART™ Software

# (9-12) Session

Want to be an effective teacher with dynamic notes, interactive examples, and a way to save all this hard work using an interactive whiteboard? This introductory session will include creating lesson plans using Notebook Software, Senteo Response Systems for assessments, and the new SMART Document Camera.

#### **Barbara Mutch**

Miramichi Valley High School, New Brunswick, Canada Manchester Ballroom C (Hyatt)

# 548

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# The SAT in a Flat World

#### (9-12) Session

How does the SAT mathematics test relate to a dynamically changing world? How can the SAT skills insight help students improve their skills and reach their goals in college and beyond? How does the SAT prepare students to be flexible problem solvers and leaders in the workforce? Come hear the answers to these questions and more.

#### Robin O'Callaghan

College Board, New York, New York

Andrew Schwartz

College Board, New York, New York

Salon 3 (Marriott)

# 549

# Creating and Using Guided Discovery Lessons

#### (9-12) Session

Participants will learn how to create, find, adapt, and use guided discovery lessons. These lessons offer students unique opportunities to become "archeologists on a mathematical dig" by sequentially uncovering layers of mathematical information one step at a time. Guided discovery lessons can be customized to fit the needs of all students.

#### Richard J. Sgroi

Fox Lane High School, Bedford, New York

San Diego Ballroom B (Marriott)

#### 550

# Issues of the Transition from High School to College Mathematics

#### (9–12, Higher Education) Session

This talk will focus on what we know, what we don't know, and what we need to know about the transition from high school to college mathematics, with a description of what the Mathematical Association of America is doing about these issues.

#### **David Bressoud**

Macalester College, Saint Paul, Minnesota

Manchester Ballroom D (Hyatt)

#### 551

# Integrating Math Study Skills into **Developmental Math Classes**

# (Higher Education) Session

Do your developmental math students have even a clue about study skills needed for college success? Do they know that there are specific strategies they can use to become successful in mathematics? Learn about worksheets and activities that are designed to help develop effective study skills using very little class time.

# Lynn M. Marecek

Santa Ana College, California

MaryAnne Anthony Santa Ana College, California

6 A (Convention Center)

# 552

# Don't We Always Ask Good Questions? Don't We? Don't We?

#### (Preservice and In-Service) Session

Questioning is probably the single most important instructional strategy that we use everyday, and too often it is the single most ignored strategy in our planning. In a lively, interactive presentation, participants will consider the do's and don'ts of effective questioning.

#### James J. Clayton

Saint Peter's College, Jersey City, New Jersey

Marina G (Marriott)



#### 12:30 p.m.-1:30 p.m.

#### 553

# Developing Number Sense with Technology-Based Experiments: Reflections on Classroom Practice in Preservice Education

#### (Preservice and In-Service) Session

This session will share inquiry-based lab activities designed to develop number sense in preservice elementary school teachers. Qualitative data collected from the preservice teachers suggests that teacher candidates developed greater number sense as a result of their participation in these classroom activities.

#### Irina Lyublinskaya

City University of New York—College of Staten Island

Judit Kerekes

City University of New York—College of Staten Island 6 E (Convention Center)

#### **Come, Connect, Communicate**

#### **Curriculum Focal Points**

Meet with educators who share your interests in curriculum focal points to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Carlsbad (Marriott)

# **Come, Connect, Communicate**

#### **English Language Learners**

Meet with educators who share your interests in english language learners to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Del Mar (Marriott)

#### 1:00 p.m.-2:00 p.m.

#### **ew 554**

# Math-U-See: Making a Difference in Special Education!

#### (General Interest) Exhibitor Workshop

Math-U-See's unique approach has shown students' 100 percent improvement three years in a row in the Albuquerque Public Schools. Come see how we can help you to "close the gap" in this dynamic, multi-sensory exhibitor workshop that will clearly demonstrate the Math-U-See difference!

#### Math-U-See

Math-U-See, Fallbrook, California

1 A (Convention Center)

# **ew 555**

# Math Innovations: A New Middle Grades Mathematics Program

#### (6-8) Exhibitor Workshop

Developed using Curriculum Focal Points, Math Innovations encourages students to think like mathematicians with focus on verbal and written communication. Concepts are developed in depth with connections across grade levels in conjunction with computational fluency.

#### Kendall Hunt Publishing Co.

Kendall Hunt Publishing Co., Dubuque, Iowa

1 B (Convention Center)

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#### 1:00 p.m.-2:30 p.m.

# 556

# Building Number Sense with Meaningful Practice

#### (Pre-K-2) Gallery Workshop

Children enter school with an informal sense of number gained through natural curiosity. Let's examine how we facilitate the development of number in students as we consider what number sense is and the experiences that would enhance its acquisition.

#### Lisa Rogers

Math Solutions, Sausalito, California

Elizabeth Ballroom G (Hyatt)

# 557

# Math Intervention: Building Number Power for Struggling Students

# (Pre-K–5) Gallery Workshop

Learn how to use formative assessment and motivating games to help students increase conceptual knowledge as they engage in math discourse. The speaker will compare conceptual knowledge to procedural knowledge and analyze specific math concepts to help struggling multilingual students, special-needs students, and others who are having difficulties.

#### Jennifer Taylor-Cox

Taylor-Cox Instruction, LLC, Severna Park, Maryland

### 558

# Outsmarting Your SMART™ Board: Combining Interactive High-Tech and Low-Tech Solutions

# (Pre-K–5) Gallery Workshop

Explore the many ways to use interactive technology in conjunction with low-tech manipulatives as a teaching tool for whole-class lessons, differentiated instruction, individual centers, and students' assessment. No SMART Board? No problem!

#### Kelli Ann Cox

San Diego Jewish Academy, California

**Shelly Moses** 

San Diego Jewish Academy, California

Manchester Ballroom E/F (Hyatt)

# 559

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# Are There Really Six Tens in 268? The Language of Place Value

#### (Pre-K–5, Higher Education, Preservice and In-Service) Gallery Workshop

The gallery workshop's goal is to raise participants' awareness of the importance of language in the learning of place value. In particular, participants will make connections among research on children's learning of place value, teachers' knowledge of place value, and place-value instruction for preservice teachers in methods and content courses.

#### **Christopher Danielson**

Normandale Community College, Bloomington, Minnesota Elizabeth Ballroom F (Hyatt)

#### **560**

# Raising Questions, Finding Answers: Applying Concepts of Statistics and Probability

#### (Pre-K–5, Preservice and In-Service) Gallery Workshop

This gallery workshop presents five developmentally appropriate activities exploring fundamental concepts of statistics, data analysis, and probability. Activities include raising questions, gathering data, using statistical methods to create visual and mathematical representations, and developing predictions based on data analysis.

#### Barbara Biglan

Chatham University, Pittsburgh, Pennsylvania

#### Martha Hildebrandt

Chatham University, Pittsburgh, Pennsylvania

Betsy A/B/C (Hyatt)

#### 561

# Language Links: Connecting Vocabulary to Math Concepts

#### (3–5) Gallery Workshop

Do your students have trouble making connections to math concepts because of the "language" involved? Students are interested in geometry, measurement, data, and so on, but can struggle with all the words. Participants will engage in activities that give students visual, concrete ways to build vocabulary associated with math concepts.

#### Elise Sabaski

North Kansas City Public Schools, Missouri

# Charlene Steadman

North Kansas City Public Schools, Missouri

14 A (Convention Center)

# 562

# Geometry Fun with Two Guys

#### (3–5) Gallery Workshop

This presentation will demonstrate geometry activities that the speakers have learned through math specialist courses at the University of Virginia. The activities will connect mathematics to the NCTM Geometry Standards as well as the five Process Standards. Participants will engage in several hands-on activities that can be used in the classroom.

#### Tres Wells

Albemarle County Schools, Charlottesville, Virgnia

#### Justin Hose

Frederick County Public Schools, Winchester, Virginia 16 A (Convention Center)

#### 563

#### Got Fraction Frustration? No-Tears Strategies for Students (and Teachers) (3-5) Gallery Workshop

# (3–5) Gallery Workshop

Explore engaging lessons that build fraction knowledge. Hands-on tasks will teach concepts, operations, and problem solving and use strategies such as facilitating discussions and effective questioning. Students' work and observations of the teacher and coach will reveal outcomes. Walk away with lessons that make fraction frustrations disappear.

#### Elizabeth Gehron

Seminole County Public Schools, Sanford, Florida

#### Tiffany Garrison

Seminole County Public Schools, Sanford, Florida 17 A (Convention Center)

#### 564

# Math Activities for the Special Student in the Regular Classroom

# (3-5) Gallery Workshop

Are you having difficulty teaching computation to your students with special needs? Using the NCTM Math Computation Standard, you will be actively involved with games and activities that develop concepts, then practice these concepts and apply them to solve problems.

#### Shirley H. Bradsby

Jefferson County Public Schools, Lakewood, Colorado

**Douglas Pavilion C (Hyatt)** 

#### 565

# Math and Literature: A Joint Effort for Success

### (3-5, Preservice and In-Service) Gallery Workshop

Understanding math concepts begins with children being actively engaged. Literature helps link math concepts through real-world applications. Together, success is achieved. Experience the math and literature connection by participating in hands-on activities that are motivating, simple, and relevant.

#### **Sharon Huber**

Chesapeake Public Schools, Virginia

#### **Carolyn Belson**

Retired, Chesapeake Public Schools, Virginia San Diego Ballroom C (Marriott)

#### **•NT> 566**

# Fractions, Ratios and Patterns: Helping **Elementary School Students Get Ready for** Algebra

#### (3–5, Preservice and In-Service) Gallery Workshop

The core concepts and skills students learn in elementary school set the stage for success in algebra. Learn how to teach the important concepts and skills that support future success in algebra.

#### Joseph Zilliox

University of Hawaii, Honolulu

### **Eomailani Bettencourt**

University of Hawaii, Manoa, Honolulu

9 (Convention Center)

# 567

# **Building Connections through Problem** Solving

#### (3-8) Gallery Workshop

Successful problem solvers draw on past experiences and apply their knowledge to new situations. The speakers will share strategies for using problems to help students (1) understand the interconnectedness of mathematical ideas, (2) recognize and take advantage of prior learning, and (3) forge new connections to help make sense of challenges.

#### **Claire Mead**

The Math Forum @ Drexel, Philadelphia, Pennsylvania Manchester Ballroom I (Hyatt)

### 568

# **Fantastic Folding Feats** (3-8) Gallery Workshop

In this gallery workshop, participants create familiar twodimensional shapes by folding metric paper. The simple steps vield some captivating patterns and designs. A truly fantastic way to represent and examine two-dimensional shapes and their properties.

#### Allan Turton

Origo Education, Brisbane, Queensland, Australia

#### **Calvin Irons**

Queensland University of Technology, Brisbane, Australia Marina F (Marriott)

#### 569

# It's Not in the Textbook: Now What? Hands-On, Discrete Mathematics in the Middle School

#### (3-8) Gallery Workshop

Join the speakers for some hands-on examples in discrete math! Activities on vertex edge maps, four-color theorem, origami, combinations, and more can be applied right away in the classroom and adapted easily to multiple ages and grade levels. You will leave knowing how to get your kids excited about problem solving!

#### Alanna Webb

Dysart Unified School District, Surprise, Arizona

#### Ashley Hinsberg

Dysart Unified School District, Surprise, Arizona

11 A (Convention Center)

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#### 570

# Lets Be Rational: Making Sense of Fractions, Decimals, and Integers

# (6–8) Gallery Workshop

Middle school students struggle to understand fractions, decimals, and integers. This gallery workshop will teach new approaches to help students make sense of these topics. You will explore activities and games that build understanding and learn some new computational algorithms that will help students avoid errors.

#### Suzanne H. Chapin

Boston University, Massachusetts

8 (Convention Center)

# **571**

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# **Percents without Proportions**

# (6-8) Gallery Workshop

Participants will try fun, easy-to-implement activities in which students learn to calculate percents using multiples, graphic organizers, and logic. The activities are perfect for improving estimation skills, number sense, and operation sense and for English language learners and special-education students.

#### Susan Mercer

Santa Ana Unified School District, California

Manchester Ballroom A (Hyatt)

# **572**

# Exploring Integers: Relevant Applications, Engaging Activities, and Instructional Strategies

#### (6-8) Gallery Workshop

Explore applications of integers, make connections in multiple domains, explore students' misconceptions and strategies, and enhance pedagogical and content knowledge to improve students' conceptual understanding, which leads to flexibility when applying that knowledge to new situations.

#### Sarah Jane Harris

University of Texas at Austin

Salon 5 (Marriott)

Join or renew your membership at the NCT/M Member Showcase and receive a free t-shirt!

# 573

#### Measurement for All

### (6–12) Gallery Workshop

Ever wonder how to develop measurement concepts for all students? Making a ruler and a trundle wheel will help extend linear measurement to area concepts while providing context for students struggling to make connections. Experience activities just as students do in our transition to high school math camp.

#### Judith L. Carlin

Nikki Rowe High School, McAllen, Texas

Faynna Guerrero Cathey Middle School, McAllen, Texas

Felipe Santiago Rico Nikki Rowe High School, McAllen, Texas

Marina D (Marriott)

# 574

# I Get It! Developing Linear Concepts Using Clever, Meaningful Tasks

### (6–12) Gallery Workshop

Participants will be actively engaged in hands-n activities that will enhance students' understanding of linear functions and rate of change. The activities will focus on multiple representations of linear functions, developing an understanding of slope, and real-world applications.

Kristy Marie Thompson Muncie Community Schools, Indiana

Katie Marie Metz

Muncie Community Schools, Indiana

Gloria Frasier Muncie Community Schools, Indiana Rollin Ty Gill Muncie Community Schools, Indiana

San Diego Ballroom A (Marriott)

# 575

# Making Sense of Algebra

#### (6–12) Gallery Workshop

This presentation will discuss the role that algebra currently plays in schools and explore ways of teaching algebra with a focus on increasing algebraic sense making in the classroom. Participants will engage in student-centered algebra activities, examine their own conceptualization of algebra, and reflect on the needs of their students.

#### **Jill Newton**

Purdue University, West Lafayette, Indiana

#### Rachael Kenney

Purdue University, West Lafayette, Indiana

Lindsay M. Umbeck

Purdue University, West Lafayette, Indiana

Douglas Pavilion A (Hyatt)

#### 576

# Tennis Balls, Lines, and Geometric **Transformations**

# (6–12, Preservice and In-Service) Gallery Workshop

Students roll a wet tennis ball across a horizontal sheet of easel grid paper then investigate the characteristics of the line left by the path of the wet ball. Their exploration leads from traditional algebraic concepts to making connections to ideas in measurement, coordinate geometry, and transformational geometry.

# Kathleen Mittag

University of Texas at San Antonio

Salon 6 (Marriott)

# 577

# Lights! Logs! And Lines!

#### (9-12) Gallery Workshop

Light intensity is an illuminating context for studying logarithms. Come gather light-intensity data and see how this exploration connects to logarithmic transformation and linear regression, while teaching basic spreadsheet skills as learners determine and justify a best-fit model. Bring a laptop with battery power. Other technology will be provided.

#### Janice L. Krouse

Illinois Mathematics and Science Academy, Aurora

15 A (Convention Center)

# 578

# Errors, Mishaps, and Misconceptions: **Understanding Quadratic Functions**

#### (9-12) Gallery Workshop

Connect theory to practice by investigating quadratic functions and students' common errors. Analyze students' work, integrate technology, and investigate methods that will make this topic accessible for all students and enable them to move beyond rote procedures to connections between the symbolic and graphical forms of quadratics.

#### Karen L. Terrell

Boston College, Chestnut Hill, Massachusetts

#### Lillie R. Albert

Boston College, Chestnut Hill, Massachusetts

3 (Convention Center)

# 579

# Nspiring<sup>™</sup> Students: How New Technology **Changes Instruction**

#### (9-12) Gallery Workshop

The new TI-Nspire has changed the speaker's lessons from direct instruction to interactive, exploratory, small-group activities that promote students' mathematical thinking and reasoning. Participants will complete student activities focusing on Algebra 1, geometry, and Algebra 2. No previous technology experience required.

#### **Kimberley Ann Thomas**

Valley Vista High School, Surprise, Arizona

Manchester Ballroom G (Hyatt)

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# 580

# The Matrix: Applying Matrices to Plant Life **Histories and Conservation**

#### (9-12, Higher Education) Gallery Workshop

Discover practical applications of scientific concepts in the math classroom. Learn how to apply matrices to ecology and evolutionary biology. Through the use of a simple matrix population-growth model, using a system of linear equations, teachers can explore the evolution of different plant-life histories.

#### Alberto Macias-Duarte

iPlant Collaborative-Tucson, Arizona

Lisa Howells

iPlant Collaborative-Tucson, Arizona Marina E (Marriott)

# 581

# The First Ten Minutes of Class Can Ensure **Students' Success!**

#### (9–12, Preservice and In-Service) Gallery Workshop

Use the beginning of class to assess each student's readiness for the lesson. Learn how to develop an "opener" for any lesson, techniques to collect and review the "opener", ideas for using this information to structure your lesson, and materials to meet each student's needs in a typical classroom. All levels of technology will be used.

#### Allan Bellman

University of California, Davis

#### **Katie Allard**

Canyon Crest High School, San Diego, California

Elizabeth Ballroom B (Hyatt)

#### 582



# **NCTM Business Meeting**

#### (General Interest) Session

This session will provide a summary of the past year's significant accomplishments and an overview of NCTM's current and future strategic directions.

#### **Kichoon Yang**

Executive Director, National Council of Teachers of Mathematics, Reston, Virginia

5 B (Convention Center)

#### 583

R

# M. C. Escher Took Islamic Art to Infinity, and So Can You!

#### (General Interest) Session

Escher used tessellations from Islamic art as a basis for intriguing transformational masterpieces. Learn how to construct triangular and square grids, recognize patterns, arrange stars, use a "nibbling" technique to create designs, and see Adobe Photoshop-enhanced images. Handouts, Powerpoint, and Photoshop instructions will be available.

#### Carol D. Desoe

Scarsdale High School, New York

**Douglas Pavilion B (Hyatt)** 

# 584

# Creating a Curriculum Map: The GPS for **Effective Curriculum Implementation and** Assessment

#### (General Interest) Session

This session will share strategies and procedures for compacting curriculum, using available resources, making connections, capitalizing on prior knowledge, building students' retention of big ideas in mathematics, and "recalculating" for school interruptions. This interactive session will include a comprehensive handout with sample maps.

#### Joan Josephine Vas

Kean University, Union, New Jersey

Manchester Ballroom B (Hyatt)

#### 585

# **Research Insights into Mathematics Instruction for Females**

# (General Interest) Research Session

#### Women and Mathematics Education presentation

Research-based instructional methods that support and encourage females in mathematics will be presented with attention to how other social identities-especially race, ethnicity, and social class-intersect with gender. The presentation will incorporate audience discussion, and resources will be provided.

#### Lynda R. Wiest

University of Nevada, Reno

Rebecca McGraw University of Arizona, Tucson

15 B (Convention Center)

# 586

# **Teaching and Learning Mathematics:** Translating Research to the Classroom (General Interest) Session

Participants will learn what research tells us about important questions and issues related to mathematics teaching and learning posed by grades pre-K-12 teachers and administrators. The presenters will use information gleaned from the Second Handbook of Research on Mathematics Teaching and Learning.

# Frank K. Lester

Indiana University Bloomington

#### Diana V. Lambdin

Board of Directors, National Council of Teachers of Mathematics; Indiana University Bloomington

6 E (Convention Center)

# 587

# Capitalizing on Connections: Place Value **Concepts in Real-World Contexts**

#### (Pre-K-2) Session

Learn how to use real-world contexts to support development of place value concepts. A framework for designing contextualized problems that encourage base-ten thinking will be shared. Emphasis will be given to examining students' work samples and discussing how children's problem solutions can be used to promote base-ten thinking.

#### Wendy Bray

Rollins College, Winter Park, Florida

10 (Convention Center)



# 588

# Unlocking Story Problems without Key Words

# (Pre-K-2) Session

Learn how to use the context a story problem to build conceptual understanding of operations without using "key words." Through video and students' work samples, see how students make sense of stories, use variables, and represent and connect the action to mathematical operations.

### Maria DaSilva

University of Hawaii, Honolulu

Hannah Slovin University of Hawaii, Honolulu

**Linda Venenciano** University of Hawaii, Honolulu

11 B (Convention Center)

# **589**

# Kinesthetic Exploration of Number Using a 100-Square Floor Grid

# (Pre-K-2) Session

This is a highly interactive session that will introduce teachers to the numerous and creative ways of teaching children to explore number physically on a large, 100-square floor grid. Teachers will experience fun, foolproof strategies for calendar work, number patterns, greater than, less than, and basic addition and subtraction operations.

### Wendy Ellen Hill

Retired, Huntsville, Ontario, Canada

6 A (Convention Center)

# **590**

# Math Room Time

### (Pre-K-2) Session

A math room, designed around math recovery philosophy, strongly emphasizes assessment. All students grades K–2 will join the math room for 20 minutes. The room is divided into learning centers with one technology center that consists of a SMART Table, SMART Board, and computers. The SMART Table allows teachers to customize lessons.

#### Jaime Lodge

Chester Grade School, Illinois

Douglas Pavilion D (Hyatt)

# **591**

# **Problem Posers Create Concepts in Context**

# (Pre-K-2, Preservice and In-Service) Session

When children create their own problems from their own experience, it becomes easy to assess what concepts they have learned-often more complex than their teacher expects! See examples of problems developed by young children who were helped by "Sylvester the Cat."

#### Kate Le Maistre

McGill University, Montreal, Quebec, Canada

Elizabeth Ballroom H (Hyatt)

# 592

# Geometry Is More than Squares and Triangles

#### (Pre-K-8) Session

What does geometric reasoning look like in the elementary grades, and how can we help our students develop reasoning abilities that move beyond naming geometric figures? A framework for understanding the development of geometric reasoning will be examined, focusing on hands-on classroom activities for developing geometric reasoning.

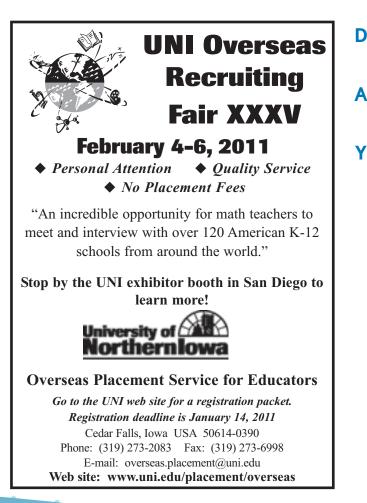
# Tom Fox

University of Houston-Clear Lake, Texas

4 (Convention Center)

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#### 593

# Does Singapore Mathematics (SM) Enhance Students' Learning in the United States?

### (Pre-K-8) Session

Many teachers want to use SM with their students, but they have been unable to provide data on its effectiveness in the United States. The speakers will report results of a longitudinal study of SM implementation, offer examples of concepts students learn, and offer ways in which all students can learn math to high levels.

#### **Richard Askey**

Retired, University of Wisconsin-Madison

#### Madge Goldman

Gabriella and Paul Rosenbaum Foundation, Bryn Mawr, Pennsylvania

#### Patsy Wang-Iverson

Gabriella and Paul Rosenbaum Foundation, Stockton, New Jersey

#### Ban-Har Yeap

Nanyang Technological University, Singapore

#### Marian Palumbo

Bernards Township Public Schools, Basking Ridge, New Jersey

6 F (Convention Center)

#### **594**

# Meaningful Multiplication: Visualizations and Independent, Task-Time Activities

#### (3-5) Session

Create an environment involving all students in meaningful multiplication activities. Ensure that students make sense of multiplication before memorizing abstract facts. Provide a variety of tools to assess students' understanding and to challenge students to think by combining problem solving with computational practice.

#### Marcy Cook

Consultant, Balboa Island, California

20 D (Convention Center)

#### 595

# Helping Students Understand Fractions by Making Connections

#### (3-5) Session

Do your students struggle to understand fractions? Are you looking for new ideas to support student learning? In this session, you will gain insight on how to support student learning by examining connections between math content, student thinking, assessment and curricula.

#### Teruni Lamberg

University of Nevada, Reno

Manchester Ballroom C (Hyatt)

# 596

# Build an Understanding of Fractions

# (3–5) Session

In the same way students develop an understanding of whole numbers, they need to develop an understanding of fractions. Explore ways to develop that understanding using linear and area models. Connect linear models to a number line to see fractions as numbers. Apply conceptual understanding to fraction addition and subtraction.

#### Jaine Kopp

Bay Area Mathematics Project, Berkeley, California

Marina G (Marriott)

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#### **597**

# Combining Math and Literacy: Using Picture Books to Teach Content and Reading

#### (3-5) Session

Children's literature will be highlighted in this presentation with an emphasis on using math content picture books to teach reading and math simultaneously. Participants will leave the session with classroom activities and lessons that integrate literacy and math in an engaging way for students.

#### Julie Marie Amador

University of Nevada, Reno

Salon 3 (Marriott)

# **598**

# Differentiating Mathematics Instruction and Practice for Inclusive Environments: Math Stations

#### (3–5, Preservice and In-Service) Session

Learn how to provide effective instruction and practice for all learners in inclusive settings using process, content, and product differentiation; learning supports; and task modifications. The speaker will illustrate and discuss examples using the concept of math stations. Ideas will be based on the instruction and practice of fraction operations.

#### Jessica Heather Hunt

University of Central Florida, Orlando

#### **Kimberly Davis**

University of Central Florida, Orlando

Elizabeth Ballroom D/E (Hyatt)

121

# 599

# **Tools to Help Teachers and School Leaders Understand Curriculum Implementation** (3–12) Research Session

A research team will share classroom-tested, research-based tools to help practitioners identify and understand issues of curriculum implementation. Participants will examine-and leave with-lesson logs, surveys, and unit guides that capture pedagogical and mathematical storylines for grades K-12 curricula.

#### Steven W. Ziebarth

Western Michigan University, Kalamazoo

Nicole L. Fonger Western Michigan University, Kalamazoo

Alden J. Edson Western Michigan University, Kalamazoo

Molly A/B (Hyatt)

# 600

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# Spicing It Up: A Five-Step Recipe for Adding Flavor to Bland Word Problems

# (6–8) Session

Are your students tired of the application word problems given at the bottom of the textbook page? You'll leave this session with a fistful of "good" word problems that you have created. Learn five easy revision strategies that transform plain, old word problems into worthwhile mathematical tasks. Your students will eat them up!

**Carrie S. Cutler** 

University of Houston, Texas

20 A (Convention Center)

# 601

# Help! I Need a Fun, Hands-On Math Activity

#### (6-8) Session

Hands-on math activities will be presented that were used in classrooms, were adapted for a family math night, and can be easily modified for use at all grade levels. You will leave this presentation with several ideas for fun, engaging, and educational activities that you can implement right away or at your next family math night.

#### Paul V. Ridgway

Encyclopaedia Britannica, Chicago, Illinois

Sara Torpey Linden Public Schools, New Jersey

Manchester Ballroom D (Hyatt)

# 602

# Using Arithmetic Sequences to Make Sense of Linear Equations

### (6–8, Preservice and In-Service) Session

The speaker will describe an approach to learning linear equations that is based on first understanding arithmetic sequences. Because students find arithmetic sequences more intuitive and easier to grasp, this approach allows them to learn not by memorizing a set of formulas but by deriving and making sense of the important ideas.

#### Ryota Matsuura

Boston University School of Education, Massachusetts Manchester 1/2 (Marriott)

# 603

# Formative Assessment: A Practical Approach

#### (6–8, Preservice and In-Service) Session

In education, it seems that each day brings a new classroom practice that teachers need to embrace and implement with their students. A closer look at formative assessment may help you recognize how you are already using this important practice, as well as how you can more fully engage in and learn from it.

#### Nickie Rizzo

Math Solutions, Sausalito, California

San Diego Ballroom B (Marriott)

# 604

# Activities on Data Analysis and Probability Using Technology

#### (6–12) Session

Data analysis and probability are imperative concepts in mathematical thinking and often hard to teach and learn. A number of online activities and visual tools will be presented on data analysis and probability to be used in the middle and high school mathematics classroom.

#### Gary Bitter

Arizona State University Technology-Based Learning and Research, Scottsdale

#### Rusen Meylani

Arizona State University, Tempe

6 C (Convention Center)

#### 605

# Socratic Seminar: Fostering Mathematical Discourse for English Language Learners (ELLs) and All Students

# (6–12) Session

This session is aimed at helping teachers organize and facilitate Socratic seminars for ELLs in mathematics. Students will gain confidence in analyzing mathematics textbooks as well as asking and answering complex questions. The seminar is designed to give all students responsibility in maintaining equity during the discussion.

#### Angela Thompson

University of California, Santa Cruz

7 B (Convention Center)

# 606

# Hands-On Experiences to Develop the Concepts of Variable and Function

#### (6–12) Session

Participants will learn how to use real-world phenomena to help students develop the concept of a variable as something that actually varies! Participants will also experience data streaming from common physical phenomena and learn how the streaming itself mirrors and develops the concept of function. The new HP Data Streamer will be demonstrated.

#### **Michael Grasse**

Elk Grove High School, Elk Grove Village, Illinois

G. T. Springer

Hewlett-Packard Company, San Diego, California

Edward A/B/C/D (Hyatt)

# 607

# Use Practical Strategies to Increase English Language Learners' (ELLs') Math Progress Dramatically

#### (6-12) Session

ELLs and other students benefit from instruction in algebra that incorporates multiple representations, frequent formative assessment, and opportunities to "talk math." The speaker will discuss ELL teaching strategies for mathematical concept and academic language development, along with classroom routines that increase engagement.

#### **Debra Coggins**

Alliant International University, San Francisco, California Salon 1/2 (Marriott)

## 608

# Cultural Context and Teaching for Social Justice

(6-12) Session

**Presidents' Series presentation** 

#### **Benjamin Banneker Association presentation**

Teachers who use cultural relevance or social justice as a context for teaching mathematics must not underestimate the difficulty of finding appropriate examples. Using these crucial pedagogies in the mathematics classroom is not a panacea. Teachers should avoid making them routine, which may create a new form of marginalization.

#### Jacqueline Leonard

Temple University, Philadelphia, Pennsylvania

16 B (Convention Center)

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#### 609

# Formative Assessment Tools for High School Mathematics Teachers

#### (9-12) Session

This session will describe formative assessment tools developed for high school teachers in Kentucky. The tools include mathematics content prerequisite trees, students' common misconceptions, and strategies for addressing misconceptions. The tools were developed by teams of mathematicians, mathematics educators, and teachers.

#### William S. Bush

University of Louisville, Kentucky

Wanda Weidemann Western Kentucky University, Bowling Green

Gina Foletta Northern Kentucky University, Highland Heights

Christie Perry Morehead State University, Kentucky

14 B (Convention Center)

#### 610

# Applications of Polynomial Functions

(9–12) Session

Learn some real-world and mathematical-world phenomena that can be modeled by higher-degree polynomial functions. Some are exact, such as the bending of beams and sums of powers of integers. Others are empirical and involve fitting functions to data. Even complex zeros of a cubic function can be made to show up on the graph.

#### Paul A. Foerster

Alamo Heights High School, San Antonio, Texas

20 B/C (Convention Center)

#### 611

# States Moving toward Common Core **Standards**

### (9-12) Session

The presenters will discuss the process used to arrive at the NGA- and CCSSO-led Common Core State Standards in mathematics and the implications for students' achievement, including equity and access, curriculum development, teacher capacity, and U.S. success.

#### Laura Slover

Achieve, Washington, D.C.

6 B (Convention Center)

# 612

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# Reasoning and Sense Making in Algebra (9–12) Session

NCTM has recognized the need to promote new discussion around high school mathematics. This session will provide participants an opportunity to discuss and engage with examples from NCTM's Reasoning and Sense Making in Algebra document.

#### Karen Graham

University of New Hampshire, Durham

#### Al Cuoco

Education Development Center, Inc., Newton, Massachusetts **Gwen Zimmermann** 

Adlai E. Stevenson High School, Lincolnshire, Illinois 6 D (Convention Center)

#### 613

# How to Make Your Classroom 24-7

# (9-12) Session

Want to discover the full capabilities of the technology in your classroom? From basic to advanced lessons to formal assessments and 24-7 access for students, watch as we demonstrate the endless possibilities of SMART Board, SMARTtview, and Blackboard. Learn how to apply this knowledge in courses ranging from Algebra 1 to AP calculus.

#### Sam V. Gero

Fairfax County Public Schools, Lorton, Virginia

#### Kate Wolling Fairfax County Public Schools, Lorton, Virginia

Melissa Rushing Fairfax County Public Schools, Lorton, Virginia Elizabeth Ballroom A (Hyatt)

#### 614

# **Cool Geometry**

# (9-12) Session

Geometry is fundamentally different than other high school subjects, for many reasons. It can get students turned on to mathematics. The speaker will share some things that have gotten him and his students excited about geometry in the last forty years. He will share interesting problems, applications, and connections.

#### John Allen Benson

Evanston Township High School, Illinois

Salon 4 (Marriott)

#### 615

# Distance Learners and the Processes of Learning Mathematics

#### (9-12, Higher Education) Research Session

Research in distance learning has focused mainly on success rates, as measured by course completion, and college-level learners. This session will discuss the preliminary findings of qualitative research devoted to examining evidence of the NCTM Process Standards in distance learners at the high school level.

#### Jodie A. Miller

Morristown-Beard School, Morristown, New Jersey

Gregory A/B (Hyatt)

#### 616

#### Links to Literacy

#### (Higher Education, Preservice and In-Service) Session

Reading mathematically-themed children's books can help college students improve their English-language literacy and gain a better understanding of mathematical concepts. Classtested activities will be shared.

#### MaryAnne Anthony

Santa Ana College, California

Manchester Ballroom H (Hyatt)

#### 617

# The Activity and Impact of Elementary School Mathematics Coaches on Students' Achievement

#### (Higher Education, Preservice and In-Service) Session

Mathematics coaches serve as resources for content, pedagogy, and curriculum. This session will address how coaches spend their time and how those activities do and do not relate to students' achievement. Findings will be shared from a three-year, NSF-funded study that examined coaches' impact on students' achievement and teachers' beliefs.

#### Patricia F. Campbell

University of Maryland, College Park

2 (Convention Center)

#### 618

# Making Cultures Count in the Classroom: How to Get Started

#### (Preservice and In-Service) Session

#### **TODOS: Mathematics for ALL presentation**

Teachers who integrate the role of language and culture in the learning of mathematics create equitable, rigorous, and coherent instruction. Many people strive to accomplish this but do not know how to get started. Participants will learn "how-to" steps to enhance their own effectiveness as the presenters share tried and tested techniques.

#### Jim Barta

TODOS: Mathematics for ALL, Salt Lake City, Utah

#### **Susie Hakansson**

California Mathematics Project, Los Angeles, California

17 B (Convention Center)

#### 619

# Transforming School Culture through New Teacher Induction

#### (Preservice and In-Service) Session

Transform school culture from teaching in isolation to public and collaborative work through current best practices, from information-rich hiring and orientation to comprehensive mentoring and faculty rounds. By raising the level of authentic discourse about teaching and learning, schools can truly build a professional learning community.

#### **Reena Freedman**

Gann Academy, Boston, Massachusetts

Elizabeth Ballroom C (Hyatt)

#### **Come, Connect, Communicate**

#### **Core Content Standards**

Meet with educators who share your interests in Core Content Standards to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Carlsbad (Marriott)

#### **Come, Connect, Communicate**

#### **Differentiated Instruction**

Meet with educators who share your interests in Differentiated Instruction to discuss how we might improve the teaching and learning of mathematics. This colloquium provides an opportunity to network and establish relationships that can continue beyond the conference as a resource for your professional growth.

Del Mar (Marriott)

#### 2:30 p.m.-3:30 p.m.

# **EW 620**

# Make Sense of Numbers using Mathematical Models from Math in Context®

#### (General Interest) Exhibitor Workshop

Experience realistic mathematics education and problem solving while exploring multiple number models. These models will move students to a deeper understanding of number and operations. Each participant will receive a free Number Tools® workbook.

#### **Britannica Digital Learning**

Britannica Digital Learning, Chicago, Illinois

1 A (Convention Center)

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# **EW 621**

# Project M2 and Project M3: Developing Mathematical Talent in Elementary Students

#### (Pre-K-5) Exhibitor Workshop

Help your students assume the role of mathematicians as they develop critical- and creative-thinking skills to solve real problems. Project M3 and the new Project M2 for primary students are both challenging and motivational.

#### Kendall Hunt Publishing Co.

Kendall Hunt Publishing Co., Dubuque, Iowa

1 B (Convention Center)

#### 3:00 p.m.-4:30 p.m.

#### 622

# Movin' with Math: Connecting Kids, Concepts, and Kinesthetics

#### (Pre-K-2) Gallery Workshop

Kinesthetic activities offer variety in differentiated instruction and practice that supplements and enriches concepts being taught. This multisensory approach motivates, promotes mastery, requires few materials, and gives immediate feedback. Kinesthetic activities for important math concepts will be presented and provided.

#### Joquita McKibben

Houghton Mifflin Harcourt, Orlando, Florida

Marina F (Marriott)

#### 623

# Place Value: Making Connections One Paper Clip at a Time

# (Pre-K-2) Gallery Workshop

With a box of paper clips, participants will represent deep, meaningful understanding of place value and its connection to their world. Participants will use familiar objects and ordinary language to represent one of the big ideas in mathematics—place value!

#### **Elizabeth Arcement**

Iberia Parish School System, New Iberia, Louisiana

Salon 5 (Marriott)

# 624

# Math Talk: Teaching Concepts and Skills through Illustrations and Stories

#### (Pre-K-2, Preservice and In-Service) Gallery Workshop

Using illustrations of nursery rhymes, fairy tales, and themes, learn how math talk can give your students interactive opportunities to practice and master early math concepts and skills in a language-based setting. Based on an approach from Singapore, math talk is a powerful way for students to create and solve math stories.

#### **Char Forsten**

Staff Development for Educators, Peterborough, New Hampshire

Elizabeth Ballroom F (Hyatt)

# 625

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# The Japanese Abacus, Soroban, Can Boost **Mental Calculation Skills**

#### (Pre-K-5) Gallery Workshop

Join us as the presenter demonstrates how the soroban works and how it is used. Soroban-trained students are capable of performing mental calculation-addition, subtraction, multiplication, and division-by visualizing soroban beads in their mind.

#### Hiroo Kodama

Tomoe MI Academy, Shinjuku-ku, Tokyo, Japan

Manchester Ballroom I (Hyatt)

# 626

# Stop! Re-evaluate! I Thought You **Understood Fractions**

# (3-5) Gallery Workshop

This presentation will focus on a lesson study presented to fourth- and fifth-grade students. Participants will take active part in the lesson, which incorporates the understanding of three different fraction models, and examine the different error patterns in the students' work.

#### Laura Gray

Norfolk Public Schools, Virginia

11 A (Convention Center)

# 627

# LCC: Links between Concepts and Content

# (3-5) Gallery Workshop

Participants will experience hands-on activities that highlight natural links to concepts and content in the mathematics of grades 3-5. The activities will enhance the connections to real life and to other disciplines, such as language arts, science, and technology.

#### Maria Diamantis

Southern Connecticut State University, New Haven

15 A (Convention Center)

#### 628

# Mathematics Notebooking That Works: Reaching All Learners

#### (3-5) Gallery Workshop

During this presentation, participants will examine and actively explore using notebooking as a tool to increase students' mathematical thinking and understanding while meeting individual needs. Notebook entry types and strategies for use will be highlighted as organizational elements to support student learning.

#### Mary Knuck

Arizona Department of Education, Phoenix

3 (Convention Center)

# 629

# Making Connections: Problems from Singapore Classrooms

# (3-5) Gallery Workshop

Come with a sharp pencil and experience solving mathematics problems used in Singapore schools. Some of these problems help students use context to learn content. Others help students link different content areas. Learn how teachers can help students make all sorts of connections in solving problems. Go home with a bunch of problems.

#### **Ban-Har Yeap**

Nanyang Technological University, Singapore

**Douglas Pavilion A (Hyatt)** 

#### 630

# Technologically Challenged But Still Using a SMART<sup>™</sup> Board

#### (3-5) Gallery Workshop

Educators of different technological skill levels will learn to use a SMART Board as a tool for linking concepts and context. Learn the tricks of this technology, learn how to develop instructional activities, and be able to edit previously created lessons. Participants will leave with multiple ideas and resources to make the connections.

# Jan A. Puls

Norman Public Schools, Oklahoma

Johnnie Keel Norman Public Schools, Oklahoma

Manchester Ballroom E/F (Hyatt)

#### 631

#### What's the Big Idea? Connecting Fractions, **Decimals, and Percents**

#### (3-5) Gallery Workshop

The presenter's hands-on gallery workshop will show participants how to use manipulatives and pictorial representations to acquire strategies that can be used to help students understand the "big ideas" about fractions, decimals, and percents and how the three are all interconnected.

#### Carolyn Doyle

Richmond City Public Schools, Virginia

San Diego Ballroom A (Marriott)

#### 632

#### Using Music Composition to Teach Math

#### (3-5, Preservice and In-Service) Gallery Workshop

Color bars will be used to represent music scales, and the numbers of bars to represent notes' durations. Combinations of color bars will be used to represent chords. Based on a typical pop music chord sequence, students will compose music by choosing colors. Statistics tables and graphs will be created based on students' composition notes.

#### Song An

Texas A&M University, College Station

#### Shuhua An

California State University, Long Beach

Salon 6 (Marriott)

#### 633

#### **Rational Number Project: Fraction Operations and Initial Decimal Ideas**

#### (3-8) Gallery Workshop

Latest curriculum project from the NSF-funded Rational Number Project (RNP) will be shared. Twenty-eight lessons are available at no cost on the RNP Web site. The presentation provides participants opportunity to explore sample lessons, view video clips of actual lessons, and analyze students' work.

#### **Terry Wyberg**

University of Minnesota-Twin Cities

**Kathleen Cramer** University of Minnesota-Twin Cities

Seth Leavitt Minneapolis Public Schools, Minnesota

Elizabeth Ballroom B (Hyatt)

#### 634

#### Surface Area and Volume: Help! I Can't Memorize All These Formulas

#### (3-8, Preservice and In-Service) Gallery Workshop

Participants will actively engage in hands-on activities using tape measures, square tiles, cubic units, and even sand in order to develop a conceptual understanding of perimeter, area, and volume formulas. These activities will begin with rectangles, triangles, parallelograms, trapezoids, and circles and will end with prisms and pyramids.

#### Joy W. Darley

Georgia Southern University, Statesboro

#### Barbara B. Leapard

Eastern Michigan University, Ypsilanti

17 A (Convention Center)

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#### 635

#### ABC's of Problem Solving: An Approach to **Building Mathematical Knowledge**

#### (3-8, Preservice and In-Service) Gallery Workshop

Experience an approach to problem solving that builds knowledge and confidence in grades K-12 students and preservice teachers alike, and share in the the joys, frustrations, breakthroughs, and growth of attempting, solving, and presenting problems. Materials and an overview of a preservice capstone course based on this model will be provided.

#### **Janet Nichols**

Colorado State University-Pueblo

#### **Janet Heine Barnett**

Colorado State University-Pueblo

Marina D (Marriott)

#### 636

#### **Math Nights That Work**

#### (6-8) Gallery Workshop

Learn the secrets to success in planning and implementing math activity nights at your school. You should be prepared to participate in actual math night activities, including a warmup, a group game, and a featured activity. You will leave with a CD full of activities you can use or modify.

#### Elizabeth Warren

Estacada Junior High School, Oregon

#### Sally Wood

Estacada Junior High School, Oregon

Julie Norrander Estacada Junior High School, Oregon

9 (Convention Center)

#### 637

#### All Aboard for Function Junction

#### (6-8) Gallery Workshop

Pack your thinking bags, get your brain ticket, and travel from station to station where you will explore functions in a variety of ways. Your travels will also take you on a tour where literature is integrated into the study of the different types of functions. All aboard!

#### **Emily Combs**

Clinton Middle School, Missouri

#### Ann McCoy

University of Central Missouri, Warrensburg Joann Barnett

Ozark Upper Elementary School, Missouri

Melody Ollison University of Central Missouri, Warrensburg

# **Ashley Burns**

Park Hill Schools, Park Hill, Missouri Jami Smith

Archie Schools, Archie, Missouri

Elizabeth Ballroom G (Hyatt)

#### 638

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#### NASA Smart Skies: Applying Math to Air **Traffic Control**

#### (6-8) Gallery Workshop

Apply proportional reasoning and distance-rate-time relationships to explore flight problems through an experiment, a graphing tool, and an air traffic control simulator. Use multiple representations to connect equations, their graphs, and real-world scenarios. All materials are free online.

#### **Gregory Condon**

NASA Ames, Moffett Field, California

#### Miriam Landesman

NASA Ames, Moffett Field, California

Manchester Ballroom G (Hyatt)

#### 639

#### **Mathematics through Paper Folding** (6-8) Gallery Workshop

Participants will join in an interactive, hands-on experience folding waxed and regular paper to illustrate geometric concepts. The presentation will begin with how to fold the basic constructions and then apply paper folding to lines, angles, squares, circles, triangles, parabola, and more. This will be an active mathematical experience.

#### **Jim Fulmer**

University of Arkansas at Little Rock

#### Suzanne Mitchell

Arkansas State University, Jonesboro

Marina E (Marriott)

#### 640

#### People Count: Math and Demography in the Year of the Census

#### (6-8) Gallery Workshop

In this census year, discover timely and innovative hands-on activities for drawing connections between math and social studies. Students will learn about U.S. demographic trends past and present while honing their skills in algebra, data analysis, problem solving, measurement. and more. A free CD-ROM of activities will be available.

#### Sara Jenkins

Population Connection, Washington, D.C.

San Diego Ballroom C (Marriott)

#### 641

#### Written Formative Feedback: Building Problem Solving and Mathematical Understanding

#### (6-12) Gallery Workshop

Participants will explore a guide developed by the Northwest Regional Educational Laboratory to help teachers make constructive written comments. Opportunities will be provided to examine follow-up instructional activities using written feedback to advance students' problem-solving performance and mathematical understanding.

#### Jessica Strowbridge Cohen

University of Idaho, Moscow

#### Edith S. Gummer

Northwest Regional Educational Laboratory, Portland, Oregon

#### Claire Gates

Northwest Regional Educational Laboratory, Portland, Oregon

#### Traci Fantz

Northwest Regional Educational Laboratory, Portland, Oregon

#### Sarah Enoch

Portland State University, Oregon

#### Karen Marrongelle

Portland State University, Oregon

Betsy A/B/C (Hyatt)

#### 642

#### Reaching the "I Don't Know How to Teach" Students in Algebra

#### (6–12) Gallery Workshop

Participants will use assessment, hands-on activities with manipulatives, and Marzano's research-based strategies to prepare middle school students for success in algebra. Differentiated instructional activities with fractions, geometry, and integers for all students will be demonstrated.

#### Amy Johnson

Math Teachers Press, Inc., Minneapolis, Minnesota

Douglas Pavilion C (Hyatt)

#### 643

#### Helping All Algebra Students Recognize That They Are Smart

#### (6–12) Gallery Workshop

Participate in sample activities modeling a new approach for all students to learn rich mathematics. Teachers will receive practical ideas, whereas administrators will learn about strategies successful with heterogeneous groups. These ideas allow students to connect their algebra understanding with real-life applications.

#### **Carol Cho**

Alhambra High School, Martinez, California

Manchester Ballroom A (Hyatt)

#### 644

#### **Patterns of Change**

#### (6–12, Higher Education, Preservice and In-Service) Gallery Workshop

Change—one of the big ideas in mathematics. Participants will engage in tasks to identify, describe, and analyze patterns of change mathematically using a variety of tools, including combinatorics, Pascal's triangle, and statistical methods. Understanding and predicting change changes our view of mathematics!

#### **Timothy Hendrix**

Meredith College, Raleigh, North Carolina

5 A (Convention Center)

#### •NT> 645

# Teaching Algebra through Building the Right Tasks

#### (6–12, Preservice and In-Service) Gallery Workshop

How you approach algebra affects how your students learn it. Learn how to develop and design tasks that engage students and apply the full range of processes—problem solving, reasoning, connections, communications, and more.

#### Barbara Dougherty

Board of Directors, National Council of Teachers of Mathematics; Iowa State University, Ames

8 (Convention Center)

#### 646

#### Connecting Geometry to Algebra, Probability, and Logic

#### (9–12) Gallery Workshop

This presentation will investigate math problems that connects geometry with other mathematical topics. Specifically, we will connect geometry to algebra, probability, and logic. Pictures, tables, and logic puzzles are used to solve mathematical problems.

#### **Nicole Williams**

Winona State University, Minnesota

14 A (Convention Center)

#### 647

# Projects and Precalculus: Putting Concepts in Context

#### (9–12) Gallery Workshop

You will explore alternative assessments that use precalculus concepts in a real-world context. Graphing calculators will link linear and exponential regression with the Olympics, sine curves with tide changes, and equations of functions with art. You will leave with examples and rubrics, ready to implement these projects immediately.

#### **Ingrid Williams**

Shawnee High School, Medford, New Jersey

#### Amy Gersbach

Seneca High School, Tabernacle, New Jersey

16 A (Convention Center)

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#### 3:30 p.m.-4:30 p.m.

#### 648



Sense Making in Mathematics: Where Have We Been, and Where Would We Like to Go?

(General Interest) Session

Throughout our history, there have been a number of calls for students' sense making in mathematics. This session

will remind us of some of those past pleas and then discuss the Council's current goals for sense making for all our students.

#### J. Michael Shaughnessy

President-Elect, National Council of Teachers of Mathematics; Portland State University, Oregon

20 B/C (Convention Center)

#### 649

#### Becoming an Inspirational Teacher: Creating a Context for Commitment

(General Interest) Session

#### **Presidents' Series presentation**

This highly motivational, humorous session will examine research on students' motivation and commitment to learning. Participants will discuss and discover six specific behaviors of teachers that make the undesirable desirable and motivate students to maximize their effort and commitment to learn.

#### **Timothy D. Kanold**

National Council of Supervisors of Mathematics, Denver, Colorado

20 D (Convention Center)

#### 650



#### Emerging Strategies in Strengthening Math Education for All Students

(General Interest) Session

Districts have responded to higher mathematics expectations for all students with new approaches to such difficult problems as serving children

with special learning needs, academic language development, and motivating students to persist in challenging courses. Learn of new work to solve urgent problems of educational practice for all students.

Philip "Uri" Treisman is a professor of mathematics and public affairs at the University of Texas and is also the executive director of the Charles A. Dana Center. He chairs the steering committee of the Urban Mathematics Leadership Network, a coalition that works to improve grades pre-K–12 mathematics teaching and learning. For his work on nurturing minority students' high achievement in mathematics, he was named a MacArthur Fellow for 1992–1997.

#### Uri Treisman

Charles A. Dana Center, University of Texas at Austin 6 B (Convention Center)

#### 651

R

#### The Five "Secrets" to Effective Instruction (General Interest) Session

In this humorous, heart-warming talk, the speaker—diagnosed once as having "neurological impairment" and no academic potential, but who later earned a Ph.D. in mathematics from MIT—will give five research-based, easy-to-apply yet powerful techniques for improving teaching effectiveness and inspiring teachers to help students of all ages achieve success.

#### Frank Y. Wang

Wang Education, LLC, Plano, Texas

Elizabeth Ballroom D/E (Hyatt)

#### 652

#### Coaching Strategies That Address Students' Learning

#### (General Interest) Session

What coaching work will increase the probability that students will be successful? Learn the structure of different coaching models and the advantages of each model. Hear the perspectives from a teacher and a principal about how focusing on formative assessment principles in conjunction with coaching has made a difference in their school.

#### Janis L. Freckmann

Milwaukee Public Schools, Wisconsin

#### Connie Laughlin

Milwaukee Public Schools, Wisconsin

#### Susan Chiemilinski Wauwatosa Public Schools, Wisconsin

Manchester Ballroom H (Hyatt)

#### 653

#### Better Research, Better Schools: Connecting Quality Research to the Classroom

#### (General Interest) Session

The What Works Clearinghouse (WWC) offers guidance on the effectiveness of interventions in mathematics instruction. WWC researchers will discuss what marks quality research, detail how educators use research effectively, highlight useful products, and open a discussion on strengthening communication between educators and researchers.

#### Mark Dynarski

What Works Clearinghouse, Washington, D.C.

#### **Roberto Agodini**

Mathematica, Princeton, New Jersey

San Diego Ballroom B (Marriott)

#### 654

#### Young Children and the Voice of Reason (Pre-K–2) Session

This session will provide resources to assist teachers in presenting activities that require young children to reason and prove. In each activity, children will have to give a rationale to support their answer. Manipulative activities using teddy bears, ladybugs and grasshoppers, puppy dogs, and snakes will be presented.

#### Sue Brown

University of Houston-Clear Lake, Texas

Elizabeth Ballroom H (Hyatt)

#### 655

#### Finding Math in the Museum

#### (Pre-K-5) Session

Come learn how children can be involved in mathematical thinking during visits to informal learning sites such as museums and zoos. Activities will be shared that will provide participants with the resources to include more mathematical experiences during field trips.

#### Sandi Cooper

Baylor University, Waco, Texas

#### Jordan Sandefur

Baylor University, Waco, Texas

#### 7 B (Convention Center)

#### 656

#### No Paper, No Pencil: No Problem!

#### (Pre-K–5) Session

Participate in math lessons that connect hands-on activities to pictorial and abstract representations through the use of pocket charts and miniature whiteboards. Classroom video clips will be used to show how to enhance learning by increasing students' engagement during guided practice activities.

#### Judy Diane Devens-Seligman

Hacienda-La Puente Unified School District, Valinda, California

14 B (Convention Center)

#### 657

#### Lesson Study: Developing Meaningful Mathematical Ideas in the Elementary **School Classroom**

#### (Pre-K-5) Session

The lesson study cycle helps teachers evaluate their current instructional best practices and the practices' impact on students' understanding. Video clips, examples of students' work, and activities that build conceptual understanding will be shared.

#### Susan Call

Annandale Terrace Elementary School, Annandale, Virginia

4 (Convention Center)

#### 658

#### Meeting the Needs of All Students through **Differentiated Mathematics Instruction**

#### (3-5) Session

All teachers face the challenge of meeting the needs of a wide range of students. This session helps teachers understand what it means to meet students' needs through differentiation. Teachers experience a variety of approaches that help them make instructional adjustments that address how different students learn.

#### Lu Ann Weynand

Math Solutions, Sausalito, California

11 B (Convention Center)

#### 659

#### Games That Promote Students' Success in **Mathematics**

#### (3–5) Session

Participants will experience a variety of games that actively engage all students, particularly those from diverse populations, while reinforcing math skills. The games can involve whole families in math as well as promote problem solving and reasoning and reinforce number sense. A handout will include rules and additional resources.

#### Louise Vandling

Vista Unified School District, Vista, California

Molly A/B (Hyatt)



Packed audience at teacher conference.

The Five "Secrets" to Effective Instruction (session 651)

• Educators who have heard Dr. Wang have described his talks as inspiring, entertaining, thoughtful, thought-provoking, and full of passion. Some have written to say the talk "made the conference for them" and was the best and most useful talk at the show. Come early to get a seat !

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- Get a bookmark sample of Wittzle Pro, an easy-to-learn mental math game that is so addictive and fun students won't want to stop playing.
- · See unique products such as the DVD-based classroom kits Beauty and Mathematics and Group Theory with Fruits, the Secrets of Mental Math book, the Whaley three-line gradebook, and the geometric laser game Khet.

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#### 660

#### Does Math Make Sense? Switching the **Light Bulb On**

#### (3-5, Preservice and In-Service) Session

To make math meaningful for each student, teachers must have a robust understanding of the mathematics, reliable tools to diagnose students' understanding, and strategies that provoke students' thinking. Two teachers will show how they engage every student through the use of diagnostic tasks, differentiated instruction, and focus questions.

#### Christine Lyons

STEPS Professional Development, Norwell, Massachusetts 6 C (Convention Center)

#### 661

R

#### Formative Assessment: A Sensible Approach

#### (3-5, Preservice and In-Service) Session

In education, it seems that each day brings a new classroom practice that teachers need to embrace and implement with their students. A closer look at formative assessment may help you recognize how you are already using this important practice, as well as how you can more fully engage in and learn from it.

#### Patty Clark

Math Solutions, Sausalito, California

Manchester Ballroom B (Hyatt)

#### 662

#### Geometry through the Five Strands of **Mathematics Proficiency**

#### (3-5, Preservice and In-Service) Session

This hands-on, interactive presentation will guide participants through activities and discussions for facilitating plane and solid geometry instruction through the NRC's Five Strands of Mathematics Proficiency: adaptive reasoning, strategic competence, conceptual understanding, productive disposition, and procedural fluency.

#### **Thomasenia Lott Adams**

University of Florida, Gainesville

Manchester Ballroom D (Hyatt)

Check out special offers and coupons in the back of the Program Book. L'Son Han

#### 663

#### Lessons from Singapore: Using Visual Models to Teach Algebra and Number

#### (3-8) Session

Singapore's success in math education is in part a result of carefully designed lessons that help students represent and visualize mathematical relationships. These models begin with the four operations and word problems, then are connected to more complex problems and eventually algebra. This presentation will demonstrate the power of these models.

#### Andy Clark

Great Source Education Group, Portland, Oregon

6 A (Convention Center)

#### 664

#### Number Sense and Rational Numbers: Challenges, Clarity, and Coherence

#### (3-8) Session

This session will examine issues about whole numbers and rational numbers and the lack of students' sense making with such numbers. Participants will engage in strategies, activities, and technology (including YouTube videos) that can lead to building better number and fraction sense. They will also consider issues around curricular coherence.

#### **Eric Milou**

Rowan University, Glassboro, New Jersey

#### Jill Perry

Rowan University, Glassboro, New Jersey

16 B (Convention Center)

#### 665

#### Using "Strip Diagrams" to Solve Algebra Word Problems

#### (3-8) Session

You will learn how to use simple drawings-"strip diagrams"-to make sense of and solve a wide variety of word problems. These simple drawings can also be connected directly to algebraic equations and to standard algebraic techniques for solving equations. Strip diagrams are widely used in grades 3-6 in Singapore.

#### Sybilla Beckmann

University of Georgia, Athens

#### Jon R. Star

Harvard University, Cambridge, Massachusetts

Elizabeth Ballroom C (Hyatt)

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#### 666

#### Intervention Strategies: The Singapore Wav

#### (3-8) Session

Do you have students who struggle with retaining their facts, basic computation or remembering a skill that you taught them last week? This session will provide you with valuable strategies that you can use as intervention tools to help the struggling student. These strategies come from Singapore, the world's leader in math achievement.

#### Ann Elizabeth Stipek

Staff Development for Educators, Peterborough, New Hampshire

10 (Convention Center)

#### 667

R

#### Podcasting: You Can Do It, We Can Help! (3–8) Session

This session will present ways to use podcasting for teachers' professional development and capturing important classroom episodes. The speakers will describe their experience with podcasting. See how to create a podcast, view some sample podcasts, and discuss its benefits and challenges.

#### **Eleanor Pusey**

Columbus County Schools, Whiteville, North Carolina

#### Leslie Bellamy

Guideway Elementary School, Tabor City, North Carolina

Salon 1/2 (Marriott)

#### 668

#### Focusing on Students' Learning

(3–8, Higher Education, Preservice and In-Service) Session

This presentation will explain a model for, and the accompanying results of, implementing the Japanese lesson study model in both preservice and in-service programs designed to examine lessons in algebra, geometry, and measurement topics of concern identified in international and national testing.

#### Sallv A. Robison

University of Arkansas, Little Rock

6 D (Convention Center)

#### 669

#### See Beyond What You Know: Explore Visually with Cabri® and Cabri® Elem

#### (3-8, Preservice and In-Service) Session

For students to develop algebraic and geometric understandings, they must reach beyond a static world of knowing. In Cabri environments, visually explore and link real-world experiences with reasoning and abstractions of mathematics. Topics will include reasoning, geometric objects and relations, graphing, transformations, and 2D and 3D modeling.

#### **Barbara Pence**

San Jose State University, California

#### Janet Smith

Franklin McKinley School District, San Jose, California 6 E (Convention Center)

#### 670

#### Laws of Exponents: Linking Concepts and Context

#### (6-8) Session

Learn how to link concepts and context involving laws of exponents in and outside mathematics. Why is any number to the zero power equal to one? Why is 1/10 equal to  $10^{(-1)}$ ? Why is the square root of 25 equal to  $25^{(1/2)}$ ? Learn the answer to these students' questions and more.

#### Estella P. De Los Santos

University of Houston-Victoria, Texas

5 B (Convention Center)

#### 671

#### Connecting Mathematics to the Culture of Industry

#### (6-8) Session

Students often ask, "When will I ever use this?" This session will engage participants in lessons that connect mathematics content to graphic design, industrial engineering, and construction, addressing this age-old question. Ideas for participants constructing their own contextual mathematics lesson will also be discussed.

#### Desha L. Williams

Kennesaw State University, Georgia

Marina G (Marriott)

#### 672

#### Developing Students' Proportional Reasoning: Lessons through Research

#### (6-8) Session

One of the primary goals of middle school mathematics classes is to help students develop proportional reasoning. This session will provide teachers will research-based suggestions for teaching concepts related to proportions. The sessions will engage teachers in active ways as they solve problems and discuss their solution strategies.

#### Gwendolyn J. Johnson

University of South Florida, Tampa, Florida

Salon 4 (Marriott)

#### 673

# South Dakota Counts in Middle School Mathematics

#### (6-8, Higher Education) Session

South Dakota Counts is a professional development program designed to deepen middle school teachers' mathematical understanding while giving teachers a constructivist teaching approach using cognitively guided instruction. Learn about this successful project, including the activities used to teach middle school mathematics concepts through inquiry.

#### **Christine Lynne Larson**

South Dakota State University, Brookings

Edward A/B/C/D (Hyatt)

#### **674**

# **Everyone Can Achieve: Reaching All Your Student Population**

#### (6-8, Preservice and In-Service) Session

This session will focus on middle school math standards and how to adapt the grade-level standards to meet the different needs and learning styles of all the students in your classroom, including special education students.

#### **Ilene Foster**

California State Polytechnic University, Pomona

#### **Erik Foster**

Etiwanda School District, Hesperia, California

Douglas Pavilion B (Hyatt)

#### 675

# Developing the Concept of Integers in the Context of Finance

#### (6–8, Preservice and In-Service) Session

Integer concepts constitute the building blocks of algebra where students perform operations with negative numbers. Participants will receive a series of problems grounded in a finance context that support students' understanding of integer concepts and lead them to reinvent the rules for integer operations.

#### **Michelle Stephan**

Lawton Chiles Middle School, Oviedo, Florida

#### Didem Akyuz

University of Central Florida, Orlando, Florida

Elizabeth Ballroom A (Hyatt)

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#### 676

#### Getting Your Reps for a Great Algebra Workout

#### (6-12) Session

In olden times, getting in your "reps" meant doing many instances of the same type of problem. Now, we are using multiple "rep" resentations in algebra to help students understand problem solving. Dynamic problems from Algebra 1 and Algebra 2 will demonstrate how representations allow students multiple access points to real-world problems.

#### Edward C. Nolan

Albert Einstein High School, Kensington, Maryland

20 A (Convention Center)

#### 677

#### Using TI-Nspire<sup>™</sup> to Discover the Corner Point Principle

#### (6–12) Session

Participants will use TI-Nspire calculators to graph the formulation of a real-world linear programming problem. Next, they will learn how to use the interactive geometry tools of Nspire to discover the corner point principle. Finally, extensions to the activity and the potential of the use of Nspire to affect students' learning will be discussed.

#### Thomas G. Edwards

Wayne State University, Detroit, Michigan

#### S. Asli Ozgun-Koca

Wayne State University, Detroit, Michigan

**Douglas Pavilion D (Hyatt)** 

# Join Math Solutions for

# **Sessions** by Math Solutions master educators.



# Assessment

Individual Assessments: The Key to Student's Skills and Understanding Marilyn Burns, Founder of Math Solutions April 22, 2:00 P.M.–3:00 P.M.

Formative Assessment: A Pathway to Enhanced Learning Renee Everling, Education Specialist April 22, 10:30 –12:00 P.M.

Formative Assessment: A Practical Approach Nickie Rizzo, Associate Director of Professional Development April 23, 2:00–3:00 P.M.

Formative Assessment: A Sensible Approach Patty Clark, Education Specialist April 23, 3:30–4:30 P.M.

# Differentiation

Differentiation: Supporting and Challenging All Students Amy Mayfield, Education Specialist April 22, 8:00–9:00 A.M.

# Meeting the Needs of All Students through Differentiated Mathematics Instruction

Lu Ann Weynand, Education Specialist April 23, 3:30–4:30 p.m.

# **Number Sense**

**Building Number Sense with Meaningful Practice** Lisa Rogers, Education Specialist April 23, 1:00–2:30 P.M.

**Effective Uses for Ten Frames** Melissa Conklin, Education Specialist April 23, 8:30–10:00 A.M.

# **Algebraic Thinking**

**Linking Arithmetic and Algebraic Thinking** Genni Steele, Education Specialist April 22, 9:30–10:30 A.M.

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Marilyn Burns Founder of Math Solutions April 22, 3:30–4:30 P.M.

# **Rusty Bresser & Kathy Melanese**

Co-Authors of *Supporting English Language Learners in Math Class* April 22, 12:30–1:30 P.M.

# **Cathy Seeley**

NCTM past president and author of *Faster Isn't Smarter: Messages About Math, Teaching, and Learning in the 21st Century* April 23, 2:00–3:00 P.M.

# Enter to win a new Netbook and gift cards for Math Solutions resources!





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#### 678

#### **Quantitative Investigations of the Financial** Crisis

#### (9-12) Session

Clearly understanding the causes and significance of the current financial crisis in America requires both quantitative and financial literacy. This presentation will provide teaching ideas using data and statistics to describe the housing bubble, the loss of capitalization, global interconnectedness, the bailout, and other current economic events.

#### Paul Young

Colorado Springs School, Colorado

2 (Convention Center)

#### 679

#### Tackling Functions: Concept, Operations, and Transformations from Multiple Perspectives

#### (9-12) Session

Ready to deepen your students' understanding of functions? Learn how to approach function operations from multiple representations. We'll dive deep into function transformations with an emphasis on the use of The Geometer's Sketchpad. Prepare for light bulb moments involving inverse functions and transforming polar functions.

#### Vincent LaVergne

Shawnee Mission South High School, Overland Park, Kansas Manchester Ballroom C (Hyatt)

#### 680

#### **Shape-Changing Transformations:** Hands-On Activities That Demonstrate Linearization in Regression Modeling

(9-12) Session

Using simple activities, students can collect inherently nonlinear data and carry out shape-changing transformations to linearize the data while developing regression models. Regression diagnostics will assess the fit and appropriateness of the models. Teachers' and students' materials, along with background information, will be available.

#### **Stephen Miller**

Winchester Thurston School, Pittsburgh, Pennsylvania

Salon 3 (Marriott)

#### 681

#### Solving Optimization Problems by Using Technology

#### (9-12, Higher Education) Session

Providing students a visual and algebraic understanding of optimization problems by using technology is important for having a deep understanding in calculus. Explore how to use the dynamic nature of technology to illustrate optimization problems.

#### Sirin Coskun

University of Central Florida, Orlando

17 B (Convention Center)

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#### 682

#### The Cube Contains All, Explains All (9–12, Higher Education) Session

A series of models will be used to demonstrate how formulas for the volumes of every solid studied in Geometry 1-and many that are not—spring from the very shape whose name symbolizes volume: the cube. The concept will be expanded to develop formulas for volumes of new shapes, culminating

in the formula for the volume of the Dynamic Tower.

#### Kenn L. Pendleton

GED Testing Service, Washington, D.C.

6 F (Convention Center)

#### 683

#### **Investigating Students' Concepts of Standard Deviation**

#### (9–12, Higher Education) Research Session

This session will investigate rich tasks in statistics that tease out the fundamental ways students understand standard deviation. Students' artifacts and videos will be shared. After working through several problems, participants will reflect on the prototypes we have found and help discuss future directions for this research.

#### Alan Russell

Elon University, North Carolina

#### **Janet Mays**

Elon University, North Carolina Amanda Ketner Elon University, North Carolina

Gregory A/B (Hyatt)

#### 684

#### Learning from African-American Teachers of African-American Students in High-**Stakes Testing Environments**

#### (9–12, Higher Education, Preservice and In-Service) Session

#### **Benjamin Banneker Association presentation**

The speakers will present cases of how African-American teachers in predominately African-American classrooms foster the development of students' mathematics identities. These cases promote inquiry into the importance of understanding students' relationship to mathematics and strategies for fostering students' positive mathematics identities.

#### **Julius Davis**

University of Maryland, College Park

#### Ann Edwards

R

University of Maryland, College Park

Lawrence Clark University of Maryland, College Park

Dan Chazan University of Maryland, College Park

#### Whitney Johnson University of Maryland, College Park

Farhaana Nyamekye University of Maryland, College Park

**Kellyn Farlow** University of Maryland, College Park

Andrew Brantlinger University of Maryland, College Park

**Steven Jones** University of Maryland, College Park

15 B (Convention Center)

#### 685

#### **Problem Solving in Dynamic Mathematics Environments**

#### (9–12, Higher Education, Preservice and In-Service) Session

Dynamic learning environments afford a variety of new approaches to classic problems in school mathematics. Using conic sections, the speakers will investigate implications of formal definitions and paper-folding tasks in GeoGebra's interactive, dynamic environment, focusing on two strategiesunderstanding dependency and working backward.

#### Erhan Selcuk Haciomeroglu

University of Central Florida, Orlando

#### Lingguo Bu

Southern Illinois University Carbondale

Manchester 1/2 (Marriott)

#### 4:45 p.m.-5:30 p.m.

#### **ME** 686

# New Teacher Celebration!

#### (Preservice and In-Service) Session

Celebrate the progress and possibilities. We are looking for all new and early-career teachers and students working toward entering this exciting profession. Learn a little, laugh more, meet some great folks and win wonderful prizes. Come celebrate with us. You are the future.

4 (Convention Center)



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Gr K-12 / 978-0-325-00277-4 / 144pp / \$22.00

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In *Math, Culture, and Popular Media*, Michaele Chappell and **Denisse Thompson** offer a unique multicultural resource for teachers to incorporate popular media in engaging math investigations.

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Give students these 50 cool problems that connect math to the real world. In *Understanding Middle School Math*, **Arthur Hyde** offers field-tested problems that lead to deep thinking and fun.

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**Judy Storeygard** gives you instructional strategies to help struggling math learners to move along the path toward gradelevel competency. In *My Kids Can: Making Math Accessible to All Learners, K–5*, you'll find practical answers to difficult questions of practice. The DVD includes classroom footage and interviews with teachers who have had success using Judy's approach.

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# SATURDAY PLANNER

Plan your conference activities here.

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#### **NCTM** Committee Presentation

#### **HIGHLIGHTS**

• Closing Session: Unlocking the Secrets of Happiness (Presentation 753)

# **Registration Hours**

7:00 a.m.-10:00 a.m.

Exhibits and Cyber Café Hours 9:00 a.m.-12:00 noon

#### Bookstore and Member Showcase Hours 8:30 a.m.-12:00 noon

#### **Fire Codes**

We have made every attempt to provide adequate seating for participants at the conference, but for your safety and because of fire regulations, only those with seats will be allowed in meeting rooms. To conform to fire codes, it will be necessary to ask persons sitting on the floor or standing to leave the room.

#### 687

#### STEM: More than an Acronym?

#### (General Interest) Session

Everyone is talking about STEM. Do they agree on its meaning? Is there a shared strategy on implementation? The answer to both questions is "no." Let's think of this as an opportunity, rather than a challenge. How can the mathematics education community benefit from the fact that STEM is in the forefront of many conversations?

#### Linda Rosen

Former Executive Director, National Council of Teachers of Mathematics; Education and Management Innovations, Inc., Bethesda, Maryland

6 D (Convention Center)

#### 688

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#### How to Develop Computational Skills without Drill, During Problem Solving (General Interest) Session

You can develop your students' computational skills through problem solving. You will see how this can be done in the context of excellent problems that engage students' thinking and give computational practice, at the same time. Don't believe it? Come and see.

#### Jerry P. Becker

Southern Illinois University Carbondale

6 F (Convention Center)

#### 689

#### Responsive Routines for Early Number Sense

#### (Pre-K–2) Session

Early number sense is at the core of making meaning in mathematics. Participants will learn ways to develop strong but quick routines that will provide students opportunities to interact with number sense ideas every day. Video clips and students' work will be shared to deepen understanding of how to be responsive to students' number-sense needs.

#### Jessica Shumway

Fairfax County Public Schools, Alexandria, Virginia

4 (Convention Center)

Don't miss the Closing Session on Saturday afternoon with featured speaker Dan Buettner.

#### **690**

#### Getting to the Heart of Measurement (When We Usually Don't)

#### (Pre-K–5) Research Session

U.S. textbooks do some things well and some things poorly in helping elementary school students learn spatial measurement-length, area, and volume. This session will take you to the heart of the measurement process, explore students' confusions and errors, and give you tools-tasks and promptswith which your students can make sense of measurement.

#### Jack Smith

Michigan State University, East Lansing

11 B (Convention Center)

#### 691

#### Scaffolding Math Academic Language and Literacy for English Language Learners (ELLs)

#### (Pre-K-8) Session

This session will focus on ways to develop academic content vocabulary, increase comprehension, and differentiate math instruction while addressing a variety of reading levels. Particular emphasis will include supporting the needs of ELLs in the regular literacy or content area classroom.

#### **Tammy Jones**

National Literacy Consultant, Conway, Arkansas

14 B (Convention Center)

#### 692

# Infusing Measurement in Math and Science

#### (3–5) Session

This session will investigate the role estimation strategies play in teaching the measurement standards. These roles will assist in developing the benchmarks for various measurement and assessing the reasonableness of the results. Attributes of measure will be discussed.

#### Marti Kuntz

South Carolina Teachers of Mathematics, Charleston

7 B (Convention Center)

#### 693

#### Division Problem Types and Remainder Types: Context Does Strange Things!

#### (3–5, Higher Education, Preservice and In-Service) Session

Participants will explore the difference between "grouping" and "sharing" division word problems and how those differences can be best used in teaching. Further, participants will inductively "discover" four types of division remainders and learn to use these types to sequence lessons and improve students' understanding.

#### James E. Schwartz

Saint John Fisher College, Rochester, New York

16 B (Convention Center)

#### 694

#### Making Meaning through a Student-Led Math Night

#### (3-8) Session

As students plan and lead a family math night, teachers step out of the way as students step up. Learning opportunities abound throughout the planning process and during the event. Handouts include activity ideas, resources, and practical suggestions for starting a new school tradition.

#### Wendy Petti

Washington International School, Washington, D.C.

2 (Convention Center)

#### 695

#### **Equity through Group Work: Complex** Instruction (CI) Benefiting Diverse Learners (3-8) Session

#### **TODOS: Mathematics for ALL presentation**

Drawing on experiences with Latino students in grades 3–8, including English language learners, this session illustrates how CI principles can motivate and engage all students in rigorous mathematics. Session activities and handouts will focus on how norms, roles, and sample tasks support students applying mathematics in relevant contexts.

#### **Kathleen Ross**

University of Arizona, Tucson

Marta Civil University of Arizona, Tucson

**Belin Tsinnajinnie** University of Arizona, Tucson

10 (Convention Center)

#### 696

#### **Connect to Content through Coaching**

#### (3-12) Session

Engage in activities from a successful, multilevel coaching model for schools with students of low socioeconomic status. Participants will gain awareness of three commitments to coaching and connect with journaling, communication, conferencing, and parental involvement strategies. The model is aligned with NCTM's standards and focal points.

#### Pam L. Warrick

Walden University, Little Rock, Arkansas

#### **C.** Neelie Dobbins

University of Arkansas at Little Rock

6 C (Convention Center)

#### 697

#### What Do Magnets Have to Do with **Geometry and Developing Geometric** Vocabulary?

#### (6-8) Session

This session will explore how to teach geometric concepts and vocabulary through hands-on manipulation of magnets. Teaching concepts such as angles, types of polygons and their specific properties, polyhedra, and nets with magnets will be demonstrated. This process is a valuable tool for students struggling with geometric thinking and vocabulary.

#### **Eric William Shippee**

College of William and Mary, Williamsburg, Virginia

#### **Robert L. Provost**

King and Queen Elementary School, Mattaponi, Virginia

#### Marguerite (Margie) Mason

College of William and Mary, Williamsburg, Virginia 15 B (Convention Center)

#### 698

#### Hook, Line, and Thinker

#### (6-12) Session

Take a tour of a vertical series of lessons in number, algebra, geometry, and probability created by grade 6-10 teachers. Mirrors, marbles, rabbits, "line dancing," birthday candles, and fruit punch are among the hooks that motivate students to construct and extend lines of reasoning through the grade levels and build understandings that last.

#### Ralph S. Pantozzi

Scotch Plains - Fanwood Public Schools, New Jersey

6 A (Convention Center)

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#### 699

#### Making the Connection: Solving Problems with Graph Theory

#### (6-12) Session

Graphs can be very useful tools in solving problems, especially counting problems. Participants will engage in some problems that will be solved through graph theory. Handouts will include activities ready for the classroom. If you feel intimidated by the term graph theory, this session is for you.

#### **Clifton Wingard**

Delta State University, Cleveland, Mississippi

6 B (Convention Center)

#### 8:00 a.m.-9:00 a.m.

#### 700

#### Focus on High School: Reasoning and Sense Making in Statistics

#### (9-12) Session

As part of its vision for reasoning and sense making in secondary school mathematics, NCTM has commissioned a series of companion books to focus on reasoning and sense making. This session will present some of the reasoning and sense making activities to appear in the forthcoming companion book on data analysis and probability.

#### **Beth Chance**

California Polytechnic State University, San Luis Obispo

#### J. Michael Shaughnessy

President Elect, National Council of Teachers of Mathematics; Portland State University, Oregon

#### Henry Kranendonk

Rufus King High School, Milwaukee, Wisconsin

5 B (Convention Center)

#### 701

#### Mathematical Masterpieces

#### (9-12, Higher Education) Session

Participants will take a guided tour through some of the most important, ingenious proofs in the history of math. Though these masterpieces come from different eras and different cultures, what they all have in common is that they can be enjoyed by high school students-gems from Euclid, Archimedes, Ptolemy, Napier, Eüler, and more!

#### **Gary Rubinstein**

Stuyvesant High School, New York, New York

6 E (Convention Center)

#### 702

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#### **Opening Your Class by Mathematizing** African History

(9–12, Preservice and In-Service) Session

#### **Benjamin Banneker Association presentation**

This session will offer examples of mathematics openings to start class activities. The session is designed for mathematics educators to realize a need for a paradigm shift in order to bring students of African descent into the mathematics. The openings will include a variety of mathematical topics.

#### Kwame Anthony A. Scott

Benjamin Banneker Association, Inc., Oak Park, Illinois 17 B (Convention Center)

#### 703

#### A Different Approach to Teaching First-**Grade Mathematics**

#### (Pre-K-2) Gallery Workshop

Counting discrete objects is a common basis for introducing children to mathematical ideas. A different approach is to begin with generalized notions without using number. This approach enables first graders to reason algebraically. Participants will engage in activities designed to study fundamental mathematical ideas without having to count.

#### Claire Okazaki

Curriculum Research and Development Group, University of Hawaii, Honolulu

#### Fay Zenigami

Curriculum Research and Development Group, University of Hawaii, Honolulu

#### 3 (Convention Center)

#### 704

#### Game-Talk: The Value of Discourse

#### (3-5) Gallery Workshop

Games may be fun, but if we want students to learn from them, we have to do more than just play! Mathematical learning is not in the fun. It is not even in the play. Mathematical learning takes place in the thinking and discourse about the play. Come to play, think, and share.

#### Mary Altieri

SUMTCHR, Inc., Putnam Valley, New York

5 A (Convention Center)

#### 705

#### Connect the Dots! Mathematics, Literature, and the Visual Arts

#### (3–8) Gallery Workshop

The visual arts present an ideal medium through which students can express their ideas, thoughts, emotions, and understanding of mathematical concepts such as pattern, line, shape, and form. Experience literature-based activities designed to help students make connections. From Pollock to Dali, we explore what happens when a line bends.

#### Mary Elizabeth Baker

University of North Dakota, Grand Forks

16 A (Convention Center)

#### 8:30 a.m.-10:00 a.m.

#### 706

#### **Online Math Strategy Games for the** Middle School Curriculum

#### (3-8) Gallery Workshop

Calculation Nation, an online world of math strategy games, is part of the Illuminations project and was launched at the 2009 NCTM Annual Meeting. In the past year, the site has improved and added new games. You will learn how to use these games with students as part of your middle school curriculum.

#### **Patrick Vennebush**

National Council of Teachers of Mathematics, Reston, Virginia

15 A (Convention Center)

#### 707

#### **Fraction Computation Emerges from** Models Used to Solve Worded Problems

#### (6-8) Gallery Workshop

Children often lack understanding of why "invert and multiply" makes sense for dividing fractions. Participants will explore fraction multiplication and division through worded problems and models. They will examine actions implied by words within problems and analyze how actions provide a rationale for the fraction division algorithm.

#### Melfried Olson

Curriculum Research and Development Group, University of Hawaii, Honolulu

#### Judith Olson

Curriculum Research and Development Group, University of Hawaii, Honolulu

#### **Mary Pat Sjostrom**

Chaminade University of Honolulu, Honolulu

17 A (Convention Center)

#### 708

#### Building Origami Polyhedra = Building **Spatial Reasoning**

#### (6-12) Gallery Workshop

Come build face, edge, and skeletal models to see how unit origami can engage a wide range of students in exploring deep 3-D geometric concepts-surface and dihedral angles, axes and planes of symmetry, chirality. and duality. Folding becomes vocabulary review. Assembling takes visualization and reasoning. Resulting models invite further study.

#### Margaret (Peg) Cagle

Lawrence Gifted Magnet School, Chatsworth, California 9 (Convention Center)

#### 709

#### Fractal Functions: Connecting Geometry, Measurement, and Algebra

#### (6–12, Preservice and In-Service) Gallery Workshop

Use geometry and measurement concepts to make fractals. Then, use your fractals to develop the concept of function by representing their characteristics with words, symbols, tables, and graphs. Examine how the activities can be used to differentiate instruction in diverse classrooms and serve as assessments.

#### Mandy McDaniel

Boise State University, Idaho

#### Teri Willard

Central Washington University, Ellensburg

11 A (Convention Center)

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#### 710

#### **Beyond Means, Medians, and Modes: Bringing More Authentic Statistical Inquiry** to Your Mathematics Classroom

#### (9-12) Gallery Workshop

Participate in a statistical study. Learn how to better help your students ask statistical questions, collect and analyze data, and make good conclusions from data. Activites in this presentation will help teachers develop their own activities to go beyond the tasks typically found in mathematics textbooks.

#### William Conrad Thill

Harvard Westlake, Los Angeles, California

14 A (Convention Center)

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#### Using NCTM Enhanced Journal Articles to **Build Mathematics Learning Communities**

#### (Preservice and In-Service) Gallery Workshop

Participants will actively engage in exploring journal articles that have been enhanced by NCTM's Professional Development Services Committee. The facilitators will model the process of using the journal articles to build school-based, professional learning communities.

#### **Professional Development Services Committee**

National Council of Teachers of Mathematics, Reston, Virginia

8 (Convention Center)

#### 9:30 a.m.–10:30 a.m.

#### 712

#### Take the Chain Off Your Brain

#### (General Interest) Session

#### **Benjamin Banneker Association presentation**

Imagine the power of raised expectations and beliefs for all learners. The speaker will use class lessons to demonstrate the impact of awareness that intelligence is not fixed. Drawing on social psychology, problem solving, and neuroscience, discussion will focus on how this affects the teaching and learning of African American students.

#### Salik Mukarram

Benjamin Banneker Association, Chicago, Illinois

17 B (Convention Center)

#### 713

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#### Learning about Number: Natural and **Complex for Young Children**

#### (Pre-K-2) Session

Learning about number is natural for children as they work with resources, draw pictures, and recognize symbols in a mathematics-rich environment. A range of number representations such as different arrangements of quantity, five- and ten-frame organizers, and number tracks support a strong conceptual understanding of number.

#### **Rosemary Reuille Irons**

Queensland University of Technology, Brisbane, Australia

6 D (Convention Center)

#### 714

#### For Math Coaches: Maintaining Your **Balance (and Your Sanity)!**

#### (Pre-K-5) Session

How do you successfully balance responsibilities as a math teacher, coach, and school and division leader during your first years as a math specialist and coach? What do you have to keep in mind when working with new teachers, veteran teachers, and those in between? The speakers will share insights as to how they have worked through these issues.

#### **Rebecca Parker**

Stafford County Public Schools, Virginia

#### Susan Sydla

Stafford County Public Schools, Virginia

**Branch Wyatt Pronk** Stafford County Public Schools, Virginia

**Cindy Sypolt** 

Stafford County Public Schools, Virginia

5 B (Convention Center)

#### 715

#### Teaching the Children We Have: Simple Yet **Effective Differentiation Techniques**

#### (3–5) Session

Join the speakers for lively discussions, engaging activities, and videos as they identify practical ways to bridge mathematics instruction for English language learners, students who need support, or students who need additional challenges. Move from theory to practice to make fractions comprehensible for all your students.

#### **Chris Confer**

Consultant, Tucson, Arizona

#### Marco Ramirez

Tucson Unified School District, Arizona

11 B (Convention Center)

#### 716

#### Number-Sense Approach to X Facts: Every **Day Counts**

#### (3-5) Session

Experience a schoolwide approach used in a Title 1 school to teach basic facts in a way that encourages students' reasoning and thinking while building fluency for all. A special array of flash cards and games help break harder facts into easier ones. Students focus on connections among x, division, and fractions of a set.

#### Janet Gillespie

Great Source/Houghton Mifflin Harcourt, Portland, Oregon 15 B (Convention Center)

#### 717

#### Let's Make Triangles with Sticks! Geometry in Asian Textbooks

#### (3-5) Session

This session will explore the teaching of triangles and angles in Japanese and Singapore textbooks. The presenters will share video clips of actual geometry lessons developed through lesson study and discuss the results and implications of their research.

#### William Jackson

Scarsdale Public Schools, New York

6 E (Convention Center)

#### 718

#### 1, 2, 3, 4: Let Me Count the Ways

#### (3-5, Preservice and In-Service) Session

This session features several multiplication algorithms and a nonstandard division algorithm to explore and verify. Come learn how to use the Egyptian, Russian, lightning, and more multiplication methods along with the scaffolding method of long division.

#### **Teresa Banker**

Kennesaw State University, Georgia

14 B (Convention Center)

#### 719

#### Analyzing, Interpreting, and Connecting **Data Relationships Using Virtual** Manipulatives

#### (3-8) Session

Participants explore data relationships using several virtual manipulatives. They will make connections among statistical concepts including data analysis, trend lines, correlations, and the strength and direction of relationships. Virtual manipulatives provide a visual tool in modeling these connections and their applications for students.

#### Patricia Moyer-Packenham

Utah State University, Logan

#### **Arla Westenskow** Utah State University, Logan

6 F (Convention Center)

#### 720

#### Stories from the Community: Problem-Solving Experiences in Middle Grades

#### (6-8, Preservice and In-Service) Session

Learn how online math education community members are successfully implementing contextual problem solving in middle grade classrooms. One teacher says, "... when students truly develop problem-solving skills, they should be able to use them even on standardized tests." Activities, techniques, sample problems, and resource documents will be shared.

#### Suzanne Alejandre

The Math Forum @ Drexel, Philadelphia, Pennsylvania 10 (Convention Center)

#### 721



#### **Inclusion Strategies for Strong Connections and** Successful Inclusion

(6-12) Session

See how to establish a strong foundation of connections and understanding for your intervention students that will allow them to build a solid structure

of mathematical proficiency. Classroom-tested and datasupported strategies will be demonstrated. An extensive, ready-to-teach handout will be available.

Known throughout the country for motivating and engaging teachers and students, Fulton has coauthored more than a dozen books that provide easy-to-teach yet mathematically rich activities for busy teachers. Drawing on his 28 years in education, he is a frequent presenter, cohosts a Web site that provides resources to teachers (www.tttpress.com), and in 2005 was selected as California's middle school educator of the year.

#### **Brad Fulton**

Mistletoe Elementary School, Redding, California

6 A (Convention Center)

#### 722

#### **Construction Site Geometry: A Lesson in Cooperative Learning**

#### (6–12) Session

Interested in implementing cooperative learning, problemsolving, or performance assessment into your geometry course? Students will work in groups to design a corporate park in this activity developed in cooperation with the University of Cincinnati's STEP program. Each team has to solve problems, perform calculations, and compromise.

#### Sara Garrison

Norwood High School, Cincinnati, Ohio

#### **Brad Hunt**

Norwood High School, Cincinnati, Ohio

2 (Convention Center)

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#### 723

# **Teaching Math to Transient Students**

#### (6-12) Session

This session will give teachers strategies to catch transient students up with their current students. The speaker will look at several different districts who have successfully transitioned these students into their classrooms. She will also examine some of the language and cultural differences transient students have.

#### **Tracey Zak Johnson**

Consultant, Aledo, Texas

7 B (Convention Center)

#### 724

#### **Exploring Democratic Education**, **Opportunity, and Equity**

#### (6-12) Session

Be prepared to think about how the opportunity to learn mathematics is related to democracy. Learn how democratic education is accessible to all students and is based on the assumption that all students can learn given the right circumstance. Explore mathematics in a context that addresses social justice.

#### **Carol Elaine Malloy**

McGraw-Hill K-12 Mathematics, Chapel Hill, North Carolina

6 B (Convention Center)

#### 9:30 a.m.–10:30 a.m.

#### 725

#### **Bacterial Mathematics and What It Means** for Mathematics Education

#### (6-12, Higher Education) Session

New research debunks the myth of bacteria as primitive organisms; they are actually communicative, collaborative problem solvers capable of doing simple mathematics. This session compares video of collaborating bacteria and middle school mathematics classes to highlight salient social principles advocated by the current reform math movement.

#### **Thomas Ricks**

Louisiana State University, Baton Rouge

4 (Convention Center)

#### 726

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#### English Learners in My Classroom: What Do I Do?

(6-12, Preservice and In-Service) Session

#### **TODOS: Mathematics for ALL presentation**

This session will model effective strategies for engaging English language learners in meaningful mathematics and giving them access to the core curriculum. Attendees will be active participants in lessons that support English learners in acquiring academic language while making sense of the mathematics.

#### Ana Elisa England

University of California, Santa Cruz

#### Patricia Valdez

Pajaro Valley Unified School District, Watsonville, California 16 B (Convention Center)

#### 727

#### Using a Computer Algebra System (CAS) to Promote Engagement and Access to Algebra for All Students

#### (9-12) Session

Learn how a CAS can be used to engage all students in learning algebra. See how the classroom becomes an active learning center where students hypothesize, justify, and communicate. Explore sample lessons and create CAS activities. Data will show changes in students' attitudes, teachers' attitudes, and students' achievement.

#### Larry Osthus

Consultant, Des Moines, Iowa

6 C (Convention Center)

#### 728

#### **Differentiation through the Process Standards**

#### (Pre-K-5) Gallery Workshop

The process standards provide teachers with a pathway to meet the needs of all students. This presentation will identify ways to use the process standards to develop and maintain a differentiated classroom. Instructional strategies and activities will be shared.

#### Heather C. Dyer

Howard County Public Schools, Ellicott City, Maryland

#### John SanGiovanni

Howard County Public Schools, Ellicott City, Maryland 9 (Convention Center)

#### 729

#### **Tangrams with a Different Twist**

#### (3-5, Preservice and In-Service) Gallery Workshop

Participants will use tangrams to identify convex and concave polygons; measure area using nonstandard units of measure with monetary applications; name fractional parts of a shape; add, subtract, multiply, and divide fractions; and measure area and perimeter with standard units.

#### Celine J. Przydzial

Kutztown University, Pennsylvania

3 (Convention Center)

#### 730

#### "Stacking" for Success: A Strategy for **Response to Intervention (Rtl) Tier 2 Students**

#### (3-8) Gallery Workshop

Come learn about Stacking, a new, interactive process bringing math success to more than 11,000 students. Math activities are constructed in such a way that RtI Tier 2 students can take the lead to help the class solve math problems using the eight components of stacking. Participants will receive a copy of the activities to use in their classrooms

#### **Nancy Tanner Edwards**

Missouri Western State University, Saint Joseph

#### Jean Morrow

Emporia State University, Kansas

8 (Convention Center)



#### 731

#### Origami: A Tool for Reinforcing Angle Relationships

#### (6-8) Gallery Workshop

Participants will create an origami book of angles. This activity will provide middle school students with an opportunity to make connections among multiple angle concepts by comparing and contrasting terms and ideas. The speaker will also discuss ways to connect angle relationships to students' daily life experiences.

#### Martha Y. Parrott

Northeastern State University, Broken Arrow, Oklahoma 5 A (Convention Center)

#### 732

#### The Patterns of Algebra: Linear Functions (6–12) Gallery Workshop

The study of mathematics is the study of patterns. Algebra is accessible to every student when it is taught as patterns. You will discover the patterns relating to linear functions and discover how easily they can be generalized into a personal understanding of the function, its graph, and its solutions.

#### Deena M. Lyons

Del Webb Middle School, Henderson, Nevada

14 A (Convention Center)

#### 733

#### English Language Learners Achieving Success with Handheld Technology

#### (6–12) Gallery Workshop

#### **TODOS: Mathematics for ALL presentation**

With Texas Instrument support, TODOS created lessons on proportional reasoning that incorporate research-based practices for teaching English language learners with handheld technology. The lessons, field tested in California, facilitate the acquisition of academic language and enable students to enhance their mathematics achievement.

#### Jose Marcelino Franco

University of California at Berkeley

#### **Christine Montes**

Los Amigos High School, Huntington, California

#### 16 A (Convention Center)

#### 734

#### Making It Happen: Re-engaging Students Who've Been Turned Off to Mathematics

#### (6–12) Gallery Workshop

For too many students, the cost of learning mathematics is too high for them. Unlike failed learners, who at least try, intentional nonlearners believe that if they don't try, then they can't fail. In this interactive presentation, participants will learn strategies for re-engaging students who have decided that mathematics is not for them.

#### Pamela Annette Seda

DeKalb County Schools, Decatur, Georgia

15 A (Convention Center)

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#### 735

#### Three Ways to Teach Linear Regression Using Illuminations Resources

#### (9-12) Gallery Workshop

Why should students with individual learning styles struggle with an instructional method they find difficult when you can use 3 different methods in the same class? Differentiate your instruction. Join in this gallery workshop to explore linear regression using cooperative learning, writing, and interactive tools, all from the Illuminations Web site.

#### Julia Zurkovsky

National Council of Teachers of Mathematics, Reston, Virginia

11 A (Convention Center)

#### 736

#### The Coaching Connection: Linking Instruction and Reflection

#### (Preservice and In-Service) Gallery Workshop

Are you grappling with what effective support for math instruction looks like? A grades K–8 math specialist shares insights from coaching individual teachers, facilitating gradelevel team meetings, and encouraging vertical collaboration– all designed to foster a reflective practice and enhance instruction. Please join us to share your thinking!

#### Danusia Therese Gerlach

Chicago Public Schools, Illinois

17 A (Convention Center)

#### 11:00 a.m.–12:00 noon

#### 737

#### Equity in the Mathematics Classroom: A Tool for Lesson Planning and Reflection

#### (General Interest) Session

How do teachers promote equity in the mathematics classroom? What are some characteristics of equitable mathematics classrooms? Participants will engage in a math activity and use an equity lens tool that is valuable for lesson planning and reflection and promotes meaningful discussion about reaching all students in the math classroom.

#### Nancy Terman

University of California Santa Barbara

Maria Guzman

Oxnard High School, California

11 B (Convention Center)

#### 738

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#### International Perspectives on Gender and Mathematics Education

#### (General Interest) Session

#### Women and Mathematics Education presentation

This session will discuss results from a new volume synthesizing research on gender and mathematics from an international perspective. The editors of the volume will give an overview of the volume's contents and highlights of the current state of research on issues of gender and mathematics in the developed and developing countries.

#### Joanne Rossi Becker

San José State University, California

**Olof Bjorg Steinthorsdottir** University of North Carolina at Chapel Hill

15 B (Convention Center)

#### 739

#### Math Night: So Easy a Caveman Can Do It! (Pre-K–2) Session

Have you ever wanted to host a math night, but were afraid? This team of a teacher, a district supervisor, and a college math professor have run highly successful math nights for many years and have coached many other teachers and schools to begin their own math nights. They will share the how-to's and a low-stress, step-by-step process.

#### Joyce A. Moon

Sangaree Elementary School, Summerville, South Carolina

#### Sandra M. Powers

Retired, College of Charleston, South Carolina

17 B (Convention Center)

#### 740



#### Using Guided Math to Differentiate Instruction (Pre-K-2) Session

Experience practical strategies to differentiate your math instruction using small-group instruction and openended math centers. Learn how the principles of guided reading can work

for your math instruction! You can teach, reteach, and extend mathematical concepts every day.

Barbara Blanke is a teacher, author, and teacher educator. She taught 22 years in grades K–12 classrooms. For the past eight years she has been a professor and university supervisor in teacher education for the College of Education at California Polytechnic. She is currently an educational consultant for school districts throughout the country, providing professional development workshops and coaching for grades K–8 mathematics teachers and administrators.

#### Barbara Lynn Blanke

California PolyTechnic State University, San Luis Obispo 7 B (Convention Center)

#### 741

# Telling the "Whole" Story: Making Sense of Fraction Language

#### (3–8) Session

Correct language use can give students a foundation for being successful in conceptualizing mathematical situations. This is particularly true with difficult topics such as fraction concepts and operations. Explore language use with fractions and learn strategies to help students develop fluency when describing these situations.

#### Jennifer M. Tobias

Illinois State University, Normal

Juli K. Dixon University of Central Florida, Orlando

#### Janet Andreasen

University of Central Florida, Orlando

10 (Convention Center)

#### 742

# A Process for Developing STEM Curriculum and Instructional Materials

#### (3-8) Session

The Science, Technology, Engineering, and Mathematics Curriculum Integration Project is an innovative approach to the design of curriculum and instruction materials in which these disciplines are connected as one. Teachers will examine a process that results in products that answer the question "Why do I need to know this?"

#### Joseph L. Mills, Jr.

CurrTech Integrations, LLC, Baltimore, Maryland

#### **Hays Lantz**

CurrTech Integrations, LLC, Baltimore, Maryland

2 (Convention Center)

#### 743

#### Developing Algebraic Reasoning: A Sequence of Geometric Pattern Tasks

#### (6-8) Session

How can students better understand fundamental algebraic concepts prior to a formal course in algebra? This session will present a sequence of geometric pattern tasks designed to promote students' ability to generalize and their understanding of functions and variables. Teachers will come away with lessons for their own classrooms.

#### **Kimberly Ann Markworth**

University of North Carolina at Chapel Hill

16 B (Convention Center)

#### 744

# Assessing Mathematical Concepts in Context

#### (6-8) Session

Several engaging mathematical investigations and activities appropriate for assessing middle school students will be presented. Examples of students' work, assessment guidelines, and students' reflections will also be included. A variety of content strands will be addressed.

#### Winnie J. Peterson

Kutztown University, Pennsylvania

6 D (Convention Center)

#### 745

#### Problem Solving: A Vehicle for Integrating Financial Literacy and the Mathematics Curriculum.

#### (6–12) Session

It is becoming imperative to equip students with the tools needed for financial literacy. We will discuss problems that focus on core math competencies and are situated within financial contexts. These problems can introduce important personal finance concepts while helping develop students' problem-solving and critical-thinking skills.

#### Mai M. Sidawi

The Math Forum @ Drexel, Philadelphia, Pennsylvania

5 B (Convention Center)

#### 746

#### **Putting Proof into Practice**

#### (6-12) Session

The ability to understand and use mathematical proof is an essential skill in mathematics, but it's rarely integrated into the curriculum outside geometry. This session will offer a model for teaching proof strategies in middle and high school, along with specific lessons that successfully incorporate proofs into any mathematics class.

#### **Carlos Rodriguez**

Johns Hopkins University Center for Talented Youth, Baltimore, Maryland

#### **Stuart Gluck**

Johns Hopkins University Center for Talented Youth, Baltimore, Maryland

6 E (Convention Center)

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#### 747

# Exploring 3-D Geometry Using Google™'s SketchUp™

#### (6-12, Higher Education) Session

Three-dimensional geometry can be taught and learned in new and exciting ways using Google's free, 3-D design software package, SketchUp. Learn how to explore the traditional topics of solid geometry such as prisms and pyramids and the Platonic solids using this easy-to-use, powerful software package.

#### Jonathan Choate

Groton School, Massachusetts

#### Bonnie Roskes

3Dvinci, Washington, D.C.

4 (Convention Center)

#### 748

#### I'm Going to Be a Math Teacher: Why Didn't I Know This Before?

#### (6–12, Higher Education, Preservice and In-Service) Session

Provides participants with some of what a secondary methods teacher and his students have discovered are some deficiencies concerning conceptual understanding of several math procedures and formulas. Many preservice and in-service math teachers confess that they "should have known these things a long time ago."

**Steven Todd Williams** 

Lock Haven University of Pennsylvania

6 B (Convention Center)

#### 749

#### Sizing Things Up: Helping Students **Understand Geometric Measurement**

#### (6-12, Preservice and In-Service) Session

Through a series of hands on activities, participants will explore the concepts of area, perimeter, and volume and then apply them to methods of teaching the formulas for two and three dimensional shapes. Specifically, methods of teaching these formulas will be developed so that students can recall or reconstruct them.

#### Matthew Claren Chedister

Boston University, Massachusetts

14 B (Convention Center)

#### 750

S

R

П

#### **Demystifying Conditional Probabilities:** Not as Hard as It Looks

#### (9-12) Session

Independence, conditional probabilities, and versus or-it all seems so confusing! Students don't understand, and teachers believe that they barely have a solid grip on how to apply the definitions and formulas. Ways exist to approach the subject that make sense, and the speaker will work through some of them.

#### **Ruth Miller**

Roland Park Country School, Baltimore, Maryland

6 A (Convention Center)

#### 751

#### **Enhancing Students' Schema of Functions:** Transformations, Compositions, and Inverses

#### (9–12) Session

Research indicates that students rely on memorization to respond to function transformation questions. This limits them from seeing and using relationships between transformations and other concepts, such as compositions and inverses. Participants will examine some transformation tasks and how

they relate to compositions or inverses.

#### Patrick M. Kimani

California State University, Fullerton

6 C (Convention Center)

#### 752

#### Antagonist and Protagonist Discourse Model: African American and Latino(a) **Students Conceptualizing AP Calculus**

(9–12, Higher Education, Preservice and In-Service) Session

#### **Benjamin Banneker Association presentation**

The antagonist-protagonist discourse model was created to help increase the conceptualization of calculus by African American, Latino, and Latina students. This model emerges from culturally responsive pedagogy, essential questioning, inquiry-based learning, and issues regarding cognitive development in oral-based traditions.

#### **Dante Abdul-Lateef Tawfeeg**

Adelphi Univerity, Long Island, New York

#### 6 F (Convention Center)

#### 12:30 p.m.-1:30 p.m.

#### 753



#### Unlocking the Secrets of **Happiness**

**Closing Session Remarks by NCTM President** Henry S. Kepner, Jr.

The speaker is close to a discoveryunlocking the secrets to happiness. He discovered hot spots of contentment and

will share secrets of life satisfaction. Identifying the "happiest" regions on three continents and combining the data with information from interviews of well-being experts, he created a cross-cultural formula for life satisfaction.

New York Times best-selling author Dan Buettner has delivered the secrets to living longer to more than 250 audiences nationwide. Using National Geographic photography, he tells the stories of four of the world's longest-lived cultures and offers nine habits for people to get up to ten more good years out of life.

#### **Dan Buettner**

Quest Network, Inc., Minneapolis, Minnesota

6 A (Convention Center)

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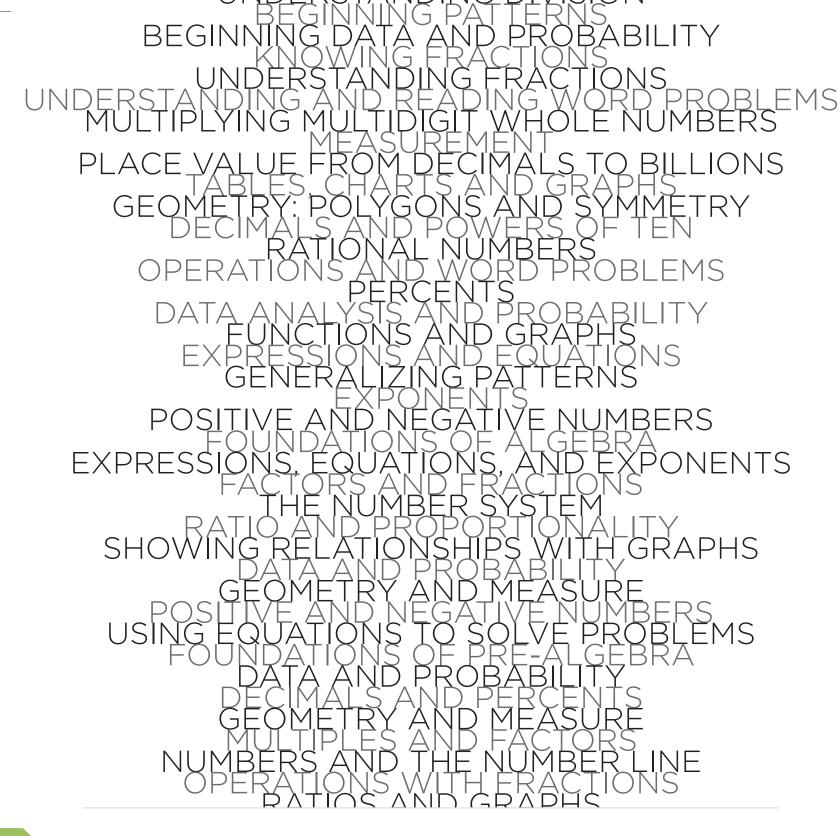
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# **Registration and Access to Presentations**

Badges must be worn to enter all presentations and the NCTM Exhibit Hall. Please be aware that a \$10 fee will be charged for replacement badges.

By registering for the 2010 NCTM Annual Meeting and Exposition, participants grant NCTM the right to use, in promotional materials, their likeness or voice as recorded on, or transferred to, videotape, film, slides, audiotapes, or other media.

# **Research Presession**

The Research Presession, jointly sponsored by the NCTM Research Committee and the Special Interest Group on Research in Mathematics Education of the American Educational Research Association, will be held in the San Diego Convention Center prior to the 2010 NCTM Annual Meeting and Exposition. The Research Presession Registration Area is in the Ballroom 6 Lobby (upper level) of the convention center.

The opening session will be held at 7:00 p.m. on Monday, April 19. Concurrent sessions will be held from 8:30 a.m. to 6:00 p.m. on Tuesday, April 20, and from 8:30 a.m. to 4:30 p.m. on Wednesday, April 21. There is no additional fee for on-site registration for the Research Presession. Registered Annual Meeting attendees may attend Wednesday's Research Presession presentations at no extra charge.

# For Your Child's Safety

Due to the size and nature of the 2010 NCTM Annual Meeting and Exposition, this event is not the appropriate setting for children under 16 years of age. Your hotel concierge will be able to recommend activities for children while you are attending the conference. We appreciate your understanding and cooperation. Children 16 years and over will need to register as nonteaching guests. To register a nonteaching guest, stop by the Registration Area at the San Diego Convention Center.

# **Member Showcase**

Everything you need to know about NCTM Membership and how we can help you succeed as a teacher (and in your classroom)—is at the Showcase; from teachers' resources, including activities, lessons, and sample journals, to member certificates, personalized news releases, and more! Whether you are a new member, a current member, or thinking of joining, stop by to learn how NCTM can help you!

Also at the Member Showcase, members of the journal staff and the editorial panels will hold brief discussion groups on such topics as "Write for the Journal: It's Not as Scary as You Think," "Become a Reviewer and Beef Up Your Knowledge," and "Using Literature in Your Math Class." Be sure to stop by to chat or pick up a schedule, which will also be available in the onsite *Daily News*.

Stop by the Member Showcase in the lobby outside of Exhibit Hall B at the San Diego Convention Center.

# Bookstore

Save 25 percent off the list price on all purchases made at the onsite NCTM Bookstore, located in the Exhibit Hall at the San Diego Convention Center. View first-hand all the publications that NCTM has to offer. You will also find a variety of specialty products that you can use as gifts, prizes, and incentives to spread the word about the importance of math. Start your wish list today by previewing NCTM's wealth of resources at www.nctm.org/catalog.

**Note on Sales Tax Exemptions:** In order to be considered exempt from sales tax in the NCTM Bookstore, you must provide a copy of a **California tax exemption certificate**, issued by the state, at the time of purchase. NCTM is required by law to keep a copy of the certificate, and will be unable to return it to you. In order to qualify, payment must be made with a purchase order, check, or credit card from the school to which the California Exemption Certificate is issued. Personal checks, personal credit cards, and cash cannot be accepted in conjunction with tax exemption certificates.

The NCTM Bookstore is not equipped to handle shipping from the meeting site. A Business Center located at each meeting facility is ready to assist you with your shipping needs.

The NCTM Bookstore is partially sponsored by BeAnActuary.org.

# **Shuttle Bus Service**

Attendees who reserved their hotel room through NCTM's official housing company will receive complimentary shuttle bus service from hotels in the NCTM housing block to the San Diego Convention Center. Some of the hotels are within walking distance of the convention center and will not require shuttle bus service. Routes and schedules will be posted in your hotel lobby. The schedule will be followed as closely as possible. For a shuttle bus schedule or if you have questions, please visit the shuttle desk located at the shuttle area outside of Exhibit Hall B & C.

# **Tour Information**

An exciting array of sightseeing tours will be available to NCTM attendees and guests through NCTM's shuttle company. For the complete offering, including descriptions, prices, dates, and times, please visit the tour desk located in the lobby area at the San Diego Convention Center.

# **Information Booth**

The NCTM Information Booth is located in the lobby area of the San Diego Convention Center, where local staff from San Diego will be on hand to answer any questions you may have and to assist you with directions and local information, from transportation and historical sites to shopping and entertainment.

# Lost-and-Found

Items for lost-and-found may be retrieved or turned in at the NCTM Information Booth. At the end of the conference, all

lost-and-found items brought to the Information Booth will be turned over to Convention Center Security.

# **Restaurant Reservations**

Explore the fabulous restaurants of San Diego! Stop by the Restaurant Reservations desk located in the lobby at the San Diego Convention Center. The friendly staff will be available to offer recommendations and make reservations.

# **Bag and Coat Check**

A bag and coat check is available for you to store your belongings during the conference hours for a nominal charge of \$3.00 per item. You can check your items at the bag check located in the San Diego Convention Center Thursday through Saturday during the program hours. All items are to be picked up each day by closing time; items may not be left overnight.

# **First Aid Station**

A first-aid station is staffed at the San Diego Convention Center during the NCTM program. If you need medical services while in San Diego, please check with the hotel concierge for the closest medical facilities. As with any medical emergency, call 911 without hesitation.

# **NCTM Clear Air Act**

In accordance with a resolution of the 1978 Delegate Assembly, smoking is permitted only in designated areas.

# Your Opinion Counts!

Thank you for attending the NCTM 2010 Annual Meeting and Exposition. In the days following the Annual Meeting, you will receive an e-mail asking for an evaluation of your meeting experience. Please take a moment to complete the conference attendee survey. Your feedback is important to us and will be instrumental in the future Annual Meeting and Exposition planning process.

# **Exhibit Hall Information**

# **Exhibits**

Be sure to make time in your schedule to visit the NCTM Exhibit Hall. The hours allow ample opportunity to explore, try out, and purchase products and services for use in your classroom or to help you meet your career goals. You'll also have the opportunity to meet the people who produce these products, get fresh ideas, and see demonstrations of how products work. Be sure to check out the list of exhibits and a map of the Exhibit Hall on pages 176-89.

# **Exhibitor Workshops**

Do you want more in-depth and personal interaction with exhibitors? If you do, plan to attend the Exhibitor Workshops. These workshops are held on Thursday, Friday, and Saturday and offer a wide variety of topics. See the program for Exhibitor Workshop offerings, indicated by **CW** before the presentation number.

# **Cyber Café and Calculation Nation**<sup>™</sup>

Stop by the NCTM Cyber Café to check email or surf the Web. There are two Cyber Cafés each located in the back of the NCTM Exhibit Hall in the San Diego Convention Center. Wireless connections are available at the Convention Center for a fee

Calculation Nation, part of NCTM's Illuminations Project, offers online math strategy games that can be played individually or against an online opponent. Come try out a game and learn more about Illuminations and other online resources from NCTM in the Cyber Café.

# **2010 Annual Meeting Sponsors**

A special thank-you goes to our sponsors for generously supporting NCTM by providing products and services to enhance your conference experience. Please stop by to thank the following sponsors when you are in the Exhibit Hall.







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# Join an NCTM Affiliate Today!

Once you have joined NCTM, membership in an NCTM Affiliate is a terrific way to round out your professional involvement. Affiliates offer you an opportunity to link with teachers in your state, region, or city for support, professional development opportunities, community outreach, political advocacy, and information sharing.

The host Affiliates for the NCTM 2010 Annual Meeting and Exposition and the Affiliates-at-Large are listed below. To join one of these groups, e-mail the Affiliate contact for membership information.

NCTM has more than 230 Affiliates throughout the U.S. and Canada. For a list of all organizations affiliated with NCTM and information on how to join, please see the Affiliate Directory on the NCTM Web site at www.nctm.org/affiliates.

# **Affiliate Information**

Host Groups
California Mathematics Council, Southern Section Mike Contino, cmc-math@sbcglobal.net
Greater San Diego Mathematics Council (California) Joan Commons, jcommons@ucsd.edu
Affiliates-at-Large
Adult Numeracy Network Margaret Rogers, marogers-princess@sbcglobal.net
Association of Mathematics Teacher Educators Gary Martin, martiwg@auburn.edu
Benjamin Banneker Association, Inc. Lois Moseley, loismoseley@gmail.com
Council for Technology in Mathematics Education Stephanie Cooperman, shc283@worldnet.att.net
North American Study Group on Ethnomathematics Blidi Stemn, catbss@hofstra.edu
National Council of Supervisors of Mathematics Terri Belcher, tbelcher@berkeley.edu
Society of Elementary Presidential Awardees Lisa Black, lisazblack@yahoo.com
TODOS: Mathematics for ALL Bob McDonald, mac@todos-math.org
Women and Mathematics Education Dorothy Buerk, buerk@ithaca.edu

# **Hotel Information**

A representative from the NCTM Housing Bureau is available on-site for housing assistance in the registration area in Exhibit Hall B/C at the San Diego Convention Center.

#### **Housing Desk Hours**

Tuesday	12:00 noon	-	6:00 p.m.
Wednesday	9:00 a.m.	_	7:00 p.m.
Thursday	8:30 a.m.	_	4:00 p.m.
Friday	8:30 a.m.	_	4:00 p.m.
Saturday	8:30 a.m.	-	10:00 a.m.

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1	Best Western Bayside Inn 555 West Ash Street	\$170	\$170	\$179	\$188	\$188
2	Courtyard by Marriott San Diego Downtown 530 Broadway Street	\$199	\$199	\$199	\$219	\$239
3	Doubletree Hotel San Diego Downtown 1646 Front Street	\$199	\$199	\$199	\$209	\$219
4	Embassy Suites Hotel San Diego Bay— Downtown 601 Pacific Highway	\$249	\$249	\$269	\$289	\$309
5	Hampton Inn by Hilton San Diego Downtown 1531 Pacific Highway	\$179	\$179	\$189	\$199	\$209
6	Hard Rock Hotel San Diego 207 5th Avenue (suite)	\$260 \$315	\$260 \$315	\$260	\$280	\$280
7	Hilton San Diego Bayfront One Park Boulevard	\$220	\$220	\$220	\$240	\$260
8	Hilton San Diego Gaslamp Quarter 401 K Street	\$242	\$262	\$262	\$282	\$302
9	Holiday Inn San Diego on the Bay 1355 North Harbor Drive	\$210	\$210	\$210	\$225	\$240
10	Horton Grand Hotel, 311 Island Avenue	\$179	\$179	\$199	\$219	\$239
11	Hotel Solamar, 435 6th Avenue	\$229	\$239	\$239	\$259	\$279
12	Andaz San Diego (formerly lvy Hotel), 600 F Street	\$199	\$199	\$199	n/a	n/a
13	Manchester Grand Hyatt San Diego* One Market Place	\$250	\$265	\$265	\$305	\$330
14	Omni San Diego Hotel, 675 L Street	\$254	\$274	\$274	\$294	\$314
15	Residence Inn by Marriott 1747 Pacific Highway	\$219	\$219	n/a	n/a	n/a
16	San Diego Marriott Gaslamp Quarter 660 K Street	\$253	\$273	\$288	\$293	\$313
17	San Diego MarriottCityviewHotel & Marina*Bayview333 West Harbor DriveSan Diego	\$259 \$279	\$259 \$279	\$259 \$279	\$284 \$304	\$309 \$329
18	The Sofia Hotel, One-Fifty West Broadway	\$170	\$170	\$170	\$190	\$200
19	The US GRANT— Luxury Collection Hotel 326 Broadway	\$229	\$249	\$249	\$269	\$289
20	The Westgate Hotel 1055 Second Avenue	\$229	\$229	\$229	\$239	\$249
21	W San Diego Hotel, 421 West B Street	\$229	\$229	\$229	\$254	\$299
22	Westin Gaslamp Quarter 910 Broadway Circle	\$229	\$249	\$249	\$269	\$289
	Westin San Diego, 400 West Broadway	\$230	\$230	\$230	\$250	\$270

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Rates do not include current tax of 12.64%; subject to change.

Hotels identified with a **t** icon are within walking distance of the convention center. For a shuttle schedule visit www.nctm.org/sandiego.

# San Diego Convention Center Area



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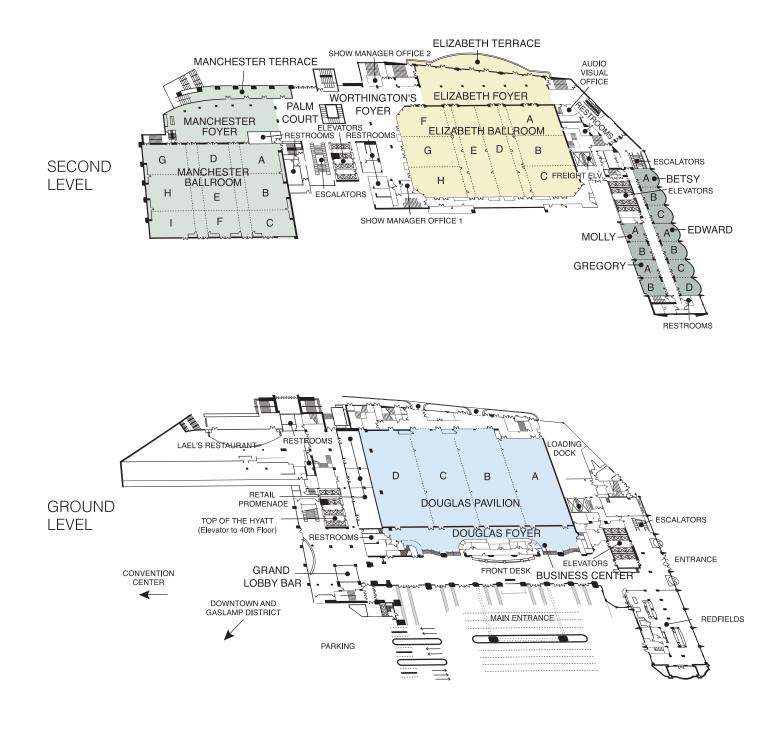
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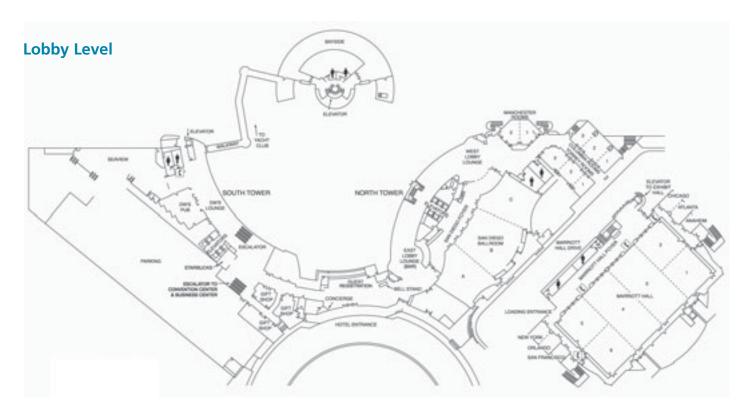
Visit www.nctm.org/meetings for up-to-date information.

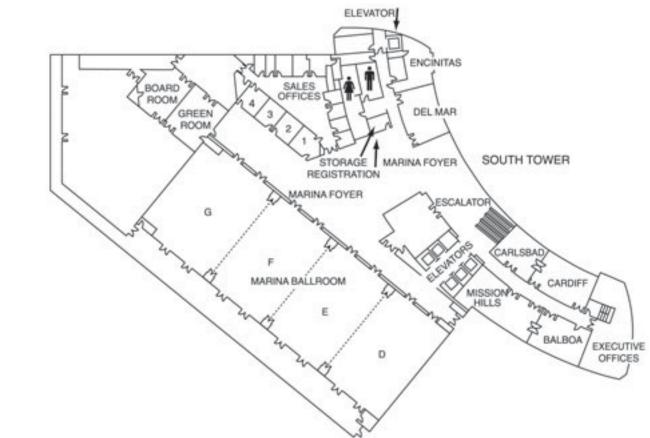
# Manchester Grand Hyatt San Diego



# **Floor Plans**

# San Diego Marriott Hotel & Marina

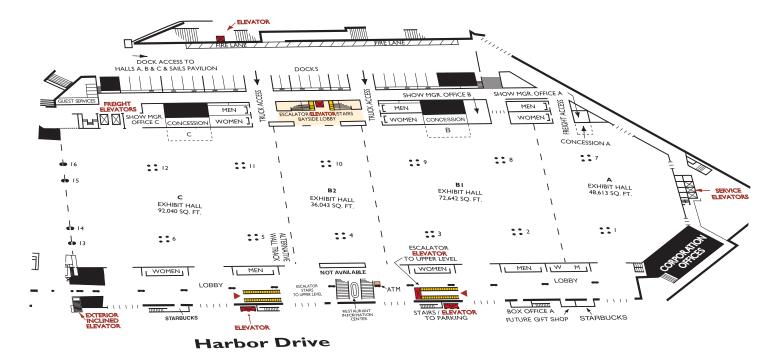




**Level Three** 

# San Diego Convention Center

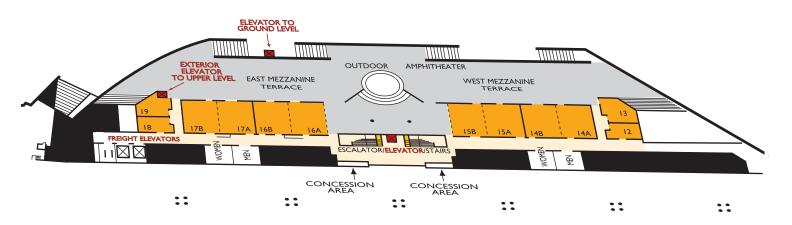
**Ground Level** 



### **Directory and Special Locations**

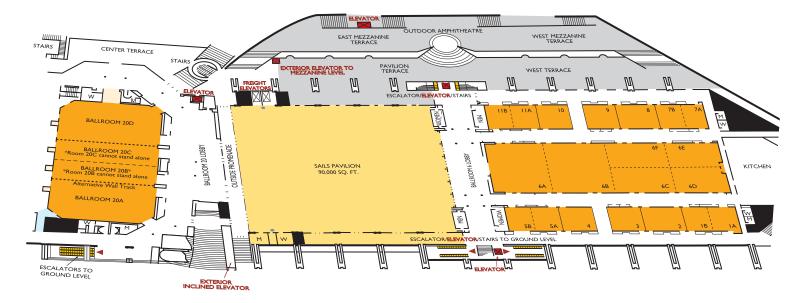
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Bookstore	Exhibit Hall B
Business Center	Lobby outside Hall D
Cyber Café	Exhibit Hall B/C
Exhibits	Exhibit Hall B/C
Exhibitor Check-In	
First Aid Room	Exhibit Hall B
Housing Desk	Exhibit Hall B/C
Information Booth	Lobby
Lost-and-Found	Information Booth
Mathematics Education Trust	Lobby/Member Showcase
Member Showcase	Lobby
Press Room	Room 12
Registration	Exhibit Hall B/C
Shuttle Desk	Shuttle Area on Harbor Drive
Speaker Check-In	Exhibit Hall B/C
Sponsorship Items Distribution	Exhibit Hall B/C
Tours	Lobby
Volunteer Check-In	Lobby

# San Diego Convention Center



#### **Mezzanine Level**

**Upper Level** 



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#### **Program Committee**

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#### **Local Arrangements Committee**

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The National Council of Teachers of Mathematics is a public voice of mathematics education, supporting teachers to ensure equitable mathematics learning of the highest quality for all students through vision, leadership, professional development, and research. With nearly 90,000 members and more than 230 Affiliates, NCTM is the world's largest organization dedicated to improving mathematics education in prekindergarten through grade 12. The Council's *Principles and Standards for School Mathematics* includes guidelines for excellence in mathematics education and issues a call for all students to engage in more challenging mathematics. NCTM is dedicated to ongoing dialogue and constructive discussion with all stakeholders about what is best for our nation's students.

To learn more about NCTM products or services, including membership benefits and opportunities, visit www.nctm.org, email nctm@nctm.org, or call (800) 235-7566.

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TOTAL	Professional	Development Hours Accrued:			

I certify that the above named educator accrued the indicated number of Professional Development hours.

Kichoon Yang Executive Director, NCTM

> Henry S. Kepner, Jr. President, NCTM

Please check with your state education agency and local administration to determine if these conference hours can be used for professional development credits.

# **NCTM Individual Membership Application**

Visit www.nctm.org/membership to learn more and join!

#### CONTACT INFORMATION (PLEASE PRINT) All fields marked with an \* are required for processing

First Name*	
Please check ONE box for preferred mailing address, but please comple	
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Institution*	
Address*	Address*
City*	City*
State/Prov* ZIP/PC*	State/Prov* ZIP/PC*
Country*	Country*
Phone*	Phone*
Primary E-mail*	
Your grade level interest (check all that apply)*: $\Box$ PreK-2 $\Box$ 3-	-5 🗆 6-8 🗆 9-12 🗆 Higher Education
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Check here to remove your name from rental lists (companies renting lists must obtain a	pproval from NCTM before using lists).
NOTE: Membership pricing valid through May 31, 2010. Visit www.nctm.	org/membership for up-to-date pricing.
OPTION 1	OPTION 2
<b>Full Individual Membership</b> Includes a print subscription to one NCTM journal ( <i>print version</i> <i>includes online access</i> ). Select <u>ONE</u> journal below:	<b>E-Membership</b> Includes full online access, including online archives to one NCTM school journal. E-Membership does not include a print journal or the research
<ul> <li>Teaching Children Mathematics (PreK-6)</li> <li>Mathematics Teaching in the Middle School (5-9)</li> <li>Mathematics Teacher (8-14)</li> <li>Journal for Research in Mathematics Education</li> </ul>	journal. Select <u>ONE</u> journal below: \$66
Additional Print Journals: May be selected to enhance your membership for as little as \$33 (print version includes online access).	<b>Additional Online Journals:</b> May also be included with Option 1. May be selected to enhance your membership for as little as \$21.
<ul> <li>\$33 Teaching Children Mathematics (PreK-6)</li> <li>\$33 Mathematics Teaching in the Middle School (5-9)</li> <li>\$33 Mathematics Teacher (8-14)</li> <li>\$60 Journal for Research in Mathematics Education</li> </ul>	<ul> <li>\$21 Teaching Children Mathematics (PreK-6)</li> <li>\$21 Mathematics Teaching in the Middle School (5-9)</li> <li>\$21 Mathematics Teacher (8-14)</li> </ul>
PAYMENT SUMMARY	
<ul> <li>Additional Online Journals (if choosing Option 1 or 2)</li> <li>Membership and Additional Journals Total</li> <li>For 2-year membership, multiply by 2 and deduct 10%</li> <li>For 3-year membership, multiply by 3 and deduct 15%</li> <li>Foreign Postage (if applicable): For mailings outside the U.S., add \$18 additional print journal subscription per year. For multiyear membership add to payment line at right.</li> </ul>	\$\$ \$\$\$\$ \$
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Moving with Math® from Math Teachers Press. Pre K-12 research-based programs integrating manipulatives, problem solving and practice. Built-in assessment monitors achievement and measures progress for RTI, intervention and differentiated instruction. Scientifically based results. Explicit and systematic instruction in lesson plans. Webbased technology and professional development available.

#### MATHCOUNTS

#### Booth: 1344

Alexandria, Virginia Ph: 703-299-9006 Fx: 703-299-5009

#### www.mathcounts.org

The MATHCOUNTS Foundation is a nonprofit organization that works with middle school students to promote excellence in mathematics. Free MATHCOUNTS materials are currently distributed to every middle school in the U.S., impacting the lives of over 250,000 middle school students annually.

#### Mathematical Olympiads for Elementary & Middle Schools Booth: 1943

Bellmore, New York Ph: 866-781-2411 Fx: 516-785-6640 www.moems.org

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CANADA 814-238-3280) Fx: 814-238-4383 www.minitab.com

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### Mu Alpha Theta

Booth: 1249 Norman, Oklahoma Ph: 405-325-4489 Fx: 405-325-7184 www.mualphatheta.org

Mu Alpha Theta, the National High School and Two-Year College Mathematics Honor Society, serves over 1700 chapters and expects 80,000 members by June, 2010. We provide free math competitions, grants, scholarships, and awards. Chi Alpha Mu, for middle school students interested in math, has recently been reactivated.

### Ν

Nasco

Booth: 547

Modesto, California Ph: 209-545-1600 Fx: 209-846-6571 www.eNasco.com

#### National Assessment of Educational Progress (NAEP)

**Booth: 743** Washington, DC Ph: 202-842-3600 Fx: 202-842-4032 www.naep.org

#### National Council of Supervisors of Mathematics (NCSM)

Booth: 224

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NCSM is an international leadership organization for those who serve the NCSM vision of excellence and equity for student achievement in mathematics. Those leaders include district or county coaches, grade-level team leaders, course-level team leaders, curriculum directors, principals, superintendents & all who work to ensure success of every child in mathematics.

#### Navajo Jewelry & Crafts

Booth: 1152

Albuquerque, New Mexico Ph: 505-345-5750 Fx: 505-345-2808

#### Neufeld Learning Systems, Inc.

#### Booth: 1733

London, Ontario Ph: 519-657-9334 Fx: 519-657-3220 www.neufeldmath.com

#### The New York Times

#### Booth: 1645

Weston, Massachusetts Ph: 310-924-4830 Fx: 781-890-2799 www.ontheavenuemarketing.com

#### Northpoint Horizons Booth: 1351

Vernon Hills, Illinois Ph: 866-466-7047 Fx: 888-286-8681 www.northpointhorizons.com

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#### O ORIGO Education, Inc. Booth: 329

St. Charles, Missouri Ph: 888-674-4601 Fx: 888-674-4604 www.origoeducation.com

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# P

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#### Booth: 1053

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# S

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www.intervention.schoolspecialty.com

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#### St. Jude Children's Research Hospital

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#### Success For All Foundation Inc.

Booth: 640

Baltimore, Maryland Ph: 800-548-4998 Fx: 410-324-4444 www.successforall.org

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Fort Atkinson, Wisconsin Ph: 800-777-8817 Fx: 800-317-2194 www.summitlearning.com

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# Т

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Booth: 642

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Booth: 232

Tempe, Arizona

www.todos-math.org

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Booth: 1453

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#### Tutor.com

Booth: 1937

New York, New York Ph: 212-528-3101 Fx: 212-766-5855 www.tutor.com

# U

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Booth: 1150

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#### Vernier Software & Technology

#### Booth: 1252

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Champaign, Illinois Ph: 217-398-0700 Fx: 217-398-0747 www.wolfram.com

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#### Women and Mathematics Education

Booth: 222 Laramie, Wyoming www.wme-usa.org

WME's general purpose is to promote the mathematics education of girls and women.

# Y

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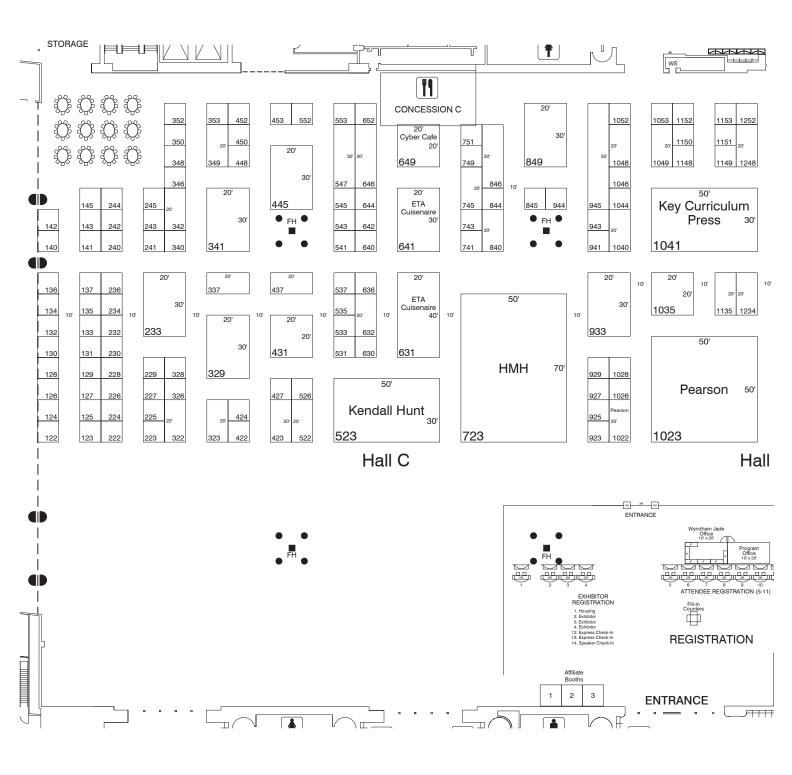
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Danvers, Massachusetts Ph: 1-617-379-2988 Fx: 1-978-762-5607 www.YouCanDoTheCube.com

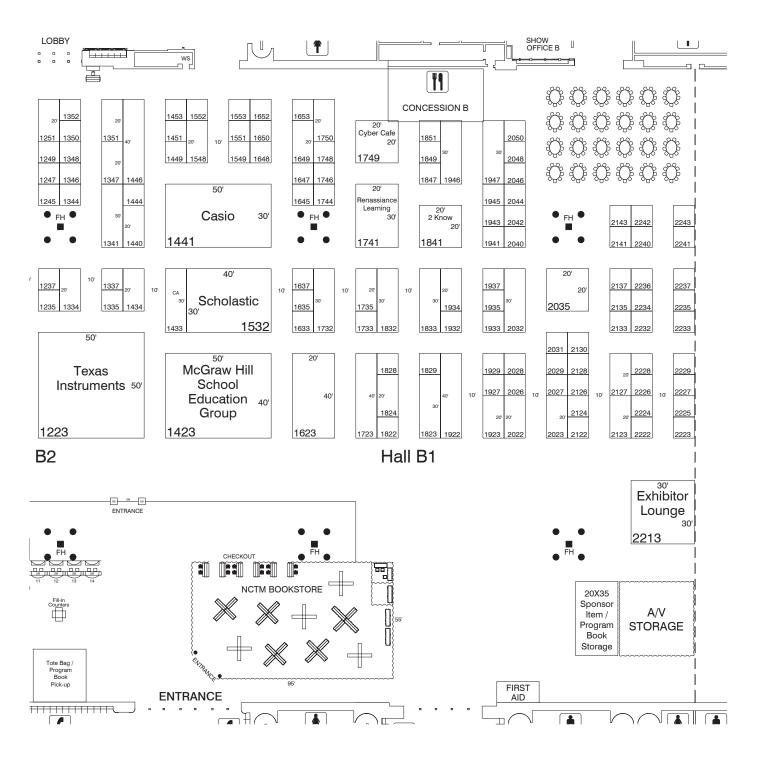
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# **Exhibitor Floor Plans**



# **Exhibitor Floor Plans**



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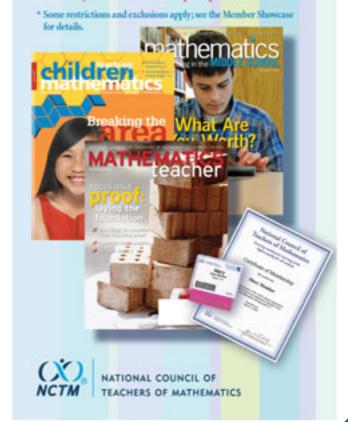
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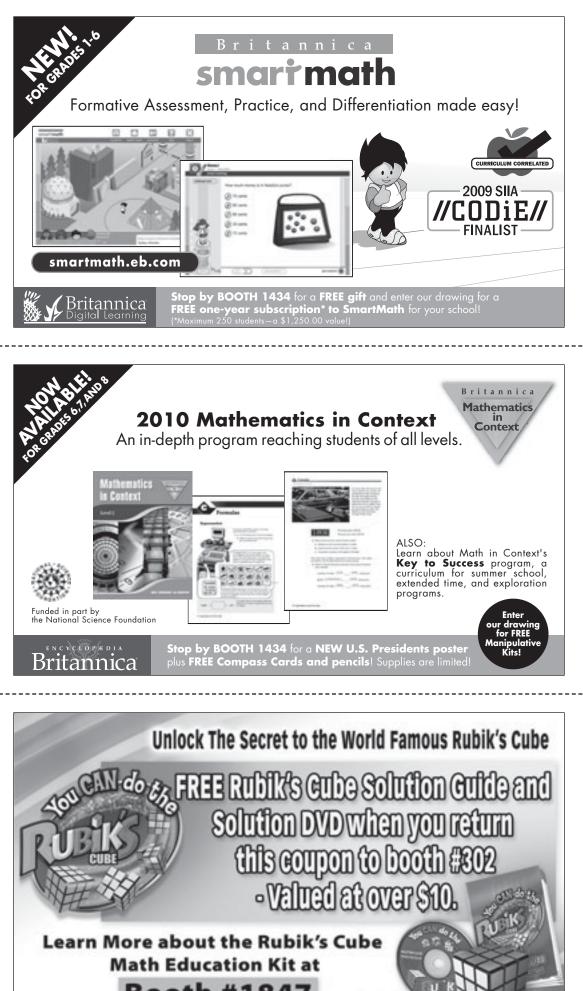






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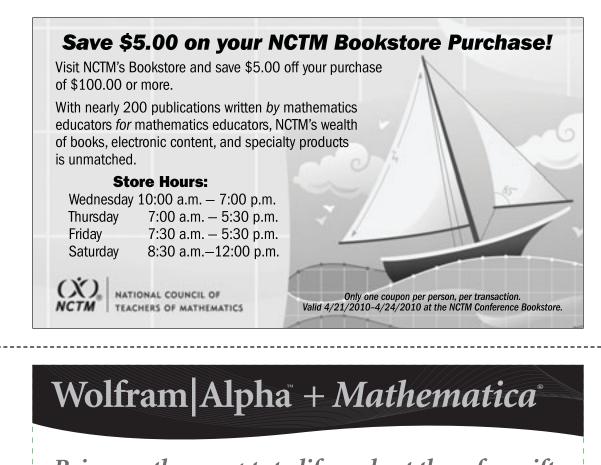
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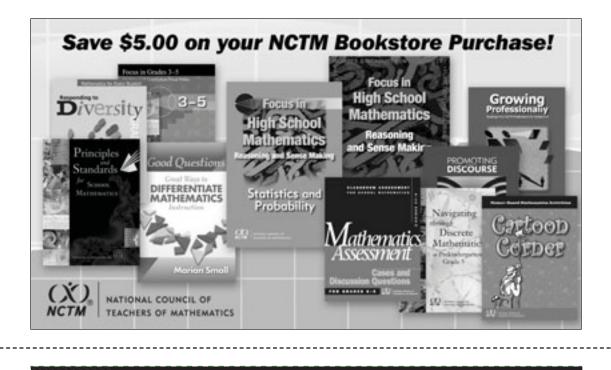
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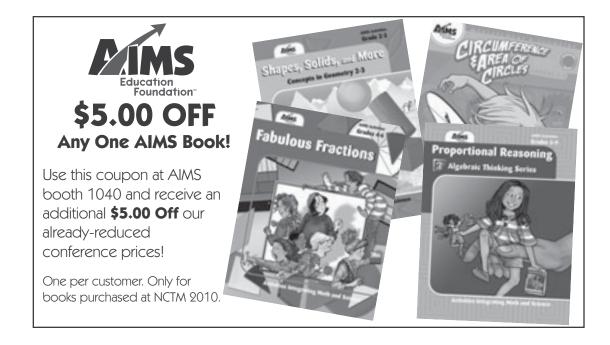
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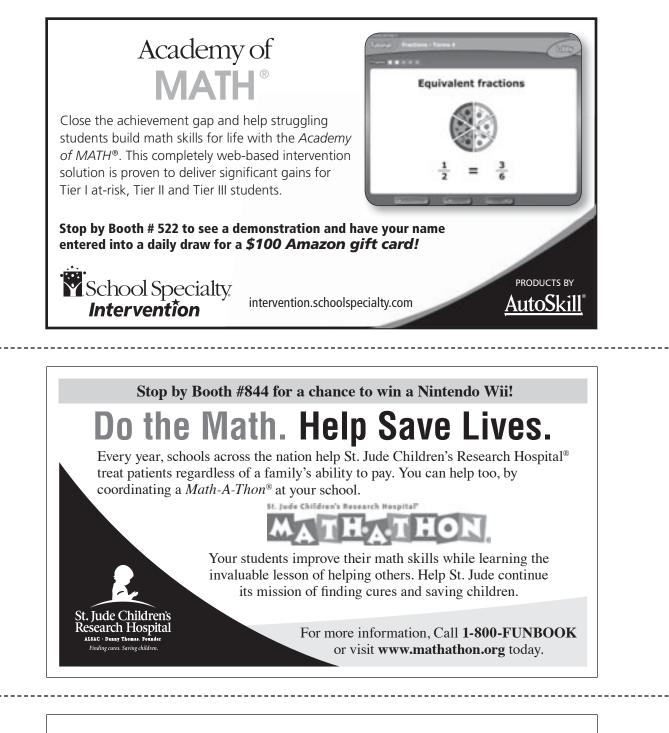


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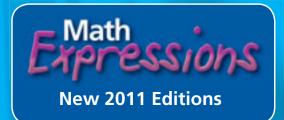


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