



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

2014 NCTM REGIONAL CONFERENCE & EXPOSITION

Indianapolis • October 29–31

THE NATION'S PREMIER MATH EDUCATION EVENTS

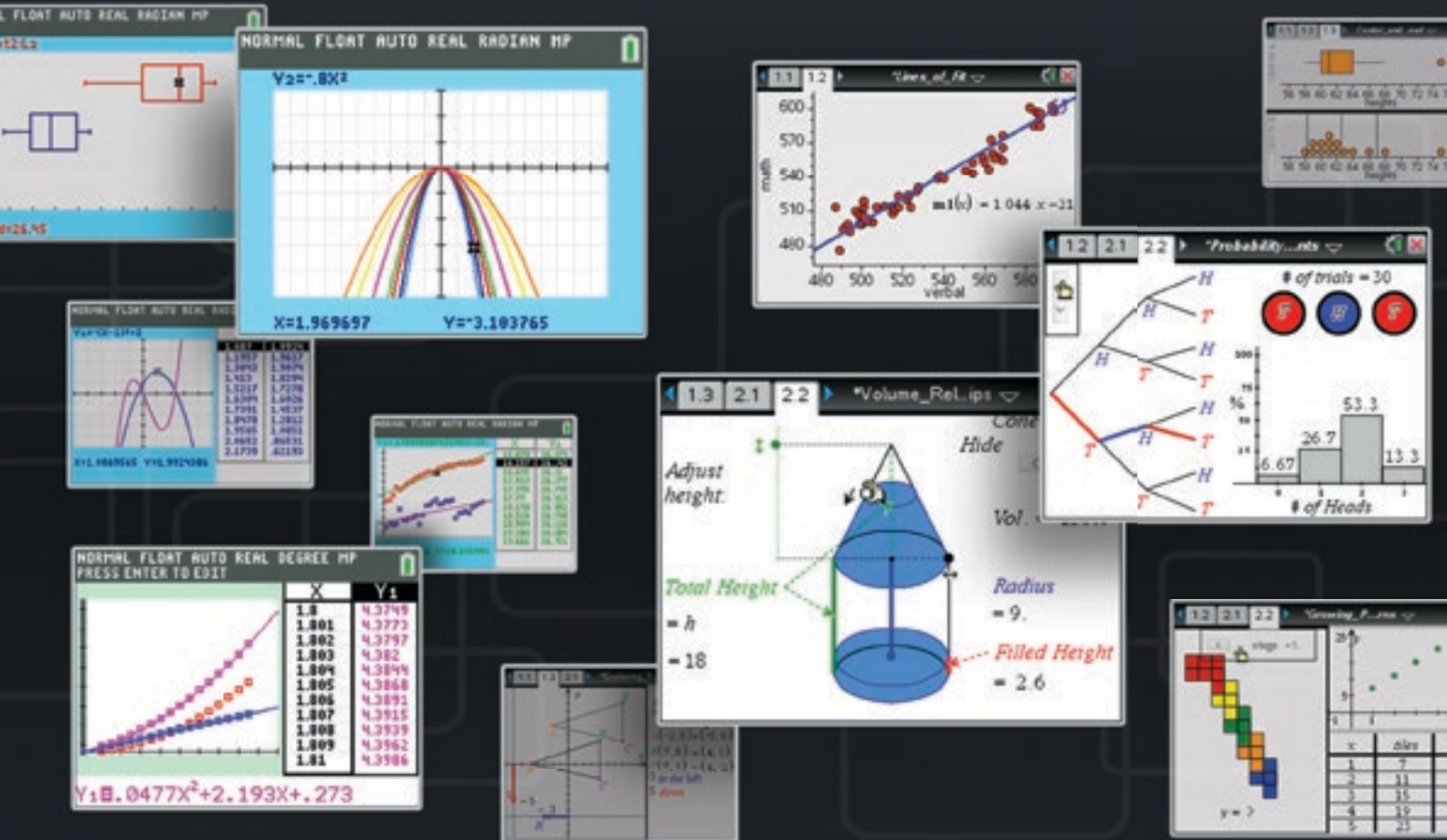
See Valuable
COUPONS
beginning
page 93

Program Book



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2014 NCTM REGIONAL CONFERENCE & EXPOSITION

Indianapolis • October 29–31

HOST

Indiana Council of Teachers of Mathematics

MEETING FACILITY

All Regional Conference presentations will be held at the Indiana Convention Center and Westin Indianapolis. See pages 80–82 for floor plans.

REGISTRATION

Wednesday	5:00 p.m.	–	7:30 p.m.
Thursday	7:00 a.m.	–	3:00 p.m.
Friday	7:00 a.m.	–	3:00 p.m.

EXHIBITS

Thursday	8:00 a.m.	–	5:00 p.m.
Friday	8:00 a.m.	–	4:00 p.m.

NCTM CENTRAL

Wednesday	5:00 p.m.	–	7:30 p.m.
Thursday	7:00 a.m.	–	5:00 p.m.
Friday	8:00 a.m.	–	4:00 p.m.

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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

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Welcome to Indianapolis!



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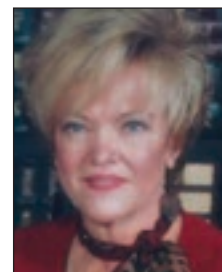
Welcome to the NCTM 2014 Indianapolis Regional Conference! We hope that this will be an informative and inspirational professional development opportunity for you. From Dan Meyer's opening session *Fake World Math: Why Modeling Goes Wrong (And How to Get It Right)* to the 200+ sessions, workshops, and bursts on mathematical practices, algebra, number and operations, mathematical modeling, assessment, and much more, this conference gives you an exciting opportunity to grow as a mathematics teacher.

While here, please be sure to enjoy downtown Indianapolis. It is one of the most walkable downtowns in the nation, with easy access to great restaurants, performing arts, shopping, entertainment, and attractions such as the Indianapolis Cultural Trail, Indianapolis Zoo, NCAA Hall of Champions, Central Canal, Monument Circle, and Veterans Memorial Plaza.

Putting on a conference like this one takes a great deal of hard work by many people. We would like to thank the Indiana Council of Teachers of Mathematics, the Program Committee, the Volunteer Committee, NCTM's conference planning staff, and the many volunteers who are giving their time to make this conference a success.



Michael Roach
Program Committee Chair
Indiana University
Bloomington, Indiana



Sheridan Rayl
Volunteer Committee Chair
Anderson University
Anderson, Indiana

The NCTM 2014 Regional Conference & Exposition officially begins with the Opening Session, starting at 5:30 p.m. on Wednesday. Presentations on Thursday and Friday begin at 8:00 a.m. each day and are scheduled concurrently throughout the day.

We have made every attempt to offer adequate seating for participants at the Regional Conference & 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. 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.
- In compliance with fire codes, sitting on the floor or standing is not permitted.
- As a courtesy to the speakers and your colleagues, please silence your cell phone during all presentations.

New and Preservice Teachers Workshop

Wondering how to manage your classroom, work with parents, find engaging lessons, and handle homework—all while keeping your sanity? You're not alone! A must for every new teacher, this interactive workshop is your chance to ask questions on topics of your choice. Plus, you will connect with other new and early-career teachers. If you are in the first five years of teaching or are seeking certification, come get resources, materials, and fun prizes to encourage you and give you insight along your journey.

Thursday and Friday
9:45 a.m.–11:00 a.m.
Grand Ballroom 3 (Westin)

Regional Conference Overview & Orientation

Whether you are new to NCTM or a seasoned veteran, every conference has something new for everyone. Hosted by members of the NCTM Board of Directors, this session will help you to maximize your overall conference experience. Learn what's new or discover something you've missed in the past and learn how to navigate presentations, how to use the Conference App, and how to network with other attendees. Meet other first-time attendees and join up with conference mentors who share your particular interests!

Thursday and Friday
7:15 a.m.–7:45 a.m.
Wabash Ballroom 3 (Indiana 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 is not permitted.

Sessions (60 minutes) are set theater style and represent a common format where the speaker relates his or her ideas to an audience.

Gallery Workshops (75 minutes) are set with round tables for hands-on work and have additional gallery seating around the perimeter of the room. The gallery participants will receive the print materials and observe the workshop in a fashion similar to that of a classroom observer.

Bursts (30 minutes) are set with round tables and have additional gallery seating around the perimeter of the room. These concise presentations focus on a specific topic or idea. The goal is information sharing, conveyed quickly and succinctly.

Exhibitor Workshops (60 minutes) are set theatre style for at least 100 people. Exhibitors showcase their products and services away from the Exhibit Hall. Look for the symbol **EW** 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**
- **Grades 3–5**
- **Grades 6–8**
- **Grades 9–12**
- **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**—Issues of interest to multiple grades and audiences
- **Research**

Program Updates

Don't forget to pick up your copy of the Program Updates, which includes speaker and presentation updates, and additional exhibitor workshop listings. Program Updates are available in the Registration Area.

Program Information

Strands

LINKING MATHEMATICAL PRACTICES TO CONTENT STANDARDS **MP**

This strand focuses on how students can meet the Common Core Standards for Mathematical Practice as an integral part of learning mathematical content.

Strand Speakers

Henry S. Kepner, 112
Donna J. Long, 126
Anne M. Collins, 150
Johannah Nikula and Katherine B. Schwinden, 157
Timothy D. Kanold, 175
Johannah Nikula and Katherine B. Schwinden, 184
Don S. Balka, 201

EQUITY **EQ**

All students regardless of their gender, color, ethnicity, culture, or physical challenges must have an equal opportunity to attain academic success in mathematics. Sessions in this strand will address math instructional strategies that maximize the learning potential of all students.

Strand Speakers

Susan M. Kontos, 180
Craig J. Willey, 182
James R. Matthews and Jenny K. Tsankova, 193
Kwame Anthony Scott, 243
Vanessa E. Cleaver and Marcelline Carr, 260
Crystal Hill Morton and Saba-Na'Imah Berhane, 284

DATA AND STATISTICS **DS**

Data Analysis and Statistics now occupy a larger and more permanent place in the K–12 curriculum. This strand will offer sessions ranging from the history of statistics education to effectively teaching statistics content in the classroom.

Strand Speakers

Ed D. Zaccaro, 11
Gail Burrill, 26
Roxy Peck, 36
Susan A. Peters, 120
Allan J. Rossman, 147
Jerry L. Moreno, 236
J. Michael Shaughnessy, 254
Douglas Whitaker, 267

MATHEMATICAL MODELING **MM**

Mathematical modeling as a K–12 Standard for Mathematical Practice is a unique process used to represent and interpret the physical, social, and mathematical phenomena in everyday life. Sessions in this strand examine the use of mathematical modeling in a variety of content areas.

Strand Speakers

Dan Meyer, 1
Ricardo Cortez, 89
Karim K. Ani, Matt Lane, and Chris Lusto, 107
Crystal Collier and Jean Lee, 123
Karim K. Ani, Matt Lane, and Chris Lusto, 196
Bruce J. Bayly, 237
Tamara J. Moore, 253
Judith S. Zawojewski and Catherine Newman, 257

ASSESSMENT **AS**

The Assessment strand sessions focus on classroom assessments, including formative assessment and assessing students' achievement of the Common Core Standards for Mathematical Practice.

Strand Speakers

Tricia Salerno, 9
Laurie Ferry, 33
Stacey Hughes, 77
Kathleen Dempsey and Andrea Beesley, 143
Andrew Gatzka and Michael Anderson, 231
Chad E. Michalek, 235
Janet M. Rummel, 290

DEVELOPING A CLASSROOM COMMUNITY **DV**

The Developing a Classroom Community strand features sessions on the development of classroom and school environments supportive of student success in mathematics.

Strand Speakers

Linda M. Gojak, 31
Jacqueline Sack and Michael Connell, 49
Hoyun Cho and Gary Lawrence, 133
Donna L. Knoell, 139
Maggie M. Hackett, 152
Delwyn L. Harnisch, 200
Mikhail M. Bouniaev, Jerzy Mogilski, and James Hilsenbeck, 246

Principles to Actions: Ensuring Mathematical Success for All NCTM'S NEW SIGNATURE PUBLICATION



NCTM continues its tradition of mathematics education leadership by defining and describing the principles and actions that are essential to strengthen mathematics learning and teaching for all students. *Principles to Actions* offers guidance to teachers, specialists, coaches, administrators, policymakers, and parents. Building on NCTM's *Principles and Standards for School Mathematics*, this

document presents six updated Guiding Principles for School Mathematics and eight essential Mathematics Teaching Practices. Copies of *Principles to Actions* are available for purchase at the NCTM Bookstore in the Exhibit Hall and online at www.nctm.org/catalog.

Be sure to check out these sessions that address one or more of the teaching practices and/or guiding principles for mathematics education described in *Principles to Actions*.

THURSDAY, OCTOBER 30, 2014

- 12 Investigating Differentiated Instruction and Algebraic Reasoning in Middle School
- 15 Building a Solid Foundation in Number Sense
- 17 Using Children's Literature to Implement the Standards for Mathematical Practice
- 19 Folding Your Way to Understanding Fractions
- 28 Nurturing Computational Fluency and Mathematical Thinking
- 35 Investigating Released AP Calculus Questions for Grades 6–10
- 41 Getting to the Point on Decimal Fractions
- 43 Using Manipulatives to Deepen Understanding of Place Value
- 46 Do the Math—Like Your Life Depends on It
- 51 President's Session: Turning College and Career-Ready Standards Into Student Learning: What It Takes
- 58 Implementing the CCSS Math Practices in the Classroom
- 61 Explorations, Investigations, Applications: It's Why We Study and Teach Mathematics
- 93 Singin' and Signin' Teaches the Way Kids Learn!
- 97 Avatars: Where Mathematics Meets Audio and Video
- 101 Trajectory Packets for K-2 Algebra, Geometry, and Linear Measurement
- 109 Break the Cycle of Failure, and Save Struggling Students with RtI

- 113 National Assessment of Educational Progress: A Treasure Trove of Mathematics Problems
- 123 Pimp My Ride: Project-Based Learning (PBL) In Action
- 123.2 Using Technology to Reason Mathematically
- 124 How to Teach When You Can't Talk: Developing Learning Communities
- 129 Common Core Mathematics Upside Down: Flipping PD and Engaging Teachers!
- 130 Examining Operations with Fractions Using Words, Diagrams, and Manipulatives
- 131 Using iPads for Error Analysis
- 143 An Innovative, Practical Approach to Formative Assessment Using Student Work
- 148 Animation and Mathematics: What They Share in Common

FRIDAY, OCTOBER 31, 2014

- 157 Interpreting the Standards for Mathematical Practice: Session I, Part I
- 159 Two Birds, One Stone: Transformations, Functions, and the Common Core
- 160 A FUNdamental Approach to Connecting Families of FUNctions
- 163 First Steps to Measurement Mastery: Primary Misconceptions and Remedy Activities
- 165 Math Matters: Games, Puzzles, and Diversions to Stimulate Reasoning
- 172 Increase Rigor and Engage Students with NMSI, TI, and NASA
- 180 The Language of Mathematics: English Language Learners Talk about Math
- 181 Understanding Linear Functions Using Manipulatives
- 182 Integrating Communication in Common Core Mathematics for Bilingual Students
- 187 Primarily Place Value: Games for Teaching the Common Core
- 189 Angling for Understanding
- 204 Caring for the Early Algebraic Thinker
- 214 Fraction (or Fractured?) Understanding
- 228 Clarifying Misconceptions about Subtraction Using "the Ladder" and Counting
- 241 Fractions as Numbers
- 247 Board Hot Topic: Assessing Your Assessment Practices: Do They Measure Up to Support Student Learning?
- 249 Four Types of Addition Facts That Help Develop All Others
- 263 Developing Mathematics Community with Urban Students: One Exemplar Teacher's Story
- 266 Investigative Geometry in a Dynamic Environment
- 271 Developing an Interdisciplinary Math Methods Primer for Preservice Elementary Teachers
- 272 Shuffling Into Math: Primary Games for the Common Core
- 277 Progression of Fractions in Grades 3-5
- 278 Flips, Slides, Turns, and Tessellations, Oh My!
- 280 Radical Math Games for Middle Years "Catch-Up"
- 288 Increase Accuracy and Speed While Having Fun Using Nontraditional Strategies

General Information

Tips for a Rewarding Regional Conference & Exposition

- Access the Conference App for conference alerts and up-to-the-minute information. Visit www.nctm.org/confapp.
- Access available speaker handouts at www.nctm.org/plan.
- Become familiar with the layout of the Indiana Convention Center and Westin Indianapolis by reviewing the floor plans on pages 80–83.
- Visit **NCTM Central** and browse NCTM educational resources, and stop by **Member Services** to learn more about how NCTM can help you professionally and pick up free resources.
- Stop by the Information Booth for information on the local area.
- If attending the conference with colleagues, attend different presentations and share your learned knowledge after the conference.
- Silence cell phones during presentations.
- Be safe! Remove your name badge when you leave the conference facilities at the end of the day.

Registration and Access to Presentations

You must wear your badge to enter all presentations and the NCTM Exhibit Hall. Please be aware that the fee for a replacement badge is **\$10**.

By registering and attending an NCTM conference, meeting, or other activity, participants grant NCTM the right to use their likeness or voice as recorded on, or transferred to, video, photographs, websites, electronic reproductions, audio files, and/or other media of such events and activities.

For Your Child's Safety

Due to the size and nature of the NCTM 2014 Regional Conference & Exposition, this event is not an appropriate setting for children under 16 years of age. Children under age 16 will not be permitted in the Exhibit Hall. We appreciate your understanding and cooperation. Children 16 years and over will need to register as nonteaching guests. To register a nonteaching guest, please visit Registration.

Information Booth

The NCTM Information Booth will be in the Convention Center. Friendly staff can answer your questions about Indianapolis. They will also assist you with directions and local information, from transportation and historical sites to shopping and entertainment.

Lost-and-Found

You may retrieve or turn in lost-and-found items at the NCTM Information Booth. Unclaimed items will be turned over to the Indiana Convention Center Security.

First-Aid Station

There will be a first-aid station at the Indiana Convention Center during the NCTM conference. If you need medical services while in Indianapolis, please check with the hotel concierge for the closest medical facilities. For any medical emergency, call 911 without hesitation.


Your Opinion Counts

Thank you for attending the NCTM 2014 Regional Conference & Exposition. In the days following the Regional Conference, you will receive an e-mail asking for you to evaluate your meeting experience. Please take a moment to complete the survey. Use the Conference App to rate specific presentations you attend. Your feedback is important to us and will be instrumental in planning future meetings.

Exhibits

Make time to visit the NCTM Exhibit Hall. The hours allow ample opportunity to explore, try out, and purchase products and services for your classroom or to help you meet your career goals. You'll also be able to meet the people who produce these products, get fresh ideas, and see demonstrations of how products work. Check out the list of exhibits and a map of the Exhibit Hall on page 83.

Exhibitor Workshops

Do you want more in-depth, personal interaction with exhibitors? If so, plan to attend the Exhibitor Workshops. These workshops, held on Thursday and Friday, offer a wide variety of topics. For exhibitor workshop offerings, look for presentations in this program book marked with the symbol .

Conference App

The NCTM Conference App keeps you connected with the Regional Conference's every aspect. The free app allows you to search sessions, speakers, and exhibits; view the Exhibit Hall floor plan; highlight your favorite presentations; receive the latest program changes; rate presentations; and interact with your colleagues! Visit www.nctm.org/confapp for more information.

Presentation Handouts

Attendees can access available electronic presentation handouts through the conference app at www.nctm.org/confapp and online planner at www.nctm.org/plan. Handouts will be available until March 2014.

Online Conference Planner

The Online Conference Planner is a great way for you to search the conference program book, set up your personal schedule, and download available presentation handouts. The Online Conference Planner is continually updated with the latest presentation changes and information. Visit www.nctm.org/plan to check it out.

NCTM App

When you return home, don't forget to download NCTM's Android or iOS app for free. The NCTM app gives users easy, efficient access to timely NCTM information throughout the year—from updates on new publications and best sellers to the latest information on upcoming conferences and professional development opportunities. Users can be up to the minute on NCTM activities, teaching tips, and classroom resources. The conference app also includes Facebook and Twitter feed updates. Visit www.nctm.org/nctmmobile for more information and to download the app.



SOLDIERS AND SAILORS MONUMENT ©PHOTO COURTESY OF INDIANAPOLIS CVB

NCTM Central

Check out NCTM Central. This exciting area has everything “NCTM” all in one convenient location, right at the entrance of the Exhibit Hall.

Wednesday	5:00 p.m.–7:30 p.m.
Thursday	7:00 a.m.–5:00 p.m.
Friday	8:00 a.m.–4:00 p.m.

- Whether you are a new or a longtime NCTM member, you can learn more about what your membership can do for you at **Member Services**. We can walk you through your benefits, including your online access to lessons, classroom-ready activities, online journal articles, and more. Make sure to stop by and pick up sample journals and other materials! Not a Member or wish to renew your membership? Make sure to sign up on-site and receive a free Boston Annual Meeting T-shirt, while supplies last.
- Browse the **NCTM Bookstore** and **save 25% off the list price** on all purchases. View firsthand 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 mathematics. Start your wish list today by previewing NCTM's wealth of resources at www.nctm.org/catalog. The NCTM Bookstore is not equipped to handle shipping; the convention center business center can assist you with your shipping needs.

***Note on Sales Tax Exemptions:** To be considered exempt from sales tax in the NCTM Bookstore, you must provide a copy of an Indiana tax exemption certificate at the time of purchase. NCTM is required by law to keep a copy of the certificate, so we cannot return it to you. To qualify, you must make payment with a purchase order, check, or credit card from the school to which the Indiana exemption certificate is issued. NCTM cannot accept personal checks, personal credit cards, or cash in conjunction with tax exemption certificates. Tax exemption certificates for states other than Indiana are not valid for this Regional Conference.*
- The **Networking Lounge** is a prime location to meet up with colleagues between presentations. Whether you want to make connections with fellow conference goers, exchange teaching tips, or catch up with friends, you'll find a comfortable spot in the Networking Lounge to do so. Download the Conference App to receive alerts for scheduled networking meet-ups and check out the program updates for more information.

MathBuilders: A supplementary math program designed for young braille users in grades K-3.

MathBuilders is separated into eight units by content standards and grade level. This allows the teacher to focus on specific standards or provide remedial material for individual students.

Each Unit includes:

- Teacher's guide with lesson plans
- Student worksheets
- CD-ROM with General Guidelines for Teaching Math to Young Braille Users
- Dozens of manipulative items



Unit 1: Matching, Sorting, and Patterning



Unit 5: Measurement and Estimation



Unit 6: Geometry



Unit 7: Fractions, Mixed Numbers, and Decimals



**Unit 8:
Data Collection, Graphing,
and Probability/Statistics**

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Highlight

Opening Session (Presentation 1): Fake World Math: Why Modeling Goes Wrong (And How to Get It Right)

Icon

Presentation Number



Mathematical Modeling

1



Conference App

Network onsite with attendees!
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Facebook

Interact with your colleagues!
www.nctm.org/facebook



Twitter

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www.twitter.com/nctm
#NCTMIndy

Registration Hours

5:00 p.m.–7:30 p.m.

NCTM Central Hours

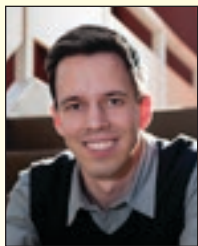
5:00 p.m.–7:30 p.m.

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 comply with fire codes, we will have to ask persons sitting on the floor or standing to leave the room.

1

MM



Fake World Math: Why Modeling Goes Wrong (And How to Get It Right)

(General Interest) Session

The presenter works with thousands of math educators every year and finds more disagreement about the CCSS modeling standard than any other. So let's try to answer these questions: what is modeling, how do we get our students to do it, and how do we get our students to like it?

Dan Meyer
Stanford University, California

500 BALLROOM (INDIANA CONVENTION CENTER)

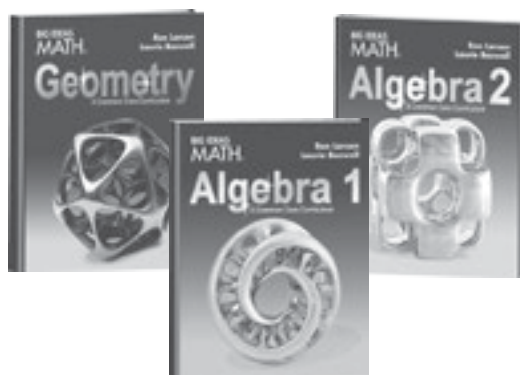
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BY RON LARSON AND LAURIE BOSWELL

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AS Assessment

DS Data and Statistics

DV Developing a Community

EQ Equity

EW Exhibitor Workshop

MM Mathematical Modeling

MP Linking Mathematical Practices

Highlights

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 Mathematical Habits of Mind: Helping Students Become Doers of Mathematics, **88**
 CCSS Mathematical Practices + Workshop + Algebraic Thinking = Success, **91**
 Keeping It Real: Teaching Math through Real-World Lessons and Projects, **107**
 Using an Area Model for the Multiplication and Division of Fractions, **141**

Icon	Presentation Numbers
AS Assessment	9, 33, 77, 143
DS Data and Statistics	11, 26, 36, 120, 147
DV Developing a Classroom Community	31, 49, 133, 139
ew Exhibitor Workshops	14.1, 14.2, 38.1, 38.2, 63.1, 63.2, 63.3, 99.1, 99.2, 124.1, 124.2, 148.1, 148.2
MM Mathematical Modeling	89, 107, 123
MP Linking Mathematical Practices to Content Standards	112, 126



Conference App

Network onsite with attendees!
www.nctm.org/confapp



Facebook

Interact with your colleagues!
www.nctm.org/facebook



Twitter

Want to stay informed? Follow us!
www.twitter.com/nctm
 #NCTMIndy

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Exhibit Hours

8:00 a.m.–5:00 p.m.

NCTM Central Hours

7:00 a.m.–5:00 p.m.

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7:15 A.M.–7:45 A.M.

2 Regional Conference Overview & Orientation

(General Interest) Session

Whether you are new to NCTM or a seasoned veteran, every conference has something new for everyone! Hosted by members of the Board of Directors, this session will help you to maximize your overall conference experience. Learn what's new or discover something you've missed in the past, find out how to navigate presentations, use the Conference App, and network with other attendees. Meet other first-time attendees and join up with conference mentors who share your particular interests!

Ruth Harbin Miles

Board of Directors, National Council of Teachers of Mathematics; Mary Baldwin College; Falmouth Elementary School, Staunton/Stafford, Virginia

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

8:00 A.M.–9:00 A.M.

3 Community Math Night

(General Interest) Session

Explore this great opportunity to engage your community in math. Look no further for a way to generate interest in mathematics with a community endeavor that sparks the interest of all. Include your entire district and community in an event that will generate conversation with students, parents, teachers, and professionals in related fields.

Jessica M. Trefry

Michigan Center Schools, Jackson

111/112 (INDIANA CONVENTION CENTER)

Pick up your copy of the **Program Updates** for additional presentations, cancellations, and other important information.



5 Math Modeling with Digital Media

(General Interest) Session

We make enormous promises to our students that mathematics models the world they live in, and that math has power in their world. We attempt to make good on that promise with word problems that look nothing like that world and look nothing like modeling as it's practiced by mathematicians. In this session we'll learn how digital photos and videos can help us engage and challenge our students in the modeling practice of CCSSM.

Dan Meyer

Stanford University, California

500 BALLROOM (INDIANA CONVENTION CENTER)

6 Realistic Mathematics Education (RME) and Visualization in Collaborative Settings

(General Interest) Session

The RME framework is used to enact activities for learners to conceptualize important mathematics through intuitively accessible contexts. See how urban elementary students collaboratively develop visualization skills; and how Giant Triangles activities for a wide age/ability range move rapidly from intuitively simple constructs into abstraction.

Jacqueline Sack

University of Houston Downtown, Texas

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

7 Math Tools That Help Build Number Sense: Rekenreks and Technology

(Pre-K–2) Session

In this session, activities will be shared through the creation and use of rekenreks (arithmetic racks), which have been shown to support growth in pre-K–2 number sense up to and within 20 (e.g., cardinality, subitizing, combinations, etc.). Computer-based rekenreks, as well as other technology with similar objectives, will also be introduced.

Lauren J. Rapacki

Indiana University, Bloomington

Ryan Timmons

Indiana University, Bloomington

GRAND BALLROOM 4 (WESTIN)

8 Learning to Love Fractions

(3–5) Session

Imagine a world that loves fractions. Presenting fractions is the key to your students' success. This session will compare traditional to nontraditional teaching strategies for simplifying, adding, and subtracting fractions. Did you know students can be taught to add and subtract fractions quickly in their heads without finding a common denominator? Find out how.

Joseph C. Mason
Hagerstown Community College, Maryland

CAPITOL 2 (WESTIN)

9 **AS** Preparing for the Common Core Assessments

(3–5) Session

The new tests American students will be facing in 2014 are cause for concern for intermediate-grade teachers. This presentation will focus on the connections students must be able to make between math concepts, various methods of getting students to explain their thinking, and different problem-solving methods needed to ensure student success.

Tricia Salerno
SMARTTraining, LLC, Scottsdale, Arizona

103/104 (INDIANA CONVENTION CENTER)

10 Teaching Addition and Subtraction across Different Cultures

(3–8) Session

This session will present how the Babylonians, ancient Chinese, Egyptians, and Maya used addition and subtraction. We will discuss how addition and subtraction were written, which operations could be carried out, and how the use of addition and subtraction was expanded by each group.

Cheng-Yao Lin
Southern Illinois University, Carbondale

109/110 (INDIANA CONVENTION CENTER)

11 **DS** How We Are Lied to, Cheated, and Manipulated by Statistics

(6–12) Session

Because statistics are based on mathematics, they are very appealing in our evidence-based culture. Unfortunately they are often employed to sensationalize, to confuse, and to make false assertions seem true and the truth seem false. This session will show several clever ways statistics are manipulated and also show how honest statistics can save lives.

Ed D. Zaccaro
Retired, Dubuque, Iowa

GRAND BALLROOM 5 (WESTIN)

12 Investigating Differentiated Instruction and Algebraic Reasoning in Middle School

(6–12) Session

Principles to Actions

The purpose of this session is to communicate about differentiated instruction, targeting students' rational number knowledge and algebraic reasoning. The presenters will share findings from teaching cognitively diverse students in an afterschool math class, and they will seek participants' input about their efforts to differentiate instruction.

Amy J. Hackenberg
Indiana University, Bloomington
Fetiye Aydeniz
Indiana University, Bloomington
Ayfer Eker
Indiana University, Bloomington

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)



Check out the many sessions that address one or more of the teaching practices and guiding principles found in NCTM's *Principles to Actions*. See page 5 for details.

8:00 A.M.—9:00 A.M.

13 Al-jabr Highlights: Using the History of Algebra as a Hook

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

Exploring mathematics from a historical perspective can enhance student learning by revealing mathematics as it really is: a creative, dynamic, and human endeavor. We will focus on topics in the history of algebra: ancient methods of solving linear and quadratic problems, the origins of “algebra,” and the revolutionary development of symbolic notation.

Jeff Reinhardt

Upper Arlington High School, Columbus, Ohio

107/108 (INDIANA CONVENTION CENTER)

14 Conversational Affordances and Constraints of Professional Noticing during Lesson Study

(Higher Education) Session

This session focuses on how preservice teachers professionally notice students’ mathematical thinking as they engage in lesson study as a component of a teacher education program. Affordances and constraints of lesson study for the inclusion of professional noticing will be shared for attendees to learn to support teacher development.

Julie Amador

University of Idaho, Coeur d’Alene

Ingrid S. Weiland

University of Louisville, Kentucky

128 (INDIANA CONVENTION CENTER)

14.1 Integrating Intervention Daily into All Classrooms

(General Interest) Exhibitor Workshop

Get a hands-on look at HMH K–12 Math with the Personal Math Trainer powered by Knewton, a homework, assessment, and intervention engine that provides real-time data and individual study plans for all students. Participants will also see the new HMH Player app designed for teachers and students to customize instruction and learning in the classroom.

Houghton Mifflin Harcourt

Boston, Massachusetts

125 (INDIANA CONVENTION CENTER)

14.2 Transform Teaching and Learning with MathXL® for School

(6–12) Exhibitor Workshop

MathXL® for School allows middle and high school teachers to focus on important aspects of teaching, such as measuring learning outcomes, while students receive a personalized learning experience with immediate feedback, interactive learning aids, and practice, practice, practice! NEW—Mobile compatibility!

Pearson

Boston, Massachusetts

122 (INDIANA CONVENTION CENTER)

8:00 A.M.—9:15 A.M.

15 Building a Solid Foundation in Number Sense

(Pre-K–2) Gallery Workshop

Principles to Actions

Do you have students counting on their fingers to add? What those students lack is number sense. Number sense can’t be taught, it has to be experienced. So come experience activities involving a MathRack, number path, and subitizing that will help develop your students’ number sense and their ability to add and subtract flexibly and fluently.

Christina Tondevoid

Mathematically Minded, LLC, Orofino, Idaho

Lynn Rule

Retired Teacher, Wheaton, Illinois

GRAND BALLROOM 3 (WESTIN)

16 Thinking Strategically: Connecting Addition and Subtraction

(Pre-K–2) Gallery Workshop

By the end of grade 2, students are expected to explain why addition and subtraction strategies work. Three strategies lead students to the connections between the two operations, and they provide the underlying reasoning to the “basic facts.” Can these be extended to multidigit computation? Yes! Let’s arm our students with meaningful strategies!

Rob Nickerson

ORIGO Education, St. Charles, Missouri

CAPITOL 1 (WESTIN)

17 Using Children’s Literature to Implement the Standards for Mathematical Practice

(Pre-K–2, Preservice and In-Service) Gallery Workshop
Principles to Actions

This presentation will focus on how K-2 teachers can implement the eight Common Core Standards for Mathematical Practice using children’s literature and hands-on materials. Attendees will also learn how to reword the standards using “I Can” statements in order to make them student-friendly.

Jeanne White
Elmhurst College, Illinois

120/121 (INDIANA CONVENTION CENTER)

18 All Hands on Deck: Games for Fact Fluency

(3–5) Gallery Workshop

Come play these strategy-based games that incorporate the use of cards and a wide variety of dice. Games help build student understanding of the operations, including multi-digit work. Problem solving is integrated into the games. Activities will be linked to the Common Core, and student samples and ideas for assessment and DI (direct instruction) will be shared throughout.

Jane Felling
Box Cars and One-Eyed Jacks, Edmonton, Canada

126/127 (INDIANA CONVENTION CENTER)

19 Folding Your Way to Understanding Fractions

(3–5) Gallery Workshop

Principles to Actions

Frustrated by fractions? Looking for a novel and engaging way to teach them? This session is for you! Participatory power is high as attendees are guided through the construction of 3-D graphic organizers designed specifically to aid students in comprehending fractions. Depart with a mini composition book filled with immediately useable ideas.

Nancy Wisker
Dinah Zike Academy, Comfort, Texas

CAPITOL 3 (WESTIN)

20 The NUMBER LINE? For Addition? Subtraction? Multiplication? And Division? HOW?

(3–5) Gallery Workshop

Why do the Common Core standards keep suggesting we use number lines to teach basic fraction operations over and over? What’s the BIG DEAL? It must be the accessibility and versatility of this quick-to-draw and dependable model. Join the fun as we practice developing fraction number sense and intuitions using the number line. Sharp pencils are encouraged.

Libby S. Pollett
University of West Alabama, Livingston

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

21 Effective Warm-Up Routines Using Pattern Recognition and Analysis

(3–8) Gallery Workshop

Do your students have a solid sense of place value? Understand fractions, decimals, and percent? Know their basic math facts? Use proper math vocabulary? Do you explicitly teach properties (distributive, commutative, etc.) If you answered “no” to any of these questions, this workshop is for you! Make every minute count in your classroom.

Cynthia M. Hawkins
Meld On Math (MOM), Wasilla, Alaska

Martha Lehe
SERRC Alaska’s Educational Resource Center, Anchorage

GRAND BALLROOM 1 (WESTIN)

22 Progressing through Ratio and Proportion

(6–8) Gallery Workshop

Learn about the progression of ratio and proportion across the grades. This important topic is a major focus in CCSSM. Come see different activities that showcase tape diagrams, double number lines, connecting number lines to a two-variable graph, using equivalence and pictures, solving application problems, and creating linear functions.

Barbara Lynch
c-TaP, Tucson, Arizona

Mary Ann Sheridan
c-TaP, Tucson, Arizona

105/106 (INDIANA CONVENTION CENTER)

8:00 A.M.–9:15 A.M.

23 Teaching Number Sense with Geometry

(6–8) Gallery Workshop

Proportional reasoning is a complex topic and not acquired quickly. Yet proportional reasoning has important implications for higher-level mathematics. Many geometric concepts, such as similarity, support the development of proportional reasoning. We will explore how to support students to develop proportional reasoning in their geometry classrooms.

Zulfiye Zeybek
Indiana University, Bloomington
Mark A. Creager
Indiana University, Bloomington

101/102 (INDIANA CONVENTION CENTER)

24 A Gentle Introduction to Writing Proofs via Problem Solving

(6–12) Gallery Workshop

Participants will work on an engaging set of problems which will naturally call for proving results. Problems are based on numeric questions, algebra, geometry, and logic. They are accessible and motivating to secondary students. We'll share student work and discuss how this material supports many of the Common Core Standards for Mathematical Practice.

James R. Matthews
Siena College, Loudonville, New York

GRAND BALLROOM 2 (WESTIN)

25 Creatively Integrate CCSSM, Questioning Techniques, Interactive Technologies, and Mathematically Rich and Engaging Problems

(6–12) Gallery Workshop

Hands-on experience: four activities that promote active student engagement and are mapped to the Common Core mathematical practices and standards. Learn specific instructional strategies and obtain questioning techniques that stimulate deeper conceptual understanding. Discover, explore, investigate, and analyze with appropriate technology (iPad app, handheld, software).

Tom Reardon
Youngstown State University, Ohio

123/124 (INDIANA CONVENTION CENTER)

26 **DS** The Common Core Statistics Standards: Plus/Minus 4%

(9–12) Gallery Workshop

According to CCSSM, students should interpret poll results and the margin of error. After a hands-on activity using a mystery bag to lay the groundwork, students can use interactive dynamic technology to simulate possible situations and develop an understanding of how to interpret a sample outcome of 45% +/-4%.

Gail Burrill
Past President, National Council of Teachers of Mathematics;
Michigan State University, East Lansing

116/117 (INDIANA CONVENTION CENTER)

Access the **Conference App** for program updates, conference networking, and exhibit info. Download it at www.nctm.org/confapp



AS Assessment

DS Data and Statistics

DV Developing a Community

EW Exhibitor Workshop

MM Mathematical Modeling

MP Linking Mathematical Practices

27 Adventures with Mathematics: Engaging Families in Mathematics Learning

(General Interest) Session

What to do when kids are out of school? Play with mathematics! Participants will play games and engage in activities suitable for families. Activities give hints, help parents ask good questions, and help learners develop strategies. Participants will learn how to share information with home and how to run a family math night.

Charlene E. Beckmann

Grand Valley State University, Allendale, Michigan

Megan B. Frame

Eastern Michigan University, Ypsilanti

109/110 (INDIANA CONVENTION CENTER)

28 Nurturing Computational Fluency and Mathematical Thinking

(General Interest) Session

Principles to Actions

Participants will explore the Common Core computational fluency standards with a variety of models and materials (frames, racks, arrays, and number lines). They will experience firsthand how to nurture the mathematical practices and help their students develop thinking strategies that promote conceptual understanding and procedural fluency.

Pia M. Hansen

Math Learning Center, Salem, Oregon

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

29 Algebraic Strategies for Enhancing Visual Discrimination and Numeracy in Children

(Pre-K–2) Session

Explore a variety of easy-to-learn techniques for introducing algebra to children in early grades. Learn strategies for using algebraic symbol manipulation and matching exercises to enhance visual discrimination and strengthen addition, subtraction, multiplication, and division in young children. Participants will leave with handouts.

Suzy Koontz

National Math Foundation, Ithaca, New York

CAPITOL 2 (WESTIN)

30 Becoming Numerically Nimble: Effective Practices That Lead to Fluency

(Pre-K–2) Session

Be more efficient and selective about time devoted to number. Highly engaging games and instructional strategies will help you enhance number sense, build confidence and competence in your students, and increase their fluency with number.

Laura Choate

Fallbrook Union Elementary School District, California

103/104 (INDIANA CONVENTION CENTER)

31 Good Questions That Promote Student Understanding

(3–5) Session

The Common Core Standards for Mathematical Practice call for students to reason and construct mathematical arguments. Good questions probe student thinking, lead to deeper understanding, and help to differentiate instruction. What to ask and when to ask it is the key. Let's look at some elementary concepts and great questions to go with them!

Linda M. Gojak

Past President, National Council of Teachers of Mathematics; John Carroll University, University Heights, Ohio

GRAND BALLROOM 4 (WESTIN)

33 Connect the Dots: Formative Assessment and Data-Driven Instruction

(6–12) Session

Effective formative assessment drives successful data driven instruction. This session will examine a variety of formative assessment models while connecting the models to data-informed instruction in a meaningful way.

Laurie Ferry

National Academic Educational Partners, Miami, Florida

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

34 Engaging Students via Technology with Video Tasks

(6–12) Session

This session will examine how to engage, motivate, and teach the iGeneration (the Internet Generation). Participants will be provided with videos, tasks, and motivational strategies for students in grades 5–10 that can lead to building better number sense and algebraic skills.

Eric Milou
Rowan University, Glassboro, New Jersey

GRAND BALLROOM 5 (WESTIN)

35 Investigating Released AP Calculus Questions for Grades 6–10

(6–12) Session

Principles to Actions

Participants will investigate released AP Calculus test questions and learn how middle school and high school students can correctly answer them, using mathematics they already know. We will use estimation and Riemann sums to solve with definite integrals, and rates of change to solve problems that calculus students solve with derivatives.

Terry Walsh
Retired, Carbon Valley High School, Loveland, Colorado

500 BALLROOM (INDIANA CONVENTION CENTER)

36 Ruling Out Chance

(9–12) Session

Drawing conclusions from data is a central idea in the statistics standards of CCSSM and in AP Statistics. A “significant difference” is one that is unlikely to have occurred by chance, so assessing significance involves ruling out chance as a possible explanation. This session includes simulation activities that illustrate “ruling out chance.”

Roxy Peck
California Polytechnic State University, San Luis Obispo

107/108 (INDIANA CONVENTION CENTER)

37 Flipping the Classroom: Lectures and Homework Trade Places

(9–12, Higher Education) Session

Have you ever wondered what would happen if students listened to lectures outside the classroom and class time was devoted to problem solving? This session will explain the pedagogical implications of flipped classrooms. We will also discuss practical considerations and see how to teach the Pythagorean theorem in a flipped classroom.

Jenna R. Van Sickle
Fontbonne University, St Louis, Missouri

111/112 (INDIANA CONVENTION CENTER)

38 Integrating Ethnomathematical Ideas from Indigenous Cultures in Mathematics Teaching

(Preservice and In-Service) Session

This presentation highlights in-service teachers’ investigations in ethnomathematics through immersion in indigenous cultures. In this talk we will share mathematical ideas that transpired in out-of-school settings and lessons that teachers developed during their study abroad experiences.

Iman C. Chahine
Georgia State University, Atlanta

128 (INDIANA CONVENTION CENTER)

38.1 Math Is a Verb in the 21st Century!

(General Interest) Exhibitor Workshop

Discover how to create a process-oriented, problem-solving, digital, and collaborative math classroom where the teacher is the facilitator of instruction and students take increasing responsibility for their own learning. The Pearson System of Courses, based on a collaborative workshop model, fosters student discourse and the opportunity to learn with and through each other—bridging the gap between the way students learn inside and outside of the classroom. Discover your pathway to success for college and career readiness while preparing students for the next generation high-stakes assessment. This could very well be the last solution you will ever need!

Pearson
Chicago, Illinois

122 (INDIANA CONVENTION CENTER)

9:30 A.M.–10:30 A.M.

38.2 **ew** CCSS Math Practices? Trust CPM's 25 Years Of Writing Experience!

(6–12) Session

Experience the mathematical practices embedded in lessons that include problem solving and discourse. The Core Connections series embeds the practices daily in a problem-based, student-centered CCSS-aligned curriculum for grade 6–algebra 2 (with an option for high school Integrated I-III). Receive free copies of CPM's entire Core Connections series.

CPM Educational Program
Sacramento, California

125 (INDIANA CONVENTION CENTER)

9:45 A.M.–11:00 A.M.

39 Developing Number and Operations Concepts with Tens Frames

(Pre-K–2) Gallery Workshop

Ten frames, one of the most useful K–2 tools for teaching and learning in the primary grades, will be the focus for this hands-on session. Come experience activities matched to the Common Core standards centering around counting and cardinality, operations and algebraic thinking, and numbers and operations in base 10.

Ruth Harbin Miles
Board of Directors, National Council of Teachers of Mathematics;
Mary Baldwin College; Falmouth Elementary School, Staunton/
Stafford, Virginia

Don S. Balka
Retired Consultant, St. Mary's College, Notre Dame, Indiana
126/127 (INDIANA CONVENTION CENTER)

40 Domino Games: Connecting the Dots for Students

(Pre-K–5) Gallery Workshop

Dominoes are a staple found in most classrooms. Come prepared to play games that teach such Common Core concepts as number sense, patterning, operations, place value, and data management. Great game boards will be provided, along with ideas to use Monday morning. Excellent activities for centers, math backpacks, after school, regular, ELL, and Title I programs.

Allison Riddle
Davis School District, Salt Lake City, Utah
WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

41 Getting to the Point on Decimal Fractions

(3–5) Gallery Workshop

Principles to Actions

Despite their abundance in everyday life, children and adults alike often have difficulty with decimal fractions. This hands-on session will discuss the important links to other types of fractions, describe key misconceptions that can occur, and demonstrate ways of improving student understanding of decimal fractions.

Allan Turton
ORIGO Education, St. Charles, Missouri
105/106 (INDIANA CONVENTION CENTER)

42 Math Ideologies: How Classroom Experience Influences Students' Ideologies about Fractions

(3–5) Gallery Workshop

We examine the impact of teacher ideologies about mathematics in a diverse classroom of students studying fractions. Using video of classroom instruction and student interviews, we investigate discourse, language practice, and how ideologies of the teacher influence student conception about fractions and their identity as learners and doers of math.

Lisa Jones
University of Illinois at Chicago
Delaina Washington
University of Illinois at Chicago

GRAND BALLROOM 1 (WESTIN)

43 Using Manipulatives to Deepen Understanding of Place Value

(3–5) Gallery Workshop

Principles to Actions

Participants will learn an effective way to teach place value with understanding while using place value disks. Teachers will gain hands-on experience solving equations of the four basic operations with both whole numbers and decimals.

Sherri Adler
SMARTTraining, LLC, Scottsdale, Arizona
123/124 (INDIANA CONVENTION CENTER)

9:45 A.M.–11:00 A.M.

44 Using Technology to Develop Thinking about Ratio and Proportion

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

Proportional reasoning is deemed one of the most pivotal mathematical concepts for adolescents. Join us as we explore three problems aligned to the Common Core and NCTM standards that rely on technology as a means to help students make sense of the algorithm “cross multiply and divide.”

Leigh Haltiwanger

Clemson University, South Carolina

Bob Horton

Clemson University, South Carolina

120/121 (INDIANA CONVENTION CENTER)

45 Building a Quadratic Function Model

(6–12) Gallery Workshop

What patterns of change appear in tables and graphs of (time, height) values for projectiles or of (price, income) values for ticket sales? And what functions model those patterns of change? You will model how students can engage in the building of quadratic mathematical models. Make sense of patterns to bring meaning to standard forms.

Mary Walz

Sauk Prairie High School, Prairie du Sac, Wisconsin

Brian Lemmen

Holland Christian Schools, Michigan

CAPITOL 3 (WESTIN)

46 Do the Math—Like Your Life Depends on It

(9–12) Gallery Workshop

Principles to Actions

The pressure is higher than ever to use investigative tasks in mathematics. Come experience “life or death” investigations that help us understand what rigorous problem solving and modeling look like. Will you take the plunge with Sherlock Holmes or will you have time to escape from Poe? Come consider your choices . . . and construct viable arguments.

Jennifer North Morris

Math Coach/Specialist, Tucson, Arizona

101/102 (INDIANA CONVENTION CENTER)

47 Polygon Potpourri: Investigations in Geometry

(9–12) Gallery Workshop

Donut polygons, star polygons, concave polygons, cyclic polygons, and more. If any of these are new to you, come join us as we explore and make conjectures about some interesting and very cool polygon investigations.

Michael Serra

Self-Employed Consultant, San Francisco, California

116/117 (INDIANA CONVENTION CENTER)

48 Teaching Math for Everyone

(9–12) Gallery Workshop

In her article in *Teaching Children Mathematics*, Claudia Zaslavsky (1998) simply states, “We can no longer view mathematics as a culture-free discipline” (p. 502). Today, we will learn how to utilize the cultures that students bring to the classroom to create meaningful mathematical experiences.

Joe B. Bolz

The Academy, Westminster, Colorado

GRAND BALLROOM 2 (WESTIN)

49 DV Giant Polyhedra, Inside and Out: Hands-On Development of 3-D Concepts

(Preservice and In-Service) Gallery Workshop

Build larger-than-life polyhedra using lightweight, brightly colored, giant triangles. No prior knowledge or experience required. This hands-on experience moves through the first three van Hiele levels developing a deep level of conceptualization about polyhedra and integrates all of the NCTM Process Standards.

Jacqueline Sack

University of Houston Downtown, Texas

Michael Connell

University of Houston Downtown, Texas

CAPITOL 1 (WESTIN)

9:45 A.M.–11:00 A.M.

50 New and Preservice Teachers' Workshop

(Preservice and In-Service) Gallery Workshop

Find answers to your questions on topics such as classroom management, parents, motivation, and keeping your sanity. Connect with other new teachers, learn from experienced professionals, and find resources to engage you and your students. You might even win a prize!

David Barnes

National Council of Teachers of Mathematics, Reston, Virginia

GRAND BALLROOM 3 (WESTIN)

11:00 A.M.–12:00 P.M.

51 President's Session: Turning College and Career-Ready Standards Into Student Learning: What It Takes

(General Interest) Session

Principles to Actions

High-quality standards are necessary, but not sufficient, to support high levels of students learning in mathematics. Teaching matters! Learn the most effective teaching practices to support students' development of conceptual understanding, procedural fluency, and habits of mind required for high-level mathematics learning, along with the supports required to implement them, as described in NCTM's new publication, *Principles to Actions: Ensuring Mathematical Success for All*.

Diane J. Briars

President, National Council of Teachers of Mathematics, Reston, Virginia

500 BALLROOM (INDIANA CONVENTION CENTER)

53 Kinesthetic Strategies for Integrating Math and ELA

(Pre-K–2) Session

Is your English language arts (ELA) block a LONG ninety minutes? Learn innovative ideas for integrating kinesthetic math practice into ELA. Learn fun, efficient strategies for increasing math instruction time and meeting the CCSS standards. Gain ideas for increasing your students' focus, attention span, math ability, writing, and creative thinking.

Suzy Koontz

National Math Foundation, Ithaca, New York

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

55 Math Conferences for Assessing, Teaching, and Learning

(Pre-K–5) Session

Confer one-on-one with your students to assess their level of mathematical understanding, give feedback, and lead them to their next steps in learning. Your students' level of comprehension becomes clearly visible as they communicate their thinking. With your support, student focus on setting learning goals and self-assessing their progress.

Laney A. Sammons

Independent Mathematics Consultant, Tunbridge, Vermont

111/112 (INDIANA CONVENTION CENTER)

56 Place Value Progression: A c-TAP Module

(Pre-K–5) Session

The presentation will bring to life the place value progression through student work from kindergartners to fifth graders. The presenter worked with the Committee on Teachers as Professionals to determine appropriate tasks to engage students in mastering the Common Core State Standards aligned to place value.

Becky J. Pittard

Committee on Teachers as Professionals, Park City, Utah

CAPITOL 2 (WESTIN)

Thursday

Shop and save **25%** at the **NCTM Bookstore** in **NCTM Central!**



11:00 A.M.–12:00 P.M.

57 Horsing Around with Contexts for Teaching Proportional Reasoning

(3–8) Session

Real-world contexts can be used to build student proportional reasoning, yet how can we focus on the mathematics, when there is so much to learn about the context?

The context of equine farming and sports will be used to illustrate ways in which the role of contexts can be managed while providing opportunities to build proportional reasoning.

Signe Kastberg

Purdue University, West Lafayette, Indiana

Nikki Tsangaris

Westlane Middle School, Indianapolis, Indiana

GRAND BALLROOM 4 (WESTIN)

58 Implementing the CCSS Math Practices in the Classroom

(3–8) Session

Principles to Actions

Successful student attainment of the CCSS content standards will depend on student engagement with the Standards for Mathematical Practice. This session will provide specific examples and strategies for implementing the practice standards in the classroom.

Matthew R. Larson

Lincoln Public Schools, Nebraska

GRAND BALLROOM 5 (WESTIN)

59 Get Your Students Proficient with All Eight Mathematical Practice Standards

(6–8) Session

Take the mathematical practices out of the CCSSM document and put them into classroom action. Discover ways improve the level of classroom math conversations. Tools and strategies from across the country are provided for teachers to implement in order to monitor progress and assess student proficiency using the Standards for Mathematical Practice.

Laura Godfrey

Madison Metropolitan School District, Wisconsin

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

60 Math Machines and Algebraic Thinking

(9–12, Higher Education) Session

With Math Machines, students design, test, and revise mathematical functions to complete dynamic physical tasks such as making a laser follow an object (quadratic functions), simulating earthquakes (logarithms), and making colored lights oscillate in various combinations (periodic functions). Free software will be provided.

Robert A. Chaney

Sinclair Community College, Dayton, Ohio

Frederick J. Thomas

Learning with Math Machines, Englewood, Ohio

109/110 (INDIANA CONVENTION CENTER)

61 Explorations, Investigations, Applications: It's Why We Study and Teach Mathematics

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

Principles to Actions

Discover the relationship between the area and perimeter of rectangles and their graphical bounds. Examine geometric, statistical, and graphical models incorporating three of the CCSSM mathematical practices. Learn to easily explain the correlation coefficient. Extensive handouts provided.

David Kapolka

Emeritus, Forest Hills Public Schools, Grand Rapids, Michigan

103/104 (INDIANA CONVENTION CENTER)

62 Preparing Teachers for Common Core Using Video of Student Reasoning

(Higher Education, Preservice and In-Service) Session

We present information about a university curriculum designed to help preservice elementary teachers prepare for teaching the number and operation standards in the Common Core. Features of the curriculum include integration of video of elementary-grade students' reasoning with problem situations for preservice teachers.

Erik S. Tillema

Indiana University–Purdue University Indianapolis

Andrew Gatzka

Indiana University School of Education, IUPUI, Indianapolis

128 (INDIANA CONVENTION CENTER)

63**“I Can Not Solve”: Engaging Reluctant Prospective Teachers in Problem Solving***(Preservice and In-Service) Session*

Through this presentation, participants will learn strategies for preparing prospective elementary school teachers to teach through problem solving. Many prospective teachers lack confidence to solve problems themselves, and they are reluctant to teach through problem solving. This session will help prospective teachers to develop confidence in problem solving and move forward.

Rupam Saran

Medgar Evers College, City University of New York, New York
107/108 (INDIANA CONVENTION CENTER)

63.1 ew**Share My Lesson: Free Classroom Resources Developed by Teachers for Teachers***(General Interest) Exhibitor Workshop*

Developed by teachers for teachers, Share My Lesson is a FREE website offering over 300,000 resources covering all subjects and grades. This site also houses the most Common Core resources available for teachers. Find out how to search for resources and how to share your own resources. Following the motto of “by teachers for teachers,” we will present our unique professional development opportunities where educators from across the country come together to develop or identify resources to share with their colleagues around such topics as Common Core, early childhood education, formative assessment techniques and more!

Share My Lesson

Upper Saddle River, New Jersey

SENATE (WESTIN)

63.2 ew**Experience enVisionMATH 2.0***(Pre-K–5) Exhibitor Workshop*

Learn how Problem-Based Learning through Math Practices uniquely develops the depth of understanding and rigor needed for success on high-stakes tests.

Pearson

Washington, D.C.

122 (INDIANA CONVENTION CENTER)

63.3 ew**Crazy 8s: It’s Not Your Usual Math Club!***(Pre-K–5) Exhibitor Workshop*

Have you heard about Bedtime Math’s Crazy 8s? It’s the new after-school club designed to get kids fired up about math. Every week kids get to build stuff, run and jump, make music, make a mess . . . and make friendships at the same time. Crazy 8s makes math a blast for any kid, and the club kit is free. Join us to see Crazy 8s in action!

Bedtime Math Foundation

Bedtime Math Foundation, Summit, New Jersey
125 (INDIANA CONVENTION CENTER)

64**A Mathematics Teacher Goes to Washington: The Einstein Fellowship***(General Interest) Burst*

The Einstein Distinguished Educator Fellowship brings STEM educators to Washington, D.C., to spend a year working in an agency or on Capitol Hill. Fellows engage in a wide variety of professional development, and the speaker in this session will provide an overview of experiences that the fellowship affords. The application process will be outlined.

Lynn Foshee Reed

Maggie L. Walker Governor’s School, Richmond, Virginia
GRAND BALLROOM 1 (WESTIN)

65**Navigating Barriers Elementary Mathematics Teacher Leaders Face***(General Interest) Burst*

Emerging research speaks to the effectiveness of various elementary mathematics teacher leadership models. However, what barriers do elementary math teacher leaders face? This workshop will provide research-based methods that help navigate defining the role and overcoming obstacles so that effective leadership implementation can occur.

Lauren J. Rapacki

Indiana University, Bloomington
116/117 (INDIANA CONVENTION CENTER)

11:30 A.M.–12:00 P.M.

66 Classrooms + Museums = Artful Mathematics

(Pre-K–2) Burst

We discuss six learning stations from an interdisciplinary activity linking mathematics with artwork from the Barnes Foundation in Philadelphia, Pennsylvania. We engaged primary students in counting/cardinality, comparing quantities, recognizing number patterns, identifying two-dimensional shapes, composing shapes, sorting shapes, and measuring two lengths.

Sarah B. Bush

Bellarmine University, Louisville, Kentucky

Karen S. Karp

University of Louisville, Kentucky

Jennifer Nadler

The Barnes Foundation, Philadelphia, Pennsylvania

101/102 (INDIANA CONVENTION CENTER)

67 Kid Cave: A PBL Project to Teach STEM

(3–5) Burst

Come and learn about a project-based learning (PBL) project in which students design a “Kid Cave” using an app on the iPad. We’ll walk through the steps involved in implementing the project in your class and talk specifically about the STEM content addressed in the project. If you have an iPad, you’ll have a chance to play with the app.

Kevin D. Smith

Dakota State University, Madison, South Dakota

CAPITOL 1 (WESTIN)

68 Create, Publish, Critique: Teach Math with Student-Generated Content at Shooloo.org

(3–8) Burst

Make word problems relevant to students’ own lives. Empower them to create math stories of their own. Engage them through peer feedback. Teach them to pay attention to precision. We will share tips and resources on how to teach Common Core mathematical practices with student-generated content. Leave this session with ideas that are immediately actionable.

Robin Yang

Shooloo.org, New York, New York

Jeanne Shannon

Saint Elizabeth Catholic Academy, Ozone Park, New York

126/127 (INDIANA CONVENTION CENTER)

69 The Mathematics of Textile and Fashion Design: Global Teacher Fellowship

(6–8) Burst

The presenter spent a summer traveling through Europe on a Global Teacher Fellowship and researching the mathematics embedded in textile production and fashion design. This presentation will describe the mathematics explored and how the experience has been used to inform her teaching, including samples of the lesson plans she has developed.

Katie A. Hendrickson

Athens City Schools, Ohio

GRAND BALLROOM 3 (WESTIN)

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Look for the **ew** symbol throughout the program book.



70**Why More Sometimes Means Less: Reasoning about the Mean**

(6–8, Preservice and In-Service) Burst

In this session, we explore how students reason about the influence of individual points on the mean. We will share students' work on a task that encouraged them to conceptualize the mean beyond the “add and divide” algorithm. We will also share teaching strategies and technological tools that support the development of rich conceptions of mean.

Rick A. Hudson

University of Southern Indiana, Evansville

Dionne Cross

Indiana University, Bloomington

105/106 (INDIANA CONVENTION CENTER)**71****Detect, Reflect, and Correct: Making the Most of Math Mistakes**

(6–12) Burst

Improve students' abilities to evaluate the effectiveness of a mathematical argument and to identify and correct flawed reasoning. Turn almost any exercise into a reflective, spot-the-mistake exercise. Help students investigate their own mathematical misconceptions, correct their errors, and assess their level of understanding.

Charlotte Skinner

University of Cincinnati Blue Ash, Ohio

123/124 (INDIANA CONVENTION CENTER)**72****Persevering through Algebra by Promoting Student Reasoning and Understanding**

(9–12, Higher Education) Burst

We present a rich algebra task that highlights how teachers can encourage students to make sense of problems and persevere in solving them (thus following a CCSS mathematical practice). Participants work through the task and present various solution pathways to approaching the problem, and they then reflect how the task promotes student reasoning and understanding.

Jean Lee

University of Indianapolis, Indiana

Sarah Roberts

Iowa State University, Ames

GRAND BALLROOM 2 (WESTIN)**73****Resequencing Calculus: An Early Multivariate Approach**

(9–12, Higher Education) Burst

The NSF-supported Resequencing Calculus project is ordering calculus topics so that content needed for upper-level STEM courses is moved to the first two courses of the three-course sequence. We discuss assessment of ongoing piloting efforts, next steps, and transfer and AP credit challenges.

Joe A. Stickle

Millikin University, Decatur, Illinois

David Dwyer

University of Evansville, Indiana

Mark Gruenwald

University of Evansville, Indiana

120/121 (INDIANA CONVENTION CENTER)**74****Organizing a Middle Grades Summer Math Camp with Preservice Teachers**

(Preservice and In-Service) Burst

This presentation will describe a three-week summer experience for preservice and in-service mathematics teachers during which a mathematics camp for middle grades students was planned and implemented. Stipends for the preservice and in-service teachers were funded by the NSF-sponsored Robert Noyce Scholarship Program.

Bethany Noblitt

Northern Kentucky University, Highland Heights

Brooke Buckley

Northern Kentucky University, Highland Heights

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)**75****Semantics: Connecting the Communication Standard and the CCSS Mathematical Practices**

(Preservice and In-Service, Research) Burst

Thoughtful language choices within problem solving are powerful instructional tools. This session focuses on a working construct within the common elements of the NCTM Communication Standard and the Common Core mathematical practices to help preservice teachers make explicit correspondences among equations, descriptions, and diagrams in algebra.

Janet M. Liston

University of Arizona, Tucson

CAPITOL 3 (WESTIN)

12:30 P.M.–1:00 P.M.

76**MET Grants and Scholarships: What They Are, How to Apply****(General Interest) Burst**

Don't miss out! The Mathematics Education Trust (MET) supports teachers with funds for materials, lesson development, conferences, courses, professional development and in-service, and action research. Learn what's available and how to apply. You'll also hear tips for choosing the most appropriate award for you and enhancing your chances to win it.

Fern A. Tribbey

Du Page Regional Office of Education, Wheaton, Illinois

120/121 (INDIANA CONVENTION CENTER)**77****AS****Readiness and End-of-Course Assessments****(General Interest) Burst**

This presentation is appropriate for all teachers and administrators who want to develop readiness and end-of-course assessments. The presentation will walk you through each step of the assessment development process from selecting standards to writing items to item analysis. Content validity and test reliability are addressed.

Stacey Hughes

Scholars Peak LLC, Indianapolis, Indiana

126/127 (INDIANA CONVENTION CENTER)**78****Integrating Math, Science, and Literacy through Geometry****(Pre-K–2) Burst**

During this session, the presenters will share two lessons that integrate math, science, and literacy content through the exploration of shapes. Participants will experience and receive both fully developed lesson plans. Ideas will also be generated for how to continue to incorporate math with other content areas aligned with the K–2 standards.

Lauren J. Rapacki

Indiana University, Bloomington

Heidi Wiebke

Indiana University, Bloomington

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)**79****Multiplication Fact Fluency Fun****(3–5) Burst**

Students who can automatically recall math facts are more capable problem solvers, learn new math skills more quickly, and are more likely to succeed in future math courses. Unfortunately, many students still spend too much time and brainpower on simple facts. Find out how to help students build a strong math fact fluency foundation.

Kelly D. Gallagher

Loudoun County Public Schools, Sterling, Virginia

GRAND BALLROOM 1 (WESTIN)**80****Using Story Problems to Teach to Specific Mathematics Goals****(3–5) Burst**

Word problems can be used to meet three mathematics learning goals: understanding problem types, developing operation sense, and developing computation strategies. Come to see how intentionally choosing story problems and closure questions can make your instruction more focused and efficient. Let's get beyond asking, "Did you do it a different way?"

Lori Williams

Manitowoc Public School District, Wisconsin

123/124 (INDIANA CONVENTION CENTER)**81****GeoGebra Will Transform Your Lessons!****(6–8) Burst**

Students can use GeoGebra, a free dynamic mathematics software, to discover the coordinate rules for transformations. The speaker will share a series of classroom investigations that will introduce your students to GeoGebra while they explore the properties of translations, rotations, reflections, and dilations on the coordinate plane.

Linda Bollman

Cincinnati Hills Christian Academy, Ohio

CAPITOL 3 (WESTIN)

82 Using Inquiry-Based Lessons to Increase Your Student's Curiosity about Mathematics

(6–8, Preservice and In-Service) Burst

Are you struggling with how to adapt your curriculum materials so they are more inquiry-based? In our session you'll participate in a lesson where you think, and talk, critically about the mathematical content. We will emphasize methods of making student thinking visible. You will leave with tools to develop your own inquiry-based lessons.

Carrie La Voy
University of Kansas, Lawrence
Steve Obenhaus
University of Kansas, Lawrence

GRAND BALLROOM 2 (WESTIN)

83 Zap! Pow! Boom! Using Comics in the Mathematics Classroom

(6–12) Burst

Learning mathematics no longer needs to be boring and dry. Come learn how easy it is to use several programs to create comic strips and cartoons to insert humor into classroom instruction and to have students construct innovative formative assessments of learning. You will leave with the knowledge to instantly make your own strips in only ten minutes!

Virginia A. Fraser
Indiana University Southeast, New Albany
Gary Pinkston
Indiana University Southeast, New Albany

CAPITOL 1 (WESTIN)

84 The Cure for the Common Core

(9–12) Burst

Over the past year, a small group of teachers and curriculum developers from Illustrative Mathematics, High Tech High, and Mathalicious have teamed up to create high school course plans and unit blueprints. This resource details a pathway for translating CCSSM into a sequence of classroom experiences.

Patrick Callahan
University of California, Los Angeles
Kate Nowak
Mathalicious, Charlottesville, Virginia

116/117 (INDIANA CONVENTION CENTER)

85 Designing and Implementing a Performance Task within the Mathematics Curriculum

(9–12, Preservice and In-Service) Burst

To develop and assess high school students' understanding of data analysis and statistics, I designed and implemented a sports broadcasting game summary and analysis performance task with high school students. This performance task, which will be shared in this session, effectively engaged students in math practices while building students' communication skills.

Sarah Hicks
Rockhurst University, Kansas City, Missouri
105/106 (INDIANA CONVENTION CENTER)

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12:30 P.M.–1:00 P.M.

86 Algebraic Thinking in Elementary Mathematics Methods à la Project-Based Learning

(Higher Education) Burst

We share a project-based learning (PBL) unit supporting elementary preservice teachers' (PSTs') understanding of high-level algebraic thinking tasks. We share lessons learned in our own action research process and invite participants to consider the viability of PBL to teach content and pedagogy effectively and creatively.

Jean Lee

University of Indianapolis, Indiana

Gina Borgioli Yoder

Indiana University–Purdue University Indianapolis

GRAND BALLROOM 3 (WESTIN)

87 SMART Board? Student Teachers' Technology Use in the Classroom

(Higher Education, Research) Burst

This presentation discusses a research project on what technology was used by student teachers in K–6 and how that technology was implemented in the classroom. Attendees will be presented the results of the study, brainstorm possible solutions to improve technology use, and leave with better ways to prepare preservice teachers to use mathematical action technology.

Ayfer Eker

Indiana University, Bloomington

Michael Daiga

Indiana University, Bloomington

101/102 (INDIANA CONVENTION CENTER)

Stay connected!
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12:30 P.M.–1:30 P.M.

88 Mathematical Habits of Mind: Helping Students Become Doers of Mathematics

(General Interest) Session

If students are to be prepared for their future, how they think is at least as important as what they know. So how we teach is at least as important as what we teach. With a new generation of assessments focused on mathematical thinking, we have an opportunity to help students learn to think, reason, solve problems, and become doers of mathematics.

Cathy L. SeeleyPast President, National Council of Teachers of Mathematics;
Senior Fellow (Emeritus), Charles A. Dana Center, University of Texas, Austin

500 BALLROOM (INDIANA CONVENTION CENTER)

89 **MM** Modeling: A Bridge between Mathematical Content and Mathematical Practice

(General Interest) Session

Modeling is an approach to solving problems that aims to explain, understand, or optimize specific situations that often come from disciplines outside mathematics. This session is an accessible introduction to modeling, its basic components, and how to use them to promote content understanding while integrating Common Core mathematical practices.

Ricardo Cortez

Tulane University, New Orleans, Louisiana

109/110 (INDIANA CONVENTION CENTER)

90 $1 + 1 + 1 > 3$: Integrating Math, Science, and Reading in the K–2 Classroom

(Pre-K–2) Session

Integrating math, science, and reading content not only makes good use of instructional time but allows students to make connections, which enhances understanding. Participate in hands-on experiences you can use in your classroom and learn about resources that make this integration easier.

Debra Gallagher

Ohio Northern University, Ada

CAPITOL 2 (WESTIN)

AS Assessment**DS** Data and Statistics**DV** Developing a Community**EW** Exhibitor Workshop**MM** Mathematical Modeling**MP** Linking Mathematical Practices

91**CCSS Mathematical Practices + Workshop + Algebraic Thinking = Success**

(Pre-K–2) Session

How can young mathematicians develop algebraic thinking? Using the workshop model and the CCSS Standards for Mathematical Practice can help! We'll share strategies and launching points to assist you with your children.

Stephen Bloom

Butler University, Indianapolis, Indiana

Tanya Weidner

Green Meadows Intermediate, Frankfort, Indiana

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)**92****Developing Elementary School Students' Understandings of Inequality**

(Pre-K–5) Session

A sufficient knowledge of inequalities can help elementary school students to better develop their algebraic thinking. In this presentation, we share and discuss students' written work and describe rich mathematical problems that can promote students' learning and understandings of inequalities.

Jodi L. Frost

Indiana State University, Terre Haute

Yi-Yin Ko

Indiana State University, Terre Haute

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)**93****Singin' and Signin' Teaches the Way Kids Learn!**

(3–8) Session

Learn an engaging, kinesthetic, and award-winning approach to teaching rigorous math standards that captures students' energy and invigorates your classroom! Leave with manipulatives and song lyrics to teach eight lessons, including ones on area, volume, and circumference, that will measurably impact learning immediately. Be ready for fun and be a student yourself!

Siegrid I. Stillman

Fallbrook Union Elementary School District, California

GRAND BALLROOM 5 (WESTIN)**94****Using a SMART Board in the Inclusive Classroom**

(3–8) Session

Tips, but not tricks, for effective teaching with a SMART Board. Make use of software to increase understanding for all students in the class. Discover mathematical examples to incorporate into lessons from the middle school Common Core standards. Customize settings to focus on content and lessen distractions. Create lessons that allow for individual review.

Linda Treilman

Mercer County Community College, West Windsor, New Jersey

103/104 (INDIANA CONVENTION CENTER)**96****Using Good Tasks**

(9–12) Session

What tasks can help my students learn about statistics and sampling, or about connections between functions and geometry? Together, we will work two problems that answer these questions and that model selecting goals, choosing good tasks, planning for discourse, thinking about assessment, having multiple entry points, and using proper tools.

Fred Dillon

Ideastream, Cleveland, Ohio

GRAND BALLROOM 4 (WESTIN)**97****Avatars: Where Mathematics Meets Audio and Video**

(9–12, Higher Education) Session

Principles to Actions

Examine animation, dependent on video and audio applications that require and integrate mathematics and technology; large data sets necessary to handle images and sound via matrices; and discrete and real numbers; Focus on cross-disciplinary problem-solving methods and experiential learning opportunities for students

Susan G. Helser

Mott Community College, Flint, Michigan

107/108 (INDIANA CONVENTION CENTER)

12:30 P.M.–1:30 P.M.

98
What?! We Have Graded Homework?
Hmmm...

(9–12, Higher Education) Session

Does graded homework give students a better opportunity to succeed in class? We explored this question in a college algebra course where students had online graded homework by comparing outcomes to previous semesters where there was no graded homework. What worked best? We share our results, including what was most important to students.

Paula R. Stickle
 Millikin University, Decatur, Illinois
111/112 (INDIANA CONVENTION CENTER)

99
Math Rules: Teaching Why, Not Just How

(Preservice and In-Service) Session

Research shows teachers are more effective when they understand the mathematics behind the rules. This talk will answer the “why” questions that students often ask when teachers say things like “you can’t divide by zero” or “flip and multiply.” The reasoning behind several common “rules” from middle and high school mathematics will be presented.

Rachel Frankel
 University of Cincinnati Blue Ash, Ohio
Karen F. Smith
 University of Cincinnati Blue Ash, Ohio
Charlotte Skinner
 University of Cincinnati Blue Ash, Ohio
128 (INDIANA CONVENTION CENTER)

99.1 ew
Walk the Number Line for Meaningful and Motivating Mathematics!

(Pre-K–5)

Elementary learners need a number line for powerful math concepts such as skip counting, adding on, alternative algorithms for regrouping, making change, elapsed time, rounding, factoring, and fractions! You will be amazed at the unique strategies that Kim Sutton from Creative Mathematics will use with this tool! Be ready for action next Monday morning with all the latest ideas for teaching every area of mathematics! You will sing, dance, play games, and learn lots of strategies to change your classroom!

Creative Mathematics
 Arcata, California
125 (INDIANA CONVENTION CENTER)

99.2 ew
Investigations in Number, Data, and Space

(Pre-K–5) Exhibitor Workshop

Experience CCSSM through Investigations and the Common Core—interactive whiteboard, assessment, and differentiated activities that focus on the Common Core content standards and embed the Standards for Mathematical Practice. This program will be shared for use in your classroom.

Pearson
 Washington, D.C.
122 (INDIANA CONVENTION CENTER)

1:30 P.M.–2:45 P.M.

100
Let’s Get Physical—with Math on the Floor!

(Pre-K–2) Gallery Workshop

In this highly interactive session, teachers will see the value of kinesthetically exploring math concepts on a large 100-square floor grid. All number sense concepts will be addressed, including calendar, with additional strategies shared for other strands. Ideas for making your own classroom grid will be readily shared. Bring your camera!

Wendy E. Hill
 Retired Elementary Teacher, Mississauga, Canada
123/124 (INDIANA CONVENTION CENTER)

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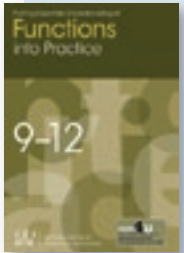
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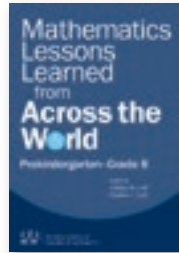
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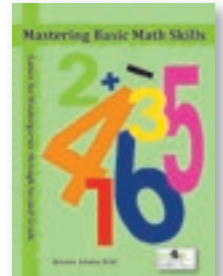
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FRANCES CURCIO, SERIES EDITOR



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1:30 P.M.–2:45 P.M.

101 Trajectory Packets for K–2 Algebra, Geometry, and Linear Measurement

(Pre-K–2) Gallery Workshop

Principles to Actions

We will share three trajectory packets designed for teaching algebra, geometry, and linear measurement at the kindergarten, first, and second grade levels. Each packet contains: CCSSM Standards, common misconceptions, and at least five “good” (high cognitive demand) tasks/activities that engage students in at least one of the CCSSM mathematical practices.

Gina Borgioli Yoder

Indiana University–Purdue University Indianapolis

GRAND BALLROOM 2 (WESTIN)

102 Developing Number Sense, Geometry, and Problem-Solving Competence: Strengthening Understanding

(Pre-K–5) Gallery Workshop

The speaker will offer strategies, including the use of manipulatives, for developing number sense, place value, geometry, and problem-solving competence. She will actively engage attendees with hands-on activities and real-life problems. She will model the power of mathematical discourse to develop concepts, reasoning, and mathematics vocabulary. Handouts provided.

Donna L. Knoell

Educational Consultant, Shawnee Mission, Kansas

CAPITOL 3 (WESTIN)

A big **thank-you**
to our exhibitors,
sponsors, volunteers,
and speakers!



103 Strategies for Moving Students toward Fact Fluency

(Pre-K–5) Gallery Workshop

Van de Walle & Lovin (2006): “Fortunately we know quite a bit about helping children develop fact mastery, and it has little to do with the quantity of drill or the drill techniques. Three components or steps to this end [have been] identified.” Join me to see how the Manitowoc Public Schools are implementing these three important steps.

Lori Williams

Manitowoc Public School District, Wisconsin

GRAND BALLROOM 3 (WESTIN)

104 Alternate Bases to Encourage STEM Interconnectedness and Understanding

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

Elementary school teachers are not always exposed to alternate bases. This workshop will engage participants in learning about alternate bases, and how alternate base systems have been used in the past and today. Attendees will participate in a brief, hands-on activity to illustrate how alternate bases could be used in their own classrooms.

Jay L. Schiffman

Rowan University, Glassboro, New Jersey

Michael DeVliegerEditor, *The Duodecimal Bulletin*, St. Louis, Missouri

GRAND BALLROOM 1 (WESTIN)

105 Build, Draw, Write, Talk, and Then OWN Operations with Fractions

(3–8) Gallery Workshop

We will model and participants will work through three-part lessons to create learning environments to understand operations in fractions and decimals from concrete to abstract, integrating multiple approaches, entry points, and representations. Participants will be given access to software and lessons to support both content and instruction.

Rudy V. Neufeld

Thames Valley Schools, London, Canada

Mary Rumsey

Jefferson Schools, Louisville, Kentucky

120/121 (INDIANA CONVENTION CENTER)

106 Even Fractions Are Better with Chocolate!

(3–8) Gallery Workshop

Touch the chocolate, draw the chocolate, and think the chocolate—and eat it too? This is the research-based CRA (concrete-representational-abstract) pedagogy that has proven very successful with struggling learners. Experience lessons that use manipulatives, including chocolate bars, and the CRA approach to develop student understanding of fraction concepts in the Common Core for grades 3–5.

Sonja L Goerd
St. Cloud State University, Minnesota
Caryl K. Pierson
Math Teachers Press, Inc., Minneapolis, Minnesota
116/117 (INDIANA CONVENTION CENTER)

107 **MM** Keeping It Real: Teaching Math through Real-World Lessons and Projects

(6–8) Gallery Workshop

How long does it take to burn off a Big Mac? Is it ever a good idea to foul at the buzzer? We'll explore real-world lessons and projects that teachers can use to address Common Core standards, foster a rigorous understanding of math, and challenge students to think critically about the world.

Karim K. Ani
Mathalicious, Charlottesville, Virginia
Matt Lane
Mathalicious, Charlottesville, Virginia
Chris Lusto
Mathalicious, Charlottesville, Virginia
126/127 (INDIANA CONVENTION CENTER)

108 Active and Interesting Function Activities That Highlight the Mathematical Practices

(6–12) Gallery Workshop

Participants will experience several activities concerning functions. These will include using a human graph to explore functions, domain and range, and asymptotes. There will be an activity with function machines, a carousel, and a silent board game. We will end with a Function Treasure Hunt. The CCSSM mathematical practices will be processed throughout.

Christine Mikles
CPM Educational Program, Sacramento, California
Karen Wootton
CPM Educational Program, Sacramento, California
101/102 (INDIANA CONVENTION CENTER)

109 Break the Cycle of Failure, and Save Struggling Students with RtI

(6–12) Gallery Workshop

Principles to Actions

Learn why an urban middle school math RTI program measurably improves students' mathematics skills and outlook. See how students are selected, taught targeted skills, and have their progress monitored. Replace ad hoc efforts with an RTI that justifies resources and boosts math department morale, student attitudes, and mathematics assessment scores.

Dana Schreiber
East Hartford Schools, Connecticut
WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

110 Graphing Technologies in the Common Core Classroom

(9–12) Gallery Workshop

Graphing technologies (paper and pen, laptops, tablets, mobile devices) can be used to enrich classroom learning by giving students a chance to explore and experience mathematical situations. Participants will play a classroom-style game involving graphs of polynomial functions and draw ideas about the relevant Common Core standards and mathematical practices.

Cal Armstrong
cTaP, Tucson, Arizona
CAPITOL 1 (WESTIN)

Thursday

2015 NCTM Annual Meeting & Exposition is coming up!

Boston • April 15–18



1:30 P.M.—2:45 P.M.

111 “Pedi for the Lady” and Other Area and Volume Activities

(9–12) Gallery Workshop

Ever wondered how much polish it would take to give the Statue of Liberty a pedicure? Delve into activities where innovative ideas are shared to make finding the area and volume of irregular shapes interesting. Solutions will be found through Riemann sums and through integration using hands-on methods as well as graphing calculators.

Deedee Stanfield Henderson
Oxford High School, Alabama

105/106 (INDIANA CONVENTION CENTER)

2:00 P.M.—3:00 P.M.

112 **MP** Assessing Students’ Sense-Making and Reasoning: Formatively and Summatively

(General Interest) Session

Student behaviors in making sense of mathematics and in demonstrating reasoning are critical. Too often, these are done in isolation and without meaning. Recommendations, strategies, and techniques to expand teacher effectiveness in obtaining, reflecting on, and making decisions based on students’ activity, oral and written communications, and work samples.

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

500 BALLROOM (INDIANA CONVENTION CENTER)

113 National Assessment of Educational Progress: A Treasure Trove of Mathematics Problems

(General Interest) Session

Principles to Actions

Participants will learn how to make use of online tools to access released items from the National Assessment. They will also learn how to compare their students’ performance on items with students in their state and the nation. Techniques will be shared for using these items to help prepare students for standardized testing.

Doris Mohr
University of Southern Indiana, Evansville
Kathryn Essex
Indiana University Purdue University, Columbus
Crystal Walcott
Indiana University Purdue University Columbus

GRAND BALLROOM 4 (WESTIN)

114 Native American-Based Mathematics Materials

(General Interest) Session

This session presents mathematics materials based in the culture and mathematics of Native American peoples for integration into K–12 or undergraduate courses. These materials—both paper and electronic—are classroom ready, and they are developed and piloted in consultation with tribes throughout the West.

Charles P. Funkhouser
California State University, Fullerton
Miles R. Pfahl
Turtle Mountain Community College, Belcourt, North Dakota
Harriet C. Edwards
California State University, Fullerton

111/112 (INDIANA CONVENTION CENTER)

115 Helping At-Risk Children Visualize Measurement through Literature

(Pre-K–2) Session

At-risk children have difficulty visualizing abstract mathematics concepts. Using literacy-based instruction to teach measurement can help them to understand these concepts. By using manipulatives and investigating their immediate surroundings, at-risk students can explore abstract interrelationships of measurement and data.

Rupam Saran
Medgar Evers College, City University of New York, New York

107/108 (INDIANA CONVENTION CENTER)

Mingle, explore,
and learn in the
Exhibit Hall and
NCTM Central!



116 WeDo Robotics: These Are Not Your Parents' LEGOs

(Pre-K–2) Session

Increase engagement in the classroom and infuse math and science standards using WeDo LEGO robots. Apply science, technology, engineering, arts, and mathematics (STEAM) concepts to design, build, and program robots, as well as receive ideas and activities to extend learning across the curriculum.

Amy Colucci

Jefferson County Public Schools, Louisville, Kentucky

Erin Coyle

Jefferson County Public Schools, Louisville, Kentucky

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

117 If It's Not Real World, It's Not Real Math!

(Pre-K–5) Session

Teaching mathematics to children goes way beyond a textbook or program. It involves surveying your class to discover students' interests and designing projects that meet their needs. Learn about real-world projects that will make your students ask for more! Hands-on activities, make-it-take-it, and handouts provided.

Dacia P. Jones

Durham Public Schools, North Carolina

103/104 (INDIANA CONVENTION CENTER)

119 News Flash—Students Are Eager to Solve Rigorous Math Problems!

(6–8) Session

Attendees will learn how to determine the cognitive demand of mathematical tasks to teach mathematical content through problem solving. Ideas to engage students so they persevere in solving rigorous problems and examples of student work will be shared.

Annette Ricks Leitze

Ball State University, Muncie, Indiana

Paula Keesling

Nettle Creek School Corporation, Hagerstown, Indiana

CAPITOL 2 (WESTIN)

120 **DS**

Standard(s) Statistics: Engaging with the CCSS Mathematical Practices and Statistical Content

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

Explore middle school Common Core content and practice standards for statistics using hands-on and cognitively demanding tasks. Through a series of data-driven activities exploring center, variability, distribution, and informal inference, learn ways to engage students in answering statistical questions through statistical problem solving.

Susan A. Peters

University of Louisville, Kentucky

109/110 (INDIANA CONVENTION CENTER)

121 Using Technology to Overcome Misconceptions in Probability and Statistics

(6–12) Session

This session focuses on student performance on probability and statistics items from the National Assessment of Educational Progress (NAEP) in grades 8 and 12. In addition to addressing distracters and challenges to student understanding, the session explores how the use of technology in the classroom can improve statistical reasoning.

Arnulfo Perez

Indiana University, Bloomington

Michael Daiga

Indiana University, Bloomington

Ryan Timmons

Indiana University, Bloomington

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)



Looking for lessons, activities, and teacher resources? Check out www.nctm.org

2:00 P.M.–3:00 P.M.

123 **MM** Pimp My Ride: Project-Based Learning (PBL) In Action

(9–12, Higher Education) Session

Speakers share the basics of PBL and its essential components of critical thinking, communication, and collaboration. A unit on exponents and logarithms is featured to showcase how it is developed with the focus on CCSSM and its mathematical practices. We share design ideas and various resources to support teachers in creating their own projects.

Crystal Collier

Ben Davis University High School, Indianapolis, Indiana

Jean Lee

University of Indianapolis, Indiana

GRAND BALLROOM 5 (WESTIN)

124 How to Teach When You Can't Talk: Developing Learning Communities

(Higher Education) Session

Principles to Actions

After cancer treatment I couldn't talk for a time, so no lectures. My wife, a mathematics educator, helped set up learning communities in my upper-division math classes so that the students could work together. This led to some of my best teaching. I can talk now, but I'm still looking at how I can develop such communities in my classes.

Michael J. McConnell

Clarion University, Pennsylvania

Marcella K. McConnell

Clarion University, Pennsylvania

128 (INDIANA CONVENTION CENTER)

124.1 **ew** Amplify Math: Advance with Learning Progressions

(6–8) Exhibitor Workshop

Engage with a new digital math curriculum for grades 6–8 that balances problem-based lessons with scaffolded lessons to build conceptual understanding. Learn ways to emphasize the Common Core math practices and build procedural fluency through an adaptive independent practice app. Embedded digital tools create a rich, dynamic collaborative environment.

Amplify

Brooklyn, New York

125 (INDIANA CONVENTION CENTER)

124.2 **ew** Using Technology to Reason Mathematically

(6–12) Exhibitor Workshop

Principles to Actions

NCTM's *Principles to Actions* focuses on how teachers can create effective learning environments for all students. We will address its Mathematics Teaching Practices through the use of coherent activities and investigations with TI technology. Learn how to integrate technology into your lessons to help students make stronger connections in mathematics.

Texas Instruments

Dallas, Texas

122 (INDIANA CONVENTION CENTER)

3:15 P.M.–4:30 P.M.

125 Math-Literacy Connection

(Pre-K–2) Gallery Workshop

Experience how children's literature books can be used to introduce and explore math concepts. Hear a story and create an activity to go with the concepts and brainstorm with others how a book could be used at various grade levels. Math concepts from many strands of the standards will be highlighted, from number sense to geometry and measurement.

Beth Lerner

The Orchard School, Indianapolis, Indiana

Jan Gould

The Orchard School, Indianapolis, Indiana

126/127 (INDIANA CONVENTION CENTER)

126 **MP** Reaching ALL Learners in the Mathematics Classroom

(Pre-K–2) Gallery Workshop

How do you reach every child during a math lesson? When do you use direct instruction? Partners or small groups? This interactive workshop will include hands-on activities that have been used in the classroom with suggestions on differentiated instruction. Children's literature books will be incorporated into all the activities.

Donna J. Long

Houghton Mifflin Harcourt, Indianapolis, Indiana

120/121 (INDIANA CONVENTION CENTER)

127 Seeing the Bridges from Computation to Functions and Algebraic Thinking

(Pre-K–5) Gallery Workshop

In 2000 NCTM stated that algebra cuts across all areas of pre-K–12 mathematics. In 2010 CCSSM confirmed that algebraic thinking begins in Kindergarten. Yet the progression from single-answer arithmetic to deep mathematics is not clear. Come experience powerful K–8 bridges that connect the dots. Lessons from the speaker’s Corwin book series will be provided.

Monica Neagoy

Monica Neagoy Consulting Services, Arlington, Virginia

101/102 (INDIANA CONVENTION CENTER)

128 CSI Flight Adventures

(3–5) Gallery Workshop

CSI Flight Adventures is an interdisciplinary project that uses model aircraft to investigate the science of flight. Students test models and use data such as distance and speed to generate conclusions about airplane design. Discover how science investigations can provide real-life application for measurement, graphing, and data analysis skills.

Becky Wolfe

The Children’s Museum of Indianapolis, Indiana

GRAND BALLROOM 3 (WESTIN)

129 Common Core Mathematics Upside Down: Flipping PD and Engaging Teachers!

(3–8) Gallery Workshop

Principles to Actions

This session will involve math leaders using several “flipped” classroom activities for professional learning. It will include suggested use of digital resources that can be used anywhere/anytime as well as on-site professional development (PD) activities, all reflecting the CCSS content domains and Standards for Mathematical Practice.

Francis (Skip) Fennell

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

Beth Kobett

Stevenson University, Baltimore, Maryland

Jon Wray

Board of Directors, National Council of Teachers of Mathematics;
Howard County Public Schools, Ellicott City, Maryland

GRAND BALLROOM 2 (WESTIN)

130 Examining Operations with Fractions Using Words, Diagrams, and Manipulatives

(3–8) Gallery Workshop

Principles to Actions

This interactive session will examine operations with fractions through math activities and classroom video. Stories, and drawings will be used as tools for reasoning about fraction operations. We will examine how whole number thinking needs to be revised when fractions are involved; for instance, how is $\frac{3}{4} \times 12$ the same as or different from $12 \times \frac{3}{4}$?

Virginia Bastable

Mount Holyoke College, South Hadley, , Massachusetts

105/106 (INDIANA CONVENTION CENTER)



Join us at the 2015 Regional Conferences:

Atlantic City • October 21–23

Minneapolis • November 11–13

Nashville • November 18–20

3:15 P.M.–4:30 P.M.

131 Using iPads for Error Analysis

(3–8) Gallery Workshop

Principles to Actions

How can we more effectively integrate iPads into our math instruction? Games are great, but they don't encourage the all-important higher-order thinking. This workshop will put you in your students' shoes, engaging in the process of evaluating your mistakes by using the Educations app. Participants will leave with ideas from two separate lessons.

Ashley Croft

Metro Nashville Public Schools, Tennessee

123/124 (INDIANA CONVENTION CENTER)

132 Math Learning Games

(6–8) Gallery Workshop

This workshop will introduce teachers to a variety of quality math learning games. We will play the games and also spend time on how to modify games to meet the specific needs of your classroom. Some but not all games are found in the Everyday Mathematics Curriculum but they can be used in any classroom setting.

Kristine Montis Kristine Montis

Minnesota State University Moorhead

CAPITOL 1 (WESTIN)

133 Using Nonroutine Problems to Develop Problem-Solving Abilities and an Understanding of Concepts

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

Nonroutine problems have no standard way for solving and often have high cognitive demand, which can increase student's engagement in their own learning process. Participants will receive a collection of problems appropriate for middle school students, which they will explore and discuss.

Hoyun Cho

Capital University, Columbus, Ohio

Gary Lawrence

Mustard Seed School, Hoboken, New Jersey

GRAND BALLROOM 1 (WESTIN)

134 Outstanding Math Guides II (OMG)

(6–12) Gallery Workshop

Come learn a creative and inexpensive way to energize your math program! OMG is a student-created reference of Common Core-aligned graphic organizers containing steps, examples and vocabulary for every key concept taught throughout the year. The OMG will help you introduce or review material in a way that is fun and exciting for students!

Leslie R. Hilderbrand

Douglas County School System, Douglasville, Georgia

CAPITOL 3 (WESTIN)

135 Preparing Today's Students for the Workforce of Tomorrow

(6–12) Gallery Workshop

Learn how to better prepare students for the jobs available to them in the future. Help them to answer the question, "Why do I need to learn this math?" Experience the hands-on student activities developed by a team of teachers and technicians from a variety of career fields engaged in providing "real world" applications of math.

Sandy C. Wilborn

Virginia Advanced Study Strategies, South Boston

Jennifer F. Stevens

Virginia Advanced Study Strategies, South Boston

116/117 (INDIANA CONVENTION CENTER)

136 How Many Licks? Related Rates and Tootsie Pops

(9–12) Gallery Workshop

Students can sometimes find calculus to be static and algorithmic, but this activity will be sure to get your students excited about derivatives! In this session, participants will investigate a real-world application of related rates in calculus. Savor some candy while engaging in a ready-to-use activity with your class.

Chris Bolognese

Upper Arlington City Schools, Columbus, Ohio

Amy Oxley

Upper Arlington High School, Columbus, Ohio

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

137 Mathematical Discourse from Question Asking to Question Answering

(3–5) Session

Getting students to talk about math is a process of asking good questions, getting students to think through and respond to those questions, and responding to the answers provided by students. In this session we will use classroom examples from our own struggles and successes facilitating this process, and we will provide tips for developing discourse.

Dean Ballard

CORE Inc., Berkley, California

Nancy McGivney

CORE Inc., Berkley, California

128 (INDIANA CONVENTION CENTER)

138 Utilizing the Workshop Model in Elementary Mathematics Classrooms

(Pre-K–2) Session

For years, teachers have used the Reading and Writing Workshop model to effect great change in their instruction. This session will highlight ways that we've used teachers' expertise about the workshop model to instigate change in the mathematics classroom.

Ryan Flessner

Butler University, Indianapolis, Indiana

Courtney Flessner

Eastbrook Elementary, Indianapolis, Indiana

Susan Adamson

Butler University, Indianapolis, Indiana

CAPITOL 2 (WESTIN)



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139 **DV**

Developing Mathematical Reasoning and Discourse to Strengthen Problem- Solving Proficiency

(3–8) Session

The speaker will actively engage attendees in real-life problem solving, modeling effective questioning strategies, and the use of vocabulary in order to elicit reasoning and discourse and build essential concepts. She will offer strategies to identify the question, eliminate nonrelevant information, and translate information into mathematical equations. Handouts will be provided.

Donna L. Knoell

Educational Consultant, Shawnee Mission, Kansas

109/110 (INDIANA CONVENTION CENTER)

140 Learning Trajectories: Making Sense and Improving Continuity of the Common Core Standards

(3–8) Session

Learning trajectories in TurnOnCCMath.net describe students' conceptual growth based on research, and provide coherent cross-grade continuity for CCSSM. We introduce a five-element framework and new free PD MOOCs for individual trajectories, all designed to enhance teachers' insight into student learning over time and instructional planning.

Alan P. Maloney

North Carolina State University, Raleigh

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

141 Mathematical Discourse from Question Asking to Question Answering

(3–5) Session

Getting students to talk about math is a process of asking good questions, getting students to think through and respond to those questions, and responding to the answers provided by students. In this session we will use classroom examples from our own struggles and successes facilitating this process, and we will provide tips for developing discourse.

Dean D. Ballard

CORE Inc., Berkley, California

Nancy McGivney

CORE Inc., Berkley, California

128 (INDIANA CONVENTION CENTER)

143 **AS** An Innovative, Practical Approach to Formative Assessment Using Student Work

(6–12) Session

Principles to Actions

Learn how one district is developing teacher capacity to implement and sustain high-quality formative assessment processes in the middle school math classroom, and discover the implications for self-efficacy, motivation, and learning. The session incorporates video and tools from a job-embedded professional development framework using authentic student work.

Kathleen Dempsey

Mid-continent Research for Education and Learning - McREL, Denver, Colorado

Andrea Beesley

Mid-continent Research for Education and Learning - McREL, Denver, Colorado

GRAND BALLROOM 5 (WESTIN)

145 QR Codes for IRL Math Instruction to Diminish IDK Syndromes

(6–12) Session

Jazz up your formative assessments, guided or independent practice, and classroom instruction. Learn how to use QR codes and the smartphone to create activities that get students out of their seats and engaged in their own learning. You will leave with activities that you can use immediately in your classroom and the ability to create many more!

Virginia A. Fraser

Indiana University Southeast, New Albany

111/112 (INDIANA CONVENTION CENTER)

Download Speaker Handouts!

Visit www.nctm.org/plan to access available presentation handouts.



146 What's the Secret to Successfully Flipping a Math Class?

(6–12) Session

This session will focus on how to use the flipped model in a math class. I have used this approach in both calculus and statistics classes, and I will share all I know about how to create and publish videos. I achieved a 100 percent pass rate on the AP Statistics Exam by flipping my class. You will leave class ready to create your own flipped videos.

Joel Evans

Hatboro Horsham High School, Horsham, Pennsylvania

GRAND BALLROOM 4 (WESTIN)

147 **DS** Statistics of Illumination

(9–12) Session

This presentation will provide many real-life examples that can lead students at various grade levels to discover that statistics can be used to cast light on many interesting issues and important questions. Very simple statistical tools (proportions, averages, graphs) will be used to gain genuine insights into real-world phenomena.

Allan J. Rossman

California Polytechnic State University, San Luis Obispo

107/108 (INDIANA CONVENTION CENTER)

148 Animation and Mathematics: What They Share in Common

(9–12, Higher Education) Session

Principles to Actions


Explore animation, an application dependent on geometry, matrices, and technology. Dilations, reflections, rotations, and translations are required to create movement. Large data sets needed for images and sound are handled via matrices. Experiential learning opportunities and cross-disciplinary problem-solving methods for students will be emphasized.

Susan G. Helser

Mott Community College, Flint, Michigan

103/104 (INDIANA CONVENTION CENTER)

3:30 P.M.–4:30 P.M.


148.1 
**Making Failure Fun:
Amplify Math Games**

(6–8) Exhibitor Workshop

Participants will learn about Amplify’s unique approach and process in developing math games. Learn how Amplify sees games as a voluntary activity for learning in the student’s free time and what we have learned through trial and error in the design process. Get firsthand experience with Twelve, available now in the Apple app store.

Amplify
Amplify, Brooklyn, New York

125 (INDIANA CONVENTION CENTER)

148.2 
**Notebook Foldables® for
Secondary Math**

(6–12) Exhibitor Workshop

Recharge your middle and high school students’ math journals and turn on the motivation factor via 3-D interactive graphic organizers, also known as Notebook Foldables®. Depart with a mini-composition book filled with immediately useable ideas sure to foster lasting understanding--even in your most reluctant learners.

Dinah-Might Adventures
Dinah-Might Adventures, San Antonio, Texas

122 (INDIANA CONVENTION CENTER)

Thursday

Orion TI-84 Plus Talking Graphing Calculator

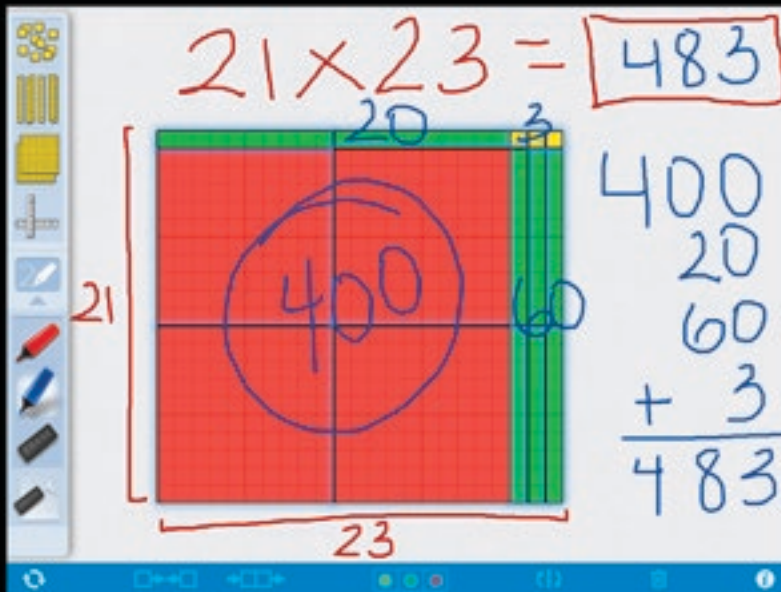
Use this revolutionary **talking graphing calculator** to gain an academic edge in pre-algebra through calculus, as well as biology, chemistry, and physics.



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Seeing, touching, and sketching ideas create pictures in the mind's eye, helping learners construct, understand, and apply mathematical ideas.

Bridges Second Edition incorporates increasingly complex visual models, including Number Pieces, in a coherent framework across the curriculum.

Unlock learning with visual models

with Bridges in Mathematics a new K–5 curriculum

Join us for a presentation

Friday, October 31

8:00 – 9:00, room 125

Stop by our booth

Meet the development team, receive a giveaway and try our free math apps. Booth #714



Highlights

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 Interpreting the Standards for Mathematical Practice: Session I, Part I, **157**
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Registration Hours

7:00 a.m.–3:00 p.m.

Exhibit Hours

8:00 a.m.–4:00 p.m.

NCTM Central Hours

8:00 a.m.–4:00 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 comply with fire codes, we will have to ask persons sitting on the floor or standing to leave the room.

7:15 A.M.–7:45 A.M.

149 Regional Conference Overview & Orientation

(General Interest) Session

Whether you are new to NCTM or a seasoned veteran, every conference has something new for everyone! Hosted by members of the Board of Directors, this session will help you to maximize your overall conference experience. Learn what's new or discover something you've missed in the past, find out how to navigate presentations, use the Conference App, and network with other attendees. Meet other first-time attendees and join up with conference mentors who share your particular interests!

Ruth Harbin Miles

Board of Directors, National Council of Teachers of Mathematics; Mary Baldwin College; Falmouth Elementary School, Staunton/Stafford, Virginia

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

8:00 A.M.–9:00 A.M.

150 **MP** Integrating the Mathematical Practices with Formative Assessment Strategies

(General Interest) Session

The intersection of the Common Core mathematical practices and formative assessment strategies is seamless. Learn how to integrate formative assessment and the mathematical practices to enhance your ability to gather and analyze data, and to provide appropriate interventions based upon your students' knowledge and understanding of the mathematics standards.

Anne M. Collins

Lesley University, Cambridge, Massachusetts

500 BALLROOM (INDIANA CONVENTION CENTER)

151 Addition and Subtraction Fact Fluency! What Does It Take?

(Pre-K–2) Session

This session by Kim Sutton will share strategies for achieving addition and subtraction fact fluency using a teach for understanding model. Participants will learn the order of the strategies to be taught and practiced. Kim will share her motivating style of using games, songs, dances and drills that thrill all learners!

Kim Sutton

Consultant, Arcata, California

GRAND BALLROOM 4 (WESTIN)

152 **DV** It's Math . . . What's There to Talk About?

(Pre-K–5) Session

Math is serving the conversation where demonstrating mathematical understanding involves much more than calculating a correct answer. Participants will be introduced to five research-based teacher “moves” to facilitate students' mathematical thinking and learning. Connections will be made to the eight CCSS Standards for Mathematical Practice.

Maggie M. Hackett

Sunnyside Unified School District, Tucson, Arizona

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

154 Videos of How Children Learn Mathematics: Capturing Mathematical Learning

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

New, unpublished videos will be shown that illustrate how children learn mathematics. These videos—which will be available free of charge for participants to use in various contexts until they are published—can be used in mathematics content, math methods courses, and professional development for elementary teachers.

David Feikes

Purdue University North Central, Westville, Indiana

David Pratt

Purdue University North Central, Westville, Indiana

103/104 (INDIANA CONVENTION CENTER)

Friday

NCTM newbie? Attend the **Regional Conference Overview & Orientation** to learn how to enhance your conference experience and maximize your membership's benefits. See page 3 for details.



AS Assessment

DS Data and Statistics

DV Developing a Community

EQ Equity

EW Exhibitor Workshop

MM Mathematical Modeling

MP Linking Mathematical Practices

155 Core within the Core: Algebra Readiness for ALL

(6–8) Session

Do your students look puzzled when you talk about multiplication? Do they tremble when you mention fractions? Is it difficult for you to motivate them? This session focuses on best practices to get your middle schoolers ready for algebra.

Jan Scott

Scholastic, Inc., New York, New York

CAPITOL 2 (WESTIN)

156 Using Nonroutine Problems to Better Understand Students' Reasoning

(6–8) Session

Engaging students in writing about their reasoning to solve nonroutine problems can give teachers deep insights into what students understand. Workshop participants will work through a set of nonroutine problems, and then discuss how (with rubrics provided) to utilize these to gain insight into student reasoning and sense making.

Garold J. Furse

Lincoln Public Schools, Nebraska

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

157 **MP** Interpreting the Standards for Mathematical Practice: Session I, Part I

(6–12) Session

Principles to Actions

This presentation will focus on Session I of Interpreting the Standards for Mathematical Practice (SMP), a PD curriculum for teachers in grades 5–10. Participants will preview course goals and activities, share questions about the SMP, and start to explore the Illustration Integer Combinations. These activities will continue in Session I, Part II.

Johannah Nikula

Education Development Center, Waltham, Massachusetts

Katherine B. Schwinden

Education Development Center, Waltham, Massachusetts

111/112 (INDIANA CONVENTION CENTER)

159 Two Birds, One Stone: Transformations, Functions, and the Common Core

(6–12) Session

Principles to Actions

In grades 7–12, CCSSM emphasizes functions and geometric transformations, and it states that students should understand transformations as functions. By thinking of these topics as two sides of the same mathematical coin, students gain a deeper understanding of both. Examine the mathematical connections, and leave with exciting Sketchpad activities.

Scott Steketee

KCP Technologies, Philadelphia, Pennsylvania

Daniel Scher

KCP Technologies, New York, New York

GRAND BALLROOM 5 (WESTIN)

160 A FUNdamental Approach to Connecting Families of FUNctions

(9–12) Session

Principles to Actions

Use hand-held technology to explore properties of families of functions. Participants will be provided with classroom-ready, hands-on lessons that enable students to examine functional behavior and discover FUN ways to make sense of transformations. We will connect the algebra and functions strands of the Common Core State Standards.

Tom Beatini

Glen Rock High School, New Jersey

109/110 (INDIANA CONVENTION CENTER)

161 Quality Assessment in the AP Calculus AB and BC Classroom

(9–12, Higher Education) Session

Finding efficient ways to assess AP Calculus students is always a struggle for even the most experienced teachers. This session will detail the “assessment revolution” that completely changed the AP Calculus program at a high school that now enrolls over 200 students in the course annually. Attendees will receive a multitude of quizzes and tests.

Anthony J. Record

Avon High School, Indiana

107/108 (INDIANA CONVENTION CENTER)

8:00 A.M.–9:00 A.M.

162 Prospective Secondary Mathematics Teachers' Learning from Students' Geometric Proofs

(Higher Education, Research) Session

By examining students' work, teachers can better develop their knowledge of mathematics and understandings of students' thinking. In this presentation, I describe how a series of my class activities focusing on analyzing secondary school students' geometric proofs can promote prospective teachers' learning of proof.

Yi-Yin Ko

Indiana State University, Terre Haute

128 (INDIANA CONVENTION CENTER)

162.1 ew New K–5 Math Curriculum for Building Mathematical Thinkers

(Pre-K–5) Exhibitor Workshop

Bridges in Mathematics, second edition, is a comprehensive K–5 curriculum that equips teachers to fully implement the Common Core State Standards in a manner that is rigorous, engaging, and accessible. Join us for an overview of this unique program, and learn about work places, visual models, and putting the mathematical practices into action.

The Math Learning Center

Salem, Oregon

125 (INDIANA CONVENTION CENTER)

162.2 ew Mathspace: Why You'll Never Grade Math Assignments Again. Seriously!

(6–12) Exhibitor Workshop

You've seen it all, right? Adaptive learning? Check. Handwriting recognition? Hmm... Every math question graded step-by-step? Wait, that's new! Imagine: automatic grading, so you focus on teaching; students writing fully worked answers, with real-time feedback--and no more multiple choice! Come see why Mathspace is like nothing you've ever seen!

Mathspace

New York, New York

122 (INDIANA CONVENTION CENTER)

8:00 A.M.–9:15 A.M.

163 First Steps to Measurement Mastery: Primary Misconceptions and Remedy Activities

(Pre-K–2) Gallery Workshop

Principles to Actions

Learning about measurement in primary classrooms can be active and engaging; but to get students to mastery, teachers should first understand the misconceptions students hold. Meaningful and proactive lessons can combat misconceptions before students construct knowledge. Participants will experience hands-on and interactive lesson ideas.

Jeanine L. Haistings

William Jewell College, Liberty, Missouri

CAPITOL 1 (WESTIN)

164 Making Sense of Addition and Subtraction: Manipulatives Matter

(Pre-K–2) Gallery Workshop

Students must understand the meaning of operations, not just memorize facts. Explore hands-on strategies for helping students understand operations as verbs in mathematical sentences. Learn research-informed methods for building understanding and fluency while exploring manipulatives, both new and familiar favorites, to support student learning.

Sara Delano Moore

ETA hand2mind, Vernon Hills, Illinois

101/102 (INDIANA CONVENTION CENTER)

165 Math Matters: Games, Puzzles, and Diversions to Stimulate Reasoning

(Pre-K–5) Gallery Workshop

Principles to Actions

Bring excitement to your classroom and stimulate your students to think, using games designed to integrate problem solving, analyzing, and basic skill development. In this hands-on session, teachers will play games they can use in their classrooms tomorrow. All experiences will develop inductive reasoning in number, geometry, and probability.

John Hinton

Retired, Long Island University (CW Post), Brookville, New York

126/127 (INDIANA CONVENTION CENTER)

AS Assessment

DS Data and Statistics

DV Developing a Community

EQ Equity

EW Exhibitor Workshop

MM Mathematical Modeling

MP Linking Mathematical Practices

166 Teaching Common Core Addition and Multiplication Strategies on the iPad

(Pre–K–5) Gallery Workshop

The Common Core emphasizes using strategies to learn math facts. Learn about iPad apps that emphasize learning strategies while also helping kids memorize their addition and multiplication facts. In this session, we'll play with the apps and also learn how to share iPad screens on the projector. Some iPads provided, but BYO iPad if you have one.

Kara K. Carpenter
Teachley, New York, New York
Rachael Labrecque
Teachley, New York, New York

116/117 (INDIANA CONVENTION CENTER)

167 Let's Get Physical—with Math on the Floor!

(3–5) Gallery Workshop

In this highly interactive session, teachers will experience kinesthetic learning. Math concepts, including four operations, fractions, money, area and perimeter, analog time, tiling, geometry, and graphing will be addressed, all taught on a large 100-square floor grid. Ideas for making your own floor grid will be readily shared. Bring your camera!

Wendy E. Hill
Retired Elementary Teacher, Mississauga, Canada

123/124 (INDIANA CONVENTION CENTER)

168 Meaningful Models of Fraction Operations

(3–8) Gallery Workshop

A major obstacle in teaching fraction operations meaningfully is finding a concrete model that easily represents those operations. Geoboards and Unifix Cubes provide a perfect model for addition, subtraction, multiplication, and division to develop an understanding of both the meaning of the fractions, and operations on them.

Bob M. Drake
University of Cincinnati, Ohio

105/106 (INDIANA CONVENTION CENTER)

169 Baseball, Billiards, Cash Cab: Fun Ways to Develop Mathematical Practices

(6–8) Gallery Workshop

Play a baseball game and incorporate the Pythagorean theorem to determine the distance to home. Create billiard tables and use the ratio of the tables to determine which corner the ball will land in. Play Cash Cab to find treasures on the city streets. Learn these games and how they help to develop the CCSSM Standards for Mathematical Practice.

Mary A. Curry
MANGO Math Group, Snohomish, Washington

CAPITOL 3 (WESTIN)

170 Deal or No Deal: Strengthening Statistical Understanding through Engaging Activities

(6–12) Gallery Workshop

Games, toys, and manipulatives can be used to help students learn probability and statistics concepts. This workshop highlights how teachers can use games like Deal or No Deal or activities like Tracks of a Killer to engage students in mathematical concepts. Attendees will engage in the activities and see how to incorporate them into the classroom.

Crystal Marie Vesperman
Indiana University, Bloomington
Michael Daiga
Indiana University, Bloomington

120/121 (INDIANA CONVENTION CENTER)

171 Using Multiple Representations and the Graphing Calculator

(6–12) Gallery Workshop

Through specific activities we can discover ways to represent the same context in multiple ways: graphically, numerically, symbolically, and verbally. The use of multiple representations helps with understanding relationships between variables, expressing these relationships in multiple ways, and reasoning about connections between representations.

Fred Decovsky
Teachers Teaching with Technology, Millburn, New Jersey
WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

8:00 A.M.–9:15 A.M.

172 Increase Rigor and Engage Students with NMSI, TI, and NASA

(9–12) Gallery Workshop

Principles to Actions

Learn how to create lessons and assessments to prepare most students for AP level classes. Receive tips and information about the latest classroom learning tools and how to better use technology you may have at your school, such as a CBR (computer based ranger) motion detector. Get links to free inquiry learning resources from the National Math and Science Initiative, MathNspired, NASA, and TI-Math.

Sean Bird

Covenant Christian High School, Indianapolis, Indiana

GRAND BALLROOM 1 (WESTIN)

173 Mathematical Expeditions in Polar Science

(9–12) Gallery Workshop

There are multidisciplinary challenges facing our planet, and polar science provides particularly interesting contexts to engage students. We will examine three mathematics lessons based on the shrinking extent of Arctic sea ice, melting glaciers, and accurately measuring Weddell seals. Mathematical modeling and data representation are unifying themes.

Lynn Foshee Reed

Maggie L. Walker Governor's School, Richmond, Virginia

GRAND BALLROOM 3 (WESTIN)

174 Illuminate Your Classroom and Teach Conceptually Using Free Virtual Manipulatives

(Preservice and In-Service) Gallery Workshop

Come explore Illuminations' free virtual manipulatives to keep up with the technological trends in education! These physical and virtual manipulatives allow students to create conjectures, develop reasoning skills, and explore mathematics conceptually. Questions for students, pedagogical recommendations, and accompanying resources will be provided.

Ann Kong

National Council of Teachers of Mathematics, Reston, Virginia

GRAND BALLROOM 2 (WESTIN)

9:30 A.M.–10:30 A.M.

175 Formative Assessment: A Beyond "Checking for Understanding" Classroom Process!

(General Interest) Session

In this motivational session, discover the difference between checking for understanding in class and the deeper formative assessment process and work of your students. We will explore the six essential elements of formative feedback as part of a lesson design that leads to significant improvement in student learning. Come join the discussion!

Timothy D. Kanold

Loyola University, Chicago, Illinois

500 BALLROOM (INDIANA CONVENTION CENTER)

177 Common Core Problem Solving—Fun and Easy!

(Pre-K–2) Session

Participants will learn how to create meaningful real-life and child-centered problems with increasing complexity. Many forms of problem solving will be explored. Topics will incorporate book characters, sports, holidays, and more. Instead of going on a quest for "the answer," students will become rigorous problem solvers able to explain their processes.

Rena K. Pate

Primary Math Rules, Danville, Illinois

107/108 (INDIANA CONVENTION CENTER)

178 In the Beginning!

(Pre-K–2) Session

A strong numeracy foundation is crucial for mathematics. Just as a house requires a strong foundation to remain erect, students require a deep and solid conceptual understanding to build upon in their mathematical journey. Perceptual, figurative, and abstract and back are required stages in order to move from a unitary to a composite way of thinking.

Beth Miracle Meiman

Kentucky Center for Mathematics, Highland Heights

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

179**The Area Model, Through the Years!**

(3–8) Session

The focus of this session will be on the operations of multiplication and division. Participants will discover how the area model can be used to help build fluency and conceptual understanding. Participants will take part in hands-on demonstrations of how the area model can be implemented from grade 3 all the way to algebra 1.

Mark Schmit

ETA hand2mind, Vernon Hills, Illinois

GRAND BALLROOM 4 (WESTIN)**180** **EQ****The Language of Mathematics: English Language Learners Talk about Math**

(3–8) Session

Principles to Actions

This presentation will highlight the findings of a study examining the discourse ELLs engage in during problem-solving sessions and how meaning is made when working through nonroutine word problems. Educators will learn how to support the language needs of these students and gain strategies to scaffold the academic language in the classroom.

Susan M. Kontos

Community Schools of Frankfort, Indiana

109/110 (INDIANA CONVENTION CENTER)**181****Understanding Linear Functions Using Manipulatives**

(6–8) Session

Principles to Actions

Do your students need hands-on activities to help develop their understanding of linear functions? Discover benefits of using virtual and traditional manipulatives in your class to help students better understand linear function concepts, including graphing, slope, y -intercept, and solving equations.

Kevin Dykema

Mattawan School District, Michigan

GRAND BALLROOM 5 (WESTIN)**182** **EQ****Integrating Communication in Common Core Mathematics for Bilingual Students**

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

Principles to Actions

Given the constraints placed on teachers and students in modern school contexts, how can teachers of English language learners (ELLs) meet the high bar set by the Common Core State Standards for Mathematics (CCSSM)? In this presentation, we present two pedagogical practices that mathematics teachers can use to meet the needs of their ELLs in a CCSSM-aligned classroom.

Craig J. Willey

Indiana University–Purdue University Indianapolis

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)**183****Can Your Students Do PISA?**

(6–12) Session

PISA, the Program for International Student Assessment, assesses the ability of fifteen-year-old students across the globe to apply middle school mathematics concepts. Items from PISA are now available online and this session will focus on how to compare the performance of your students to students in other countries on this unique set of tasks.

Peter Kloosterman

Indiana University, Bloomington

Arnulfo Perez

Indiana University, Bloomington

CAPITOL 2 (WESTIN)**184** **MP****Interpreting the Standards for Mathematical Practice: Session I, Part II**

(6–12) Session

A continuation of Session I. Participants will continue their exploration of the Illustration Integer Combinations, explore the mathematics of the task, discuss mathematical strategies, and consider how their thinking relates to the Standards for Mathematical Practice (SMP). Participants will analyze a student dialogue for evidence of mathematical thinking and connections to the SMP.

Johannah Nikula

Education Development Center, Waltham, Massachusetts

Katherine B. Schwinden

Education Development Center, Waltham, Massachusetts

111/112 (INDIANA CONVENTION CENTER)

185 Investigations, Practice, Assessment: Making Tasks Count

(6–12) Session

Choosing, adapting, and implementing tasks are the essence of what teachers do in their classrooms. How do we choose tasks that get at the important mathematics we need to teach? Are there ways to make the tasks more worthwhile? What are some strategies to get students engaged in meaningful ways? And what does technology have to do with it all?

Gail Burrill

Past President, National Council of Teachers of Mathematics;
Michigan State University, East Lansing

103/104 (INDIANA CONVENTION CENTER)

186 Utility of Abstract Algebra for Preservice Teachers

(Higher Education) Session

Abstract algebra is a common requirement in secondary mathematics teacher education programs, but often preservice teachers (PSTs) have difficulty connecting it to their future practice. This study will use interviews with four abstract algebra instructors and PSTs to motivate a discussion about connecting abstract algebra to secondary teaching.

Andrew J. Hoffman

Purdue University, West Lafayette, Indiana

128 (INDIANA CONVENTION CENTER)

186.1 ew Formative Assessment and Hands-On Instruction for RtI and CCSS Success!

(General Interest) Exhibitor Workshop

Moving with Math Pre-K–12 programs integrate the four essential elements of RtI: Universal Screening, Decision Making, Explicit Instruction, and Progress Monitoring. Strategies using the C-R-A methodology that have been proven successful for reaching all students will be shared. Teachers and math directors love the ease of use and improved results.

Math Teachers Press

Math Teachers Press, Inc., Minneapolis, Minnesota

125 (INDIANA CONVENTION CENTER)

186.2 ew

Pearson High School Math and MathXL for School

(9–12) Exhibitor Workshop

Learn how this blended print and digital curriculum not only engages students but also ensures all learners acquire the critical knowledge and skills necessary to succeed in college and in their careers—with an assist by MathXL for School, Pearson's award-winning online homework, tutorial, and assessment program.

Pearson

Boston, Massachusetts

122 (INDIANA CONVENTION CENTER)

9:45 A.M.–11:00 A.M.

187 Primarily Place Value: Games for Teaching the Common Core

(Pre-K–2) Gallery Workshop

Principles to Actions

Come prepared to play games that incorporate the use of cards and place value dice. Common Core concepts covered include numbers and operations in base ten, ordering and comparing numbers, patterns and skip counting to 1,000, and expanded form. Game boards, student samples, and easy ideas to implement into your primary math program will be shared.

Jane Felling

Box Cars & One-Eyed Jacks, Edmonton, Canada

126/127 (INDIANA CONVENTION CENTER)

188 The Power of Ten: Framing Student Understanding

(Pre-K–2) Gallery Workshop

This hands-on session will use Ten Frames as a valuable teaching tool you can use to incorporate the Common Core standards in your classroom. A variety of activities will be explored including basic starting steps, games, and even open-ended problems. Video clips and student work will give you a glimpse of how this could look in the classroom.

Lisa K. Rogers

Math Solutions, Sausalito, California

123/124 (INDIANA CONVENTION CENTER)

189 Angling for Understanding

(3–5) Gallery Workshop

Principles to Actions

If you find yourself fishing for ideas to develop deep understanding about angles, this session may be just what you need. Angle measurement and understanding may be best approached by stepping through a sequence similar to measuring length, area, and volume. This hands-on session provides activities to clarify and strengthen the concept of angle.

Allan Turton

ORIGO Education, St. Charles, Missouri, USA

CAPITOL 3 (WESTIN)

190 Mathematical Models That Make Sense

(3–5) Gallery Workshop

Visual models make strong sense-making tools and promote a conceptual understanding that develops procedural fluency. The focus of this Gallery Workshop is to examine some of the most effective models for problem solving: problem strings, ratio tables, and open number lines. We will examine the role of teacher as learning facilitator.

Beth Newman

Flat Rock-Hawcreek School Corporation, Hope, Indiana

120/121 (INDIANA CONVENTION CENTER)

191 Elapsed Time . . . MAYDAY!

(3–5) Gallery Workshop

Attendees take a closer look at elapsed time to determine why students have so much difficulty with this concept. Comparing traditional/reform models, participants will discover that this grade 3–5 concept is anything but “elementary”! The conclusion we will reach: the key to success lies in applying the three rules of a “good” manipulative.

Barbara Spotts

Johnny’s Key, Trevorton, Pennsylvania

105/106 (INDIANA CONVENTION CENTER)

192 Making Middle School Math Come Alive with Activities and Games

(6–8) Gallery Workshop

Participate in games and activities for middle school math topics. Use integer tiles to explore integer operations. Join in activities and games for graphing, measures of central tendency, probability, and algebra. Employ activities for justifying answers. Create a human graph for circle charts and coordinate graphs.

Kathryn S. Williams

Carrithers Middle School, Louisville, Kentucky

Duane Williams

Jefferson County Public Schools, Louisville, Kentucky

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

193 Success in High-Needs Schools with the Standards for Mathematical Practice

(6–8) Gallery Workshop

Participants will work on a rich set of problems we’ve used successfully in high-needs (and other) schools. Each problem will make use of spatial reasoning, encourage organization of data, and lead to generalized solutions. We’ll share student work and discuss how this mathematics supports the Common Core Standards for Mathematical Practice.

James R. Matthews

Siena College, Loudonville, New York

Jenny K. Tsankova

Roger Williams University, Bristol, Rhode Island

101/102 (INDIANA CONVENTION CENTER)

194 Algebra Activities from Automotive, Business, and Construction Fields

(9–12) Gallery Workshop

You will participate in and receive three engaging hands-on classroom activities that highlight Common Core Standards for Mathematical Practice. The activities will span many career paths. Math topics covered include linear equations, systems of equations, and exponents. Join us to see how project-based activities can increase learning and provide relevance.

Tom W. Moore

Thompson School District, Loveland, Colorado

GRAND BALLROOM 2 (WESTIN)

9:45 A.M.–11:00 A.M.

195 Avoiding Trigonometric Tribulations and Geometric Grief

(9–12) Gallery Workshop

Radians, unit circles, and trig functions and inverses are abstract concepts that are difficult for many students, especially those with language and learning difficulties. Learn how to create simple manipulatives and use multisensory strategies and structured language to explore radians, unit circles, and the six trig functions and their inverses.

Nadia A. Carrell

Multisensory Training Institute, Atlantic Seaboard Dyslexia Education Center, Rockville, Maryland

GRAND BALLROOM 1 (WESTIN)

196 **MM** Keeping It Real: Teaching High School Math through Real-World Questions

(9–12) Gallery Workshop

How have video game processor speeds changed over time? If someone's identified by the NSA as a threat, what's the probability that he actually is? We'll explore real-world lessons and projects that teachers can use to address Common Core standards, foster a rigorous understanding of math, and challenge students to think critically about the world.

Karim K. Ani

Mathalicious, Charlottesville, Virginia

Matt Lane

Mathalicious, Charlottesville, Virginia

Chris Lusto

Mathalicious, Charlottesville, Virginia

116/117 (INDIANA CONVENTION CENTER)

197 Unfolding Geometric Habits of Mind

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

Participants will explore an activity used with preservice teachers where paper folding became the primary vehicle for developing geometric ideas. This exploration both highlights interesting geometric relationships as well as focuses attention on geometric habits of mind and mathematical practices. No origami experience or skill is necessary.

Peter S. Wiles

Eastern Illinois University, Charleston

CAPITOL 1 (WESTIN)

198 New and Preservice Teachers' Workshop

(Preservice and In-Service) Gallery Workshop

Find answers to your questions on topics such as classroom management, parents, motivation, and keeping your sanity. Connect with other new teachers, learn from experienced professionals, and find resources to engage you and your students. You might even win a prize!

David Barnes

National Council of Teachers of Mathematics, Reston, Virginia

GRAND BALLROOM 3 (WESTIN)

11:00 A.M.–12:00 P.M.

200 **DV** Assessment Literacy among Teachers and Learning Leaders

(Research) Session

This presentation, designed as part of the Classroom Environment and Community strand, will present a program of research with the goal of developing assessment literate teachers and learning leaders. In addition to the research, it will bring valuable perspectives from a teacher and leader who will co-present.

Delwyn L. Harnisch

University of Nebraska-Lincoln

128 (INDIANA CONVENTION CENTER)

201 **MP** Momentum for Rigor and the Standards for Mathematical Practice

(General Interest) Session

Moving forward with the Standards for Mathematical Practice will significantly change student learning in mathematics by dramatically changing how teachers teach. Transforming classroom instruction will involve an expectation for mathematical rigor, an elusive term. What is rigor and how do we implement it in the mathematics classroom?

Don S. Balka

Saint Mary's College, Notre Dame, Indiana

500 BALLROOM (INDIANA CONVENTION CENTER)

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202**Math & Movement: Using Movement to Increase Math Ability and Exercise**

(Pre-K–2) Session

Children love to move. Learn how to harness that energy and turn it into rapid retention of number concept skills, including skip counting, addition, multiplication, and more. Learn cross-body movements that energize your students and strengthen math. This is a fast-paced workshop that will keep you hopping and having fun while moving to the numbers.

Suzy Koontz

National Math Foundation, Ithaca, New York

109/110 (INDIANA CONVENTION CENTER)**203****Strategies and Mathematical Ideas—Not One and the Same**

(Pre-K–2) Session

Discussions about strategies as well as about the structure of mathematics need to occur in mathematics classrooms in primary grades. In this session, we will differentiate between discussions about the structure mathematics and strategies used to solve problems by providing examples of each, as well as analyzing and discussing classroom videos.

Kristin A. Klingensmith

Learning Research and Development Center, Institute for Learning, University of Pittsburgh, Pennsylvania

Victoria Bill

Learning Research and Development Center, Institute for Learning, University of Pittsburgh, Pennsylvania

103/104 (INDIANA CONVENTION CENTER)**204****Caring for the Early Algebraic Thinker**

(3–5) Session

Principles to Actions

CARE (Conceptual Algebra Readiness for Everyone) is a partnership between the Michigan City Area Schools and Purdue University North Central to help children develop conceptual understandings of early algebra. We will share problem-solving activities designed to help children learn to generalize and videos of children as they do so.

Martin Briggs

La Porte Community School Corporation, Indiana

David Feikes

Purdue University North Central, Westville, Indiana

CAPITOL 2 (WESTIN)**205****Fluency and Number Sense through Problem-Solving Activities**

(3–8) Session

Fluency and flexibility with facts and counting strategies are critical skills based in the Common Core standards. We will share activities that build fluency and number sense through challenges that take the focus off the embedded practice and place it on problem solving. The activities provide differentiation and connect to the Standards for Mathematical Practice.

Dean D. Ballard

CORE Inc., Berkeley, California

David Hedges

CORE Inc., Berkeley, California

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)**206****On the Runway to Success: Modeling and Mathematical Reasoning**

(3–8) Session

In this session we will look at the meaning of modeling and reasoning in the Standards for Mathematical Practice and their relationship to the next generation assessments. We will look at the implications for unit design and at the Quality Review Rubric, exploring how it may be used by teacher teams.

Annika Moore

Ohio Department of Education (ODE), Columbus

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)**207****How Singapore's Visual Models Enable All Students to Develop Algebraic Thinking**

(6–8) Session

This session will focus on visual models and visualization used in the highly successful Singapore curriculum that enable students to find entry points for complex problems and to develop deep understanding of topics such as operations with fractions, ratios, and algebraic manipulation. Examples of their rich problems will also be shown.

Andy Clark

Retired, Portland Public Schools, Oregon

GRAND BALLROOM 4 (WESTIN)

208 Paper Folding and Technology

(9–12) Session

Paper folding will be used to develop a parabola using the definition of a parabola. Technology will then be used to verify the definition of a parabola. The technology used in the session will be a TI-Nspire.

Janice Mitchener
Carmel High School, Indiana

111/112 (INDIANA CONVENTION CENTER)

209 Using the iPad in a High School Math Classroom

(9–12) Session

I will be presenting different iPad Apps that I use in my high school math classroom. I will demonstrate how the Apps work, and how I specifically use them for the math classes that I teach. I will also show different ways that technology can be incorporated into a high school math classroom.

Wendy Meyer
Edgerton High School, Wisconsin

GRAND BALLROOM 5 (WESTIN)

210 See Your True Colors

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

The main aspect of this presentation is to share examples of common mathematical concepts and how students with dyscalculia perceive them. In doing so, teachers will begin to observe a pattern which will allow them to “see” what their students actually see. In addition, concrete strategies for class instruction and test scenarios are addressed.

Lori Kiteala
Self-Employed Consultant, Montreal, Canada

107/108 (INDIANA CONVENTION CENTER)

210.1 Algebra Readiness for All: The Critical Role of Innovative Technology

(General Interest)

Come learn how IXL, the most widely used math subscription site in the country, is partnering with educators to ensure algebra readiness for all students. Aligned with all 50 state standards, IXL delivers truly differentiated, thoughtfully crafted technologies to engage students and close achievement gaps at all levels from kindergarten to grade 12.

IXL Learning
San Mateo, California

125 (INDIANA CONVENTION CENTER)

210.2 Math Navigator: Helping Kids Fix Misconceptions about Math

(3–8) Exhibitor Workshop

Why do some students struggle with basic math concepts? Pearson’s Math Navigator intervention program targets misconceptions that prevent students from mastering the foundational concepts which result in poor performance. Learn how the Math Navigator Screener quickly diagnoses specific weaknesses and makes recommendations among the 26 skills modules.

Pearson
Glenview, IL

122 (INDIANA CONVENTION CENTER)



Pick up your copy of the **Program Updates** for additional presentations, cancellations, and other important information.

211 Comic Strip Mathematics

(General Interest) Burst

During this session, participants will explore the mathematics that comic strips can bring to the classroom. Examples from middle school through college mathematics will show students that math can be fun to learn!

Jonathan A. Engelman
Kettering College, Ohio

116/117 (INDIANA CONVENTION CENTER)

212 Exemplary K–12 STEM Teachers: Leadership and Success

(General Interest) Burst

K–12 teachers are invited to apply to the Presidential Awards for Excellence in Mathematics and Science Teaching. Recipients receive a paid trip to Washington, D.C., a citation signed by the President of the United States, and \$10,000. Past awardees will discuss the application process and their leadership roles as PAEMST alumni.

Marilyn Suiter
National Science Foundation, Arlington, Virginia

101/102 (INDIANA CONVENTION CENTER)

213 Power Problem Solving

(Pre–K–5) Burst

Maximize your instructional time by combining Common Core content with authentic problem solving. Learn to create complex and multistep child-content-friendly problems that will challenge your students. Teach students to focus on the “how and why” of problem solving over a quest for the right answer. Leave today armed with problems and ideas.

Rena K. Pate
Primary Math Rules, Danville, Illinois

120/121 (INDIANA CONVENTION CENTER)

214 Fraction (or Fractured?) Understanding

(3–5) Burst

Principles to Actions

This workshop will focus on the underlying concepts necessary for students to be successful with fractions. We will explore different representations and interpretations of fractions and why they are so critical. We will also consider how the meaning of the numerator and denominator change when the fractions are interpreted in different ways.

Debi DePaul
Origo Education, Inc., St. Charles, Missouri

123/124 (INDIANA CONVENTION CENTER)

215 Illuminating the Standards for Mathematical Practice

(3–5) Burst

The presentation will focus on the Common Core Standards for Mathematical Practice as participants engage in mathematical tasks involving fractions and mixed numbers. Meaningful discussion and analysis will focus on the practice standards and learning trajectories.

Lisa F. Etheridge
Auburn University, Alabama

GRAND BALLROOM 3 (WESTIN)

216 How Old Is the Oldest Person You’ve Known?

(6–8) Burst

What better way to engage students in mathematics than to use a Super Bowl commercial? We share how we used a 2013 commercial from Prudential to engage middle grades students in creating a life-size dot plot answering the question “How Old Is the Oldest Person You’ve Known?” Students work with data collection, displays, and interpretation.

Sarah B. Bush
Bellarmine University, Louisville, Kentucky
Judith Albanese
Saint Leonard Parish School, Louisville, Kentucky
Fred Dillon
Ideastream, Cleveland, Ohio

105/106 (INDIANA CONVENTION CENTER)

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Twitter and Facebook.



217 Interventions in the Middle School . . . But There's No Time!

(6–8) Burst

This presentation addresses how to successfully implement math interventions in a middle school setting. The presenter will share tools to organize data, resources, and, most importantly, time to fit any middle school schedule.

Wendy M. Skrzypek
Three Rivers Community Schools, Michigan

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

218 Shrinking the Gap for Math-Delayed Middle School Students

(6–8) Burst

Many middle school students have very limited math fact fluency. This deficit impedes students from prospering in more advanced mathematics. Traditional methods for developing fluency can be ineffective for many students. Finally—a successful classroom technique that is changing test scores and attitudes, and even has students asking for more.

Shane M. Van Horn
Indianapolis Public School, Indiana

GRAND BALLROOM 2 (WESTIN)

219 Hook Your Geometry Students

(6–12) Burst

Grab your students' attention at the beginning of each unit and pique their curiosity about geometry. We will be examining outstanding resources such as video clips, stories, riddles, and websites that will help link each Common Core geometry standard to students' prior knowledge and make them want to know more.

Elizabeth A. Lomeli
Western Placer Unified School District, Lincoln, California
126/127 (INDIANA CONVENTION CENTER)

220 1 to 1 Computing in the High School Mathematics Classroom

(9–12) Burst

Standard for Mathematical Practice 5: Use appropriate tools strategically. While this is a standard for students, it is equally important for teachers to use when selecting technology for the classroom. Some specific web-based tools will be shared, but each tool will be examined through the lens of the Common Core practice standards.

Jeremy P. Babel
Leyden Park High School, Franklin Park, Illinois

CAPITOL 1 (WESTIN)

221 Cooperative Development of Math Manipulative for 3-D Visualization in Calculus

(9–12, Higher Education) Burst

The process of a class working together to develop a physical model has enhanced understanding and visualizing three-dimensional topics in calculus. This talk will show how the math manipulative was created by the students and modified as we worked on various topics in the class and how learning was enhanced through this process.

Ann Podleski
Harris-Stowe State University, St. Louis, Missouri
Aleksandra Ceric
Harris-Stowe State University, St. Louis, Missouri
Jonathan R. Corbett
Harris-Stowe State University, St. Louis, Missouri

CAPITOL 3 (WESTIN)

222 Video Cases in Teacher Preparation: What Works?

(Higher Education) Burst

Video cases in methods courses or in professional development can be a means of bridging the gap between instructional practice and theory about educational practices, and a catalyst to help teachers reflect on their practice. We examine effective ways to design and use video cases in teacher development.

Enrique Galindo
Indiana University, Bloomington
Mina Min
Indiana University, Bloomington
Erol Uzan
Indiana University, Bloomington

GRAND BALLROOM 1 (WESTIN)

Extra! Extra!
Pick up your copy of the
Program Updates.



12:30 P.M.–1:00 P.M.

223 Get On It: Transitioning to a Math Workshop

(General Interest) Burst

We know by now that a hands-on, real-world-math approach is one of the best ways to reach our learners. So what's holding our teachers and schools back? In this session, learn the first steps that a high-poverty, high-diversity elementary school took to making math engaging and relevant for all learners.

Shannon N. Houghton
Wildwood Elementary School, Federal Way, Washington

GRAND BALLROOM 3 (WESTIN)

224 Preservice Teachers' Proofs in Geometric Problems Related to Congruent Triangles

(General Interest) Burst

This session focuses on identifying preservice teachers' challenges in proofs related to congruent triangles and on discussing how to help them overcome those challenges. Participants will engage in proving geometric problems, evaluating preservice teachers' geometric proofs, and discussing effective ways to remediate their misconceptions.

Mi Yeon Lee
Arizona State University, Tempe

GRAND BALLROOM 1 (WESTIN)

225 The Role of Engagement in Elementary Preservice Teachers' Identity Development

(General Interest) Burst

This presentation highlights findings from a study analyzing how African American female preservice teachers (PSTs) perceive their engagement in the university and elementary school settings. These findings offer insights into the perceptions and experiences of African American female PSTs and the evolution of their teacher identity.

Crystal Hill Morton
Indiana University–Purdue University Indianapolis

GRAND BALLROOM 2 (WESTIN)

226 Understanding Low Performance on the National Assessment of Educational Progress

(General Interest) Burst

What do we know about the lowest performing students on the National Assessment of Educational Progress (NAEP)? What is their background? What do we know about their schools and teachers? This talk describes the lowest performing students as a group on the NAEP, based upon information collected from student, teacher, and school questionnaires.

Zachary Rutledge
Independent Researcher, Salem, Oregon

126/127 (INDIANA CONVENTION CENTER)

227 Constructing Conceptions of Shape: Age-Appropriate Activities for Geometry

(Pre-K–2) Burst

Much research has shown the effectiveness of a theory of geometric development that posits individuals pass through stages of development. However, geometry instruction is often presented at levels beyond students' level of reasoning. This presentation will provide activities that are appropriate for the beginning levels of geometric reasoning.

Mark A. Creager
Indiana University, Bloomington
Zulfiye Zeybek
Indiana University, Bloomington

105/106 (INDIANA CONVENTION CENTER)

Friday

Download Speaker Handouts!

Visit www.nctm.org/plan to access available presentation handouts.



AS Assessment

DS Data and Statistics

DV Developing a Community

EQ Equity

EW Exhibitor Workshop

MM Mathematical Modeling

MP Linking Mathematical Practices

228 Clarifying Misconceptions about Subtraction Using “the Ladder” and Counting

(3–5) Burst

Principles to Actions

Contrary to conventional thinking and teaching, subtraction should be taught first. To prove this, I compare how we’ve been teaching calculation thus far, and I demonstrate a method giving students a tool incorporated within the subtraction problem that makes the algorithm more understandable and eliminates misconceptions about directionality.

Paul A. Britt

Prince George’s County Schools, Hyattsville, Maryland

CAPITOL 3 (WESTIN)

230 Design & Build Your Dream House

(6–8) Burst

Design & Build Your Dream House is a hands-on teaching strategy that incorporates an abundance of geometry skills and learning objectives. The strategy allows students to create their dream house using concepts learned in the classroom. Students are enthusiastically engaged in learning geometry from design to construction.

Amy K. Crawford

Summit Academy Secondary, Youngstown, Ohio

101/102 (INDIANA CONVENTION CENTER)

231 AS

Assessing Mastery within Common Core Using Skills-Based Assessments

(6–12) Burst

Explore how to unpack standards and create standards-based assessments that truly measure students’ mastery. The Core Mastery System uses objective skills to collect quality data to drive instruction, demystifies the grading process for parents and students, and cultivates intrinsically motivated students. Great for special education students!

Andrew Gatza

Indiana University School of Education (IUPUI), Indianapolis

Michael Anderson

Brownsburg High School, Indiana

123/124 (INDIANA CONVENTION CENTER)

232

A Survey of Calculator Usage in High Schools

(9–12) Burst

The purpose of this burst is to investigate calculator use in mathematics instruction and assessment, including algebra I, geometry, algebra II, and precalculus/trigonometry, and allowed calculator use on tests. The presenters will share findings about the changes in calculator usage in mathematics class over a decade from a replicative study.

Hsueh-Chen Huang

Indiana University, Bloomington

Fetiye Aydeniz

Indiana University, Bloomington

Mina Min

Indiana University, Bloomington

CAPITOL 1 (WESTIN)

233

Master Proofs with Number Patterns

(9–12) Burst

Introduce your students to reasoning and proof by using Digits, a game like Mastermind but with numbers. We will share examples of students justifying their solutions and of proving that a solution does not work. With Digits, students are excited to take part in activities that are accessible, yet that require mathematical reasoning.

Peter Sell

New York City Department of Education, New York

120/121 (INDIANA CONVENTION CENTER)

Membership questions?
We’ve got answers! Visit
Member Services in
NCTM Central!



12:30 P.M.–1:00 P.M.

234 Problem-Posing with Paper and Pencil and GeoGebra

(Higher Education, Preservice and In-Service) Burst

Participants will create problems from a given problem-solving context using paper and pencil or GeoGebra. The goal of the session will be to understand the role of different tools in teachers' problem-creation process. Problems created and teachers' approaches will be shared.

Cetin Kursat Bilir

Purdue University, West Lafayette, Indiana

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

235 AS Analysis of Student Assessments

(Preservice and In-Service) Burst

This presentation will focus on different techniques that can be utilized to analyze student assessment data to inform instructional practices and interventions for school teachers and administrators

Chad E. Michalek

MSD Washington Township, Indianapolis, Indiana

116/117 (INDIANA CONVENTION CENTER)

12:30 P.M.–1:30 P.M.

236 DS K-12 Statistics Education from NCTM 1989 to Common Core 2013

(General Interest) Session

Prior to NCTM's 1989 Curriculum and Evaluation Standards for School Mathematics, statistics was not taught in schools. But the Standards put statistics and probability at all grade levels. Our door was finally opened. This session updates innovative problems and activities from the "early years" (known by few teachers, perhaps) to Common Core.

Jerry L. Moreno

John Carroll University, University Heights, Ohio

128 (INDIANA CONVENTION CENTER)

237 MM

Mathematical Modeling as a Creative Process

(General Interest) Session

A model is a simplified system that represents a few crucial aspects of a complicated original. Mathematical models are created in the imagination, with mathematical properties specified by the modeler. Learn how the creative process of constructing a well-specified model is the central task of mathematical modeling, with remaining tasks falling quickly into place.

Bruce J. Bayly

University of Arizona, Tucson

103/104 (INDIANA CONVENTION CENTER)

238 Math, Fun, and Magic: The Perfect Mix

(General Interest) Session

Enter the wonderful world of math magic with teacher Charles Sonenshein and magician Chuck Sunshine as your guides. "They" model enthusiastic teaching by presenting mathematics in the spirit of play. Take activities back to your classroom to motivate, fascinate, and turn students into active learners. Be prepared to have fun!

Charles Sonenshein

Wright State University, Dayton, Ohio

500 BALLROOM (INDIANA CONVENTION CENTER)

239 Developing Understanding of the Equal Sign in Kindergarten-Grade 2

(Pre-K–2) Session

Using student work and thinking as a premise, ideas for developing understanding of the equal sign will be presented. Common Core State Standards require moving beyond an operational view of the equal sign and developing algebraic thinking in the early grades. Teachers will view student work highlighting common misconceptions of the equal sign.

Victoria Miller Bennett

University of Louisville, Kentucky

CAPITOL 2 (WESTIN)

AS Assessment

DS Data and Statistics

DV Developing a Community

EQ Equity

EW Exhibitor Workshop

MM Mathematical Modeling

MP Linking Mathematical Practices

240 Using Word Problems in Early Grades

(Pre-K–2) Session

Word problems can be used to meet three mathematics learning goals: understanding problem types, developing operation sense, and developing computation strategies. Come to see how intentionally choosing story problems and closure questions can make your instruction more focused and efficient. Let's get beyond asking, "Did you do it a different way?"

Lori Williams

Manitowoc Public School District, Wisconsin

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

241 Fractions as Numbers

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

Principles to Actions

The focus of this session will be on fractions as numbers. Participants will engage in hands-on tasks that involve a variety of representations, comparing and ordering, and equivalent fractions. Student work that shows students lack of understanding will be shared, with strategies for addressing those misconceptions.

Mark Schmit

ETA hand2mind, Vernon Hills, Illinois

GRAND BALLROOM 5 (WESTIN)

242 Geometry: It's Not Just Squares and Triangles Anymore!

(3–8) Session

Let's look at the development of geometric reasoning in children! Discussed will be open-ended geometry tasks and a framework for examining children's thinking elicited in these tasks. We'll also talk about how we can use the information gathered from students in lesson planning.

Tom Thomas Fox

University of Houston-Clear Lake, Texas

107/108 (INDIANA CONVENTION CENTER)

243 **EQ**

CCSSM: What Difference Will It Make with CRT?

(6–8) Session

Research has shown children of African descent have a tendency to be field dependent. Without this affective attachment, there is no invitation into the lesson. In this session, examples will be presented involving the affective domain that tends to invite children into lessons. Without an invitation, how can you then get to the mathematics practices?

Kwame Anthony Scott

Benjamin Banneker-Djehuti Mathematics, LTD, Chicago, Illinois

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

244 Solving the Y: Algebra Intervention for Struggling Students

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

The Common Core State Standards focus on middle school students' ability to apply and extend their understanding of the four operations to algebraic thinking and reasoning. During this session, we will explore problem-solving tasks and instructional strategies that teachers can implement to increase students' understanding of algebra concepts.

Le'Vada Gray

Math Solutions, Sausalito, California

GRAND BALLROOM 4 (WESTIN)

245 "How Can I Solve It?": Using Manipulatives for Deeper Understanding

(9–12) Session

Come participate in sample lessons and problems that use manipulatives to build a deep understanding of negatives as well as of how to solve equations. Teachers will receive ideas and materials that they can use in their own classrooms.

Lonnie A. Bellman

Lemoore High School, California

109/110 (INDIANA CONVENTION CENTER)

12:30 P.M.–1:30 P.M.

246 **DV** Curriculum Alignment as a Component of Math Teacher Development

(9–12, Higher Education) Session

Math faculty helped a community to identify and solve areas of curriculum nonalignment, and to create high school course enhancements, so that high school graduates will be prepared to succeed in college STEM courses. Steps included a targeted mathematics graduate course and development of curriculum alignment tools for high school teachers.

Mikhail M. Bouniaev
University of Texas at Brownsville
Jerzy Mogilski
University of Texas at Brownsville
James Hilsenbeck
University of Texas at Brownsville

111/112 (INDIANA CONVENTION CENTER)

246.1 **ew** Mastery Ed: Tier 2 and 3 Intensive Math Interventions

(3–8) Exhibitor Workshop

Research indicates that the use of visual representations of mathematical ideas is critical to building understanding in students and teachers. This workshop will demonstrate targeted interventions for tier 2 and 3 students. Attendees will receive samples of the visual tools and hands-on instruction to teach addition/subtraction and multiplication/division.

MasteryEd
Mastery Educational Services, Fallbrook, California
125 (INDIANA CONVENTION CENTER)

246.2 **ew** Pearson's digits on Realize: Where Math Clicks and Virtual Nerds Rule

(6–8) Exhibitor Workshop

Experience “digits,” the only middle grades math curriculum built for today’s digital students with interactive whiteboard lessons, online assessments, and robust data analysis. Find out how digits harnesses the power of technology through the Realize platform and innovative apps, such as Virtual Nerd Mobile Math.

Pearson
Boston, Massachusetts
122 (INDIANA CONVENTION CENTER)

1:30 P.M.–2:45 P.M.

247 Board Hot Topic: Assessing Your Assessment Practices: Do They Measure Up to Support Student Learning?

(General Interest) Session

Principles to Actions

Do your assessments measure conceptual understanding, mathematical processes and practices, and procedural skills? How can results best support students’ learning? How can released tasks, including PARCC and SBAC prototypes, be used as instructional tools? Join us to learn research-informed, practical ways to increase the quality of your assessments, as described in NCTM’s *Principles to Actions: Ensuring Mathematical Success for All*.

Ruth Harbin Miles
Board of Directors, National Council of Teachers of Mathematics;
Mary Baldwin College; Falmouth Elementary School, Staunton/
Stafford, Virginia
Diane J. Briars
President, National Council of Teachers of Mathematics, Reston,
Virginia

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

248 Early Geometry Concepts and Creative Patterning for English Language Learners

(Pre–K–2) Gallery Workshop

Hands-on concrete multicultural sensory materials, tested with English language learners, are presented. Creativity is utilized to develop children’s early geometry, patterning, and algebraic concepts. Firsthand experiences with 3-D sensory stickers, geometry manipulative, and work samples are provided. The Common Core standards addressed are discussed.

Insook Chung
Saint Mary’s College, Notre Dame, Indiana
GRAND BALLROOM 1 (WESTIN)



Hear what’s new from
Exhibitors—attend an
Exhibitor Workshop.

Look for the **ew** symbol
throughout the program book.

249**Four Types of Addition Facts That Help Develop All Others**

(Pre-K–2) Gallery Workshop

Principles to Actions

There are four types of addition facts that we should focus on first and then use to help students develop fluency with all their addition facts. The four types are: Doubles, +0, Make a 10, and 10 + something. This session will look at activities that build these four types of facts and the connections to all other addition facts.

Christina Tondevold

Mathematically Minded, LLC, Orofino, Idaho

Lynn Rule

Retired Teacher, Wheaton, Illinois

GRAND BALLROOM 2 (WESTIN)

250**Implementing Math Workshop in the First Twenty Days of School**

(Pre-K–2) Gallery Workshop

How do you get a math workshop up and running? The presenters have worked together for two years as instructional coach and teacher to do just that. Come hear how we established a “First 20 Days” in order to get the workshop up and running in a second-grade classroom. Emphasis will be placed on implementing learning stations, problem solving, and math notebooks.

Courtney Flessner

Eastbrook Elementary, Indianapolis, Indiana

Elizabeth Keefer

Eastbrook Elementary, Indianapolis, Indiana

116/117 (INDIANA CONVENTION CENTER)

251**Camping In: Math Style**

(Pre-K–5) Gallery Workshop

Are you hiking through the world of mathematics looking for great ideas? Join us and camp in, math style. Hike to math trail posts (stations), complete rich problems in your camp journal, and earn your camp badges. Fill your backpack with great ideas for the classroom or a family math night. Handouts and s'mores provided.

Kelli Shrewsberry

Teaching & Learning Collaborative, Worthington, Ohio

Joan Smith

Teaching & Learning Collaborative, Worthington, Ohio

105/106 (INDIANA CONVENTION CENTER)

252**Literature and Games: Great Ways to Teach Fractions**

(3–5) Gallery Workshop

Fractions are tough for students to learn and for teachers to teach. Learning should engage students in both hands-on and minds-on experiences. Teachers can use books and games that give numerous chances to connect their thinking and reasoning while building their understanding. Come read, play, learn, and walk away with ways to engage your students.

Rebecca D. Rappaport

Centronia/ DC Bilingual Public Charter School, Washington, D.C.

Heather E. Kurtz

Centronia/DC Bilingual Public Charter School, Washington, D.C.

Jan Scott

Scholastic, Inc., New York, New York

126/127 (INDIANA CONVENTION CENTER)

253**MM****Model Thinking: Integrating STEM through Mathematical Modeling**

(3–8) Gallery Workshop

This interactive session will focus on integrating engineering with math and science content through modeling activities in the elementary and middle school classroom. Attendees will participate in a STEM integration modeling activity, learn pedagogies associated with modeling, and gain access to STEM integration modeling materials and resources.

Tamara J. Moore

Purdue University, West Lafayette, Indiana

CAPITOL 1 (WESTIN)

254**DV****Big Ideas in Grade 6–8 Statistics in the Common Core**

(6–8) Gallery Workshop

A close look at the grade 6–8 CCSSM statistics standards is provided in this session, along with a deeper task-based exploration of two of the big ideas: exploring distributions of data, and comparing and making inferences from two samples.

J. Michael Shaughnessy

Past President, National Council of Teachers of Mathematics; Teachers Development Group, West Linn, Oregon

120/121 (INDIANA CONVENTION CENTER)

1:30 P.M.—2:45 P.M.

255 “How Can I Solve It?”: Using Manipulatives for Deeper Understanding

(6–8) Gallery Workshop

Come participate in sample lessons and problems that use manipulatives to build a deep understanding of negatives, making zero, combining like terms, writing, simplifying, and comparing expressions, as well as solving equations. Teachers will receive ideas and materials that they can use in their own classrooms.

Kathryn S. Williams

Carrithers Middle School, Louisville, Kentucky

Duane Williams

Jefferson County Public Schools, Louisville, Kentucky

GRAND BALLROOM 3 (WESTIN)

256 Using MTMS in the Classroom

(6–8) Gallery Workshop

Mathematics Teaching in the Middle School (MTMS) offers many opportunities for enhancing the teaching and learning of mathematics in grades 5-9. This session will engage participants in learning how to effectively use the variety of articles, activities, and resources in each issue of *MTMS* in their classroom.

Bob Klein

Ohio University, Athens

CAPITOL 3 (WESTIN)

257 **MM** Mathematical Modeling: A Vehicle for Learning Engineering Design

(6–12) Gallery Workshop

How is mathematical modeling related to engineering design? Start with a short activity, consider the characteristics of modeling that are parallel to engineering design, and then begin a more complex modeling activity from biomedical engineering. Student work will be shared and assessed to understand characteristics of successful student models.

Judith S. Zawojewski

University of Chicago Center for Elementary Science and Mathematics Education, Illinois

Catherine Newman

Student, Illinois Institute of Technology, Chicago

123/124 (INDIANA CONVENTION CENTER)

258 Geometric Constructions through Paper Folding: Triangle Centers

(9–12) Gallery Workshop

Patty paper offers an alternative to straightedge-and-compass geometric constructions. In this activity, participants will use patty paper to construct perpendicular bisectors, angle bisectors, altitudes, and medians of a triangle. The activity will conclude with a construction of the Euler line.

Ewelina S. McBroom

Southeast Missouri State University, Cape Girardeau

101/102 (INDIANA CONVENTION CENTER)

2:00 P.M.—3:00 P.M.

259 Effective Strategies for Teacher Development: Reflection and Noticing Students Thinking

(Research) Session

We will share findings from our research in teacher development on the value of reflecting on practice and paying attention to students' thinking. We also will share strategies that teachers and teacher educators can use to learn to notice students' thinking, learn to create models of students' thinking, and learn to use these strategies to improve instruction.

Enrique Galindo

Indiana University, Bloomington

Mi Yeon Lee

Arizona State University, Tempe

Julie Amador

University of Idaho, Coeur d'Alene

128 (INDIANA CONVENTION CENTER)



Mingle, explore, and learn
in the **Exhibit Hall**
and **NCTM Central!**

260 **EQ****I HATE MATH! Strategies for Creating Positive Disposition toward Mathematics**

(General Interest) Session

Students are often forced to develop negative disposition toward mathematics by enduring traditional, non-engaging instruction. This session will describe activities and strategies used in a district's summer and Saturday programs designed to motivate students. Participants will experience activities that reach multiple dimensions of motivation.

Vanessa E. Cleaver

President, Benjamin Banneker Association, Little Rock, Arkansas

Marcelline Carr

Benjamin Banneker Association, Little Rock, Arkansas

500 BALLROOM (INDIANA CONVENTION CENTER)**261****What Works Workstations**

(Pre-K–2) Session

Counting and cardinality are the critical and challenging first stages in number sense. The practice guide *Teaching Math to Young Children* on the What Works Clearinghouse website identifies the progressions to number sense. This session will share ideas for multisensory math stations for students struggling to master these early stages.

Jane Cooney

Greenfield Central Schools, Indiana

Erin Harmon

Harris Elementary, Greenfield, Indiana

Julie Morley

Harris Elementary, Greenfield, Indiana

GRAND BALLROOM 4 (WESTIN)**262****Three Steps: Align Your Math Curriculum to the Common Core**

(Pre-K–5) Session

This presentation will invite participants to learn three quick steps (beginning in the session) to more closely align their existing math curriculum to the Common Core State Standards using their existing materials and without waiting for state curriculum maps and/or new assessments. Tools and templates will be provided.

Lisa Anne Palacios

American Institutes for Research, Naperville, Illinois

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)**263****Developing Mathematics Community with Urban Students: One Exemplar Teacher's Story**

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

Principles to Actions

This presentation peels back the layers of what it means to envision, establish, and continually refine mathematical community in a fifth-grade classroom. The focus is on one teacher's efforts to reclaim his mathematics community in order to increase engagement, participation, and cognitive challenge for his urban students.

Craig J. Willey

Indiana University–Purdue University Indianapolis

Eric Craig

MSD Pike Township, Indianapolis, Indiana

103/104 (INDIANA CONVENTION CENTER)**266****Investigative Geometry in a Dynamic Environment**

(6–12) Session

Principles to Actions

The presentation will demonstrate two dynamic technology-based classroom activities (using GeoGebra) designed to help students explore relationships among measures of 2-D and 3-D objects, make and test conjectures, and investigate patterns about changes in measure. The speakers will discuss the implications of using the activities in the classroom.

Erol Uzan

Indiana University, Bloomington

Robin Jones

Indiana University, Bloomington

CAPITOL 2 (WESTIN)

Friday



Looking for lessons, activities, and teacher resources? Check out www.nctm.org

267 **DS** LOCUS: A Tool for Assessing Statistical Reasoning in the Common Core State Standards

(6–12) Session

This session will present diagnostic assessments for measuring students' understanding of statistics as outlined in the Common Core State Standards and Guidelines for Assessment and Instruction in Statistics Education. These tools have implications for the research community as well as classroom teachers as they can be used in a formative manner.

Douglas Whitaker
University of Florida, Gainesville

109/110 (INDIANA CONVENTION CENTER)

268 Put the FUN Back in Math Class!

(6–12) Session

Everyone feels such pressure to achieve high levels that we forget the best ways to learn are for students to be motivated, engaged, and excited. I will demonstrate eight activities to use at any level (elementary to calculus) that will turn the dreaded math class into an enthusiastic atmosphere. Ideas, templates, ready-to-go activities, and excitement will be provided!

Heather L. Hart
Center Grove High School, Greenwood, Indiana

GRAND BALLROOM 5 (WESTIN)

269 The Concepts of Calculus

(9–12) Session

Student success in calculus depends on what happens in a calculus class and before. This session will provide ideas for introducing calculus ideas conceptually in high school classes before calculus. It will also provide ideas for teaching calculus classes in a way that encourages conceptual understanding and procedural fluency.

Dale Nowlin
Columbus North High School, Indiana

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

270 A Cautious Approach to Asymptotes

(Higher Education) Session

The concept of “asymptote” is introduced at the intermediate algebra level and appears again in trigonometry and throughout calculus. We know one when we see one; however, there is no universally accepted definition of “asymptote.” We will see how some definitions admit surprising examples of asymptotic behavior.

Leonard M. Wapner
El Camino College, Torrance, California

111/112 (INDIANA CONVENTION CENTER)

271 Developing an Interdisciplinary Math Methods Primer for Preservice Elementary Teachers

(Preservice and In-Service) Session

Principles to Actions

This presentation is a primer of interdisciplinary math approaches applied within a math methods course for preservice elementary teachers. The presentation will showcase an interdisciplinary math model within a math methods course at Valparaiso University with Junior Achievement of Chicago for the past five years. Guidelines for implementation and preservice teacher work samples will be provided.

Victoria Oliaku Chiatula
Valparaiso University, Indiana

107/108 (INDIANA CONVENTION CENTER)

271.1 **ew** Practice the Practices: Amplify Math Projects

(6–8) Exhibitor Workshop

Prepare middle school students for CCSS-based, high-stakes tests, and introduce project-based learning (PBL) into your classroom with Amplify Math Project's engaging multiday projects. In this session, participants will gain tools and resources for supporting common pitfalls to PBL in a math class through Amplify Math Project's web-based teacher app.

Amplify
Brooklyn, New York

125 (INDIANA CONVENTION CENTER)

2:00 P.M.—3:00 P.M.

271.2 Teaching Statistics in the Middle Grades

(6–8) Exhibitor Workshop

In this session, we will share classroom activities that engage students in meaningful investigations of the real world through data and statistics. Learn how incorporating technology into your lessons can open opportunities for mathematical dialogue amongst your students and help them make stronger connections in mathematics.

Texas Instruments
Dallas, Texas

122 (INDIANA CONVENTION CENTER)

3:15 P.M.—4:30 P.M.

272 Shuffling Into Math: Primary Games for the Common Core

(Pre-K–2) Gallery Workshop

Principles to Actions

Come prepared to play card and dice games that help your primary students achieve success in the following Common Core concepts: numeration, operations and fact fluency, patterning, and graphing. Excellent take-home ideas, game boards, and student samples will be shared. Great for regular, Title I, ELL, and after-school programs.

Julie Knudsen
Trinity Valley School, Ft. Worth, Texas

120/121 (INDIANA CONVENTION CENTER)

273 Taking Primary Math Journals to a New Dimension

(Pre-K–2) Gallery Workshop

Participatory power is high as you learn by doing in this fast-paced, hands-on session. Discover how to add dimensionality to your primary student's math journal as you transform basic classroom materials into 3-D graphic organizers. Depart with a mini composition book filled with ideas ready to use immediately.

Deborah Vannatter
Vogel Elementary School, Evansville, Indiana

123/124 (INDIANA CONVENTION CENTER)

274 Do Your Students REALLY Know What the Equal Sign Means?

(Pre-K–5) Gallery Workshop

You might be surprised by your students' understanding of this grade 1 Common Core standard. The presenter will share seven years of personal data and experiences along with information from outside sources. Participants will be provided with and participate in a number of activities to address this concept along with methods to use in the classroom.

Mary Ann Modrak
CESA 10 - Cooperative Educational Service Agency, Chippewa Falls, Wisconsin

CAPITOL 3 (WESTIN)

275 Introducing Fractions: Equal Shares and Candy Bars

(Pre-K–5) Gallery Workshop

Explore equal sharing problems to introduce fractional concepts. How can five people share six candy bars equally? See how one problem can lead to a discussion of many fractional concepts including reading and writing fractions and mixed numbers, drawing pictures, naming equivalent fractions, and making connections to multiplication and division.

Beth Larner
The Orchard School, Indianapolis, Indiana

GRAND BALLROOM 2 (WESTIN)

276 Measurement and the Common Core Standards

(3–5) Gallery Workshop

Explore research-based methods and innovative techniques to teach abstract concepts at the concrete level to achieve understanding. Hands-on activities and 3-D models connect measurement, fractions, scale drawing to real life and Common Core standards. Practical application leads to understanding, success, ease, and enjoyment. Handouts and materials will be provided.

Donna L. Monck
Rock Christian Academy, Easton, Pennsylvania

116/117 (INDIANA CONVENTION CENTER)

3:15 P.M.–4:30 P.M.

277

Progression of Fractions in Grades 3–5

(3–5) Gallery Workshop

Principles to Actions

Learn about the progression of fractions across grades 3–5. This important topic is a major focus in CCSSM. Come see different activities that showcase unit fractions, multiple fraction representations, fraction equivalence, partitioning, and fun and open-ended activities.

Monica A. Tienda

Oak Park School District, Michigan

101/102 (INDIANA CONVENTION CENTER)

278

Flips, Slides, Turns, and Tessellations, Oh My!

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

Principles to Actions

Students in grades 3–5 should predict and describe the results of certain types of transformations. This workshop will demonstrate how a variety of tools, such as patty paper and string can be used to investigate slides, reflections, and rotations. Participants will also learn how to use these transformations to create tessellations.

Rita Eisele

New Mexico State University at Alamogordo

CAPITOL 1 (WESTIN)

279

Earth by the Numbers

(6–8) Gallery Workshop

In this STEM-based workshop, participants will engage in innovative, hands-on activities to help students use their developing math skills to better understand human impacts on the environment. Use real-world data to boost understanding of numbers and operations, measurement, probability, and more. Receive lesson plans on CD-ROM.

Jodi Bondy

Population Connection, Washington, D.C.

105/106 (INDIANA CONVENTION CENTER)

280

Radical Math Games for Middle Years “Catch-Up”

(6–8) Gallery Workshop

Principles to Actions

Participants will play games that incorporate the use of cards and dice as they help students learn basic math skills that are typically learned in earlier grades but that, for whatever reason, have not been. Topics covered include basic operations and strategies for rounding. Games are easily differentiated. A handout with game boards is provided.

John Felling

Box Cars & One-Eyed Jacks, Edmonton, Canada

GRAND BALLROOM 1 (WESTIN)

281

“What’s Fair?”: Using Mathematics to Examine Issues of Fairness

(6–12) Gallery Workshop

Experience the highlights of a unit where students have explored the mathematics of fair division in real-world situations; game theory, or how our decisions affect others and their decisions affect us; and equal chances and distribution of resources, meaning how mathematics can help us develop our own model of a fair society.

Steve Starr

Retired, Chicago Public Schools, Illinois

GRAND BALLROOM 3 (WESTIN)

282

Math Magic! Cooperative Group Activities That Promote Student Achievement

(6–12) Gallery Workshop

Student engagement and participation are crucial to student success. We will explore group activities focused on prealgebra and algebra concepts that give students the opportunity to show mastery of skills. Participants will experience the power of student competition that fosters achievement for all learning abilities. This process offers a reproducible sample.

Adrienne Pavek

North Palos School District 117, Palos Hills, Illinois

Bernadette Skobel

North Palos School District 117, Palos Hills, Illinois

126/127 (INDIANA CONVENTION CENTER)

AS Assessment

DS Data and Statistics

DV Developing a Community

EQ Equity

EW Exhibitor Workshop

MM Mathematical Modeling

MP Linking Mathematical Practices

3:15 P.M.—4:30 P.M.

283 Transformations Modeling Technology with Exponentials in CCSSM

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

Use TI-Nspire technology to explore exponential functions numerically, symbolically, and via transformational graphing while modeling population growth at three differentiated levels. Increase your appreciation of teaching mathematics as big ideas that are connected, in context, and make sense, and not as small, isolated facts for memorization.

Mike Lutz

California State University, Bakersfield

WABASH BALLROOM 2 (INDIANA CONVENTION CENTER)

3:30 P.M.—4:30 P.M.

284 **EQ** Making “It” Matter: Providing Access to Powerful Mathematics

(General Interest) Session

This session will offer suggestions for using a range of strategies to engage female students and challenge them to think deeply and critically about mathematics and other STEM-related concepts. These strategies will also work to empower girls and young women to use mathematics as a tool to address inequities in their communities.

Crystal Hill Morton

Indiana University—Purdue University Indianapolis

Saba-Na’Imah Berhane

UCASE Research Assistant, Indiana University—Purdue University Indianapolis

103/104 (INDIANA CONVENTION CENTER)

285 The Nature and Effects of Elementary Teachers’ Field-Based Teaching Practice

(Research) Session

I will report on the effects of the timing, duration, and quality of field-based teaching practice on elementary mathematics teachers’ knowledge for teaching mathematics. Data come from a nationally representative sample of U.S. public institutions preparing K-6 teachers, and the implications for mathematics teacher education will be discussed.

Erik Daniel Jacobson

Indiana University, Bloomington

111/112 (INDIANA CONVENTION CENTER)

286 Fostering 21st-Century Conceptual Development through Mathematics Storybook Reading

(Pre-K–2) Session

The 21st-century classroom should foster mathematical problem-solving skills as well as creative thinking and analysis. Children’s storybooks provide the avenue for mathematical discourse and conceptual development. Utilize rubrics to assess your level of open-ended questioning and guided problem solving to enrich mathematical development.

Jill Jacobi-Vessels

University of Louisville, Kentucky

Amanda Davis

Retired Teacher, Terre Haute, Indiana

WABASH BALLROOM 3 (INDIANA CONVENTION CENTER)

Friday



Join us at the 2015 Regional Conferences:

Atlantic City • October 21–23

Minneapolis • November 11–13

Nashville • November 18–20

287 Using Problem-Solving Assessments to Guide Instruction and Measure Growth

(Pre-K–2) Session

The Community Schools of Frankfort (Indiana) has spent the past four years working to improve teaching and learning in elementary mathematics classroom. Math coaches and a district consultant will describe how they've provided professional development and created a district-wide assessment that drives instruction and measures growth without sorting children or ranking teachers!

Ryan Flessner

Butler University, Indianapolis, Indiana

Liz Stewart

Suncrest Elementary, Frankfort, Indiana

Kim Walton

Green Meadows Intermediate, Frankfort, Indiana

109/110 (INDIANA CONVENTION CENTER)

288 Increase Accuracy and Speed While Having Fun Using Nontraditional Strategies

(3–8) Session

Principles to Actions

Too often we teach one computational strategy, and students feel it is the only strategy there is. Remember, not everyone thinks the same or learns the same. I will introduce several nontraditional strategies for adding, subtracting, multiplying, and dividing whole numbers as well as finding the greatest common factor and least common multiple.

Joseph C. Mason

Hagerstown Community College, Maryland

WABASH BALLROOM 1 (INDIANA CONVENTION CENTER)

289 Understanding Fractional Partitions, Equivalence, and Proportional Reasoning for Solving Problems

(3–8) Session

Participants will learn the two distinct meaning of fractions (part-whole and quotient) and how to instruct students on ordering and comparing equivalent fractions while extending their knowledge and understanding on operations with fractions. Attendees will also learn how incorporate visual representations to solve real-world problems for fractions.

Joseph Sencibaugh

Webster University, St. Louis, Missouri

Jennifer Bond

Ferguson-Florissant School District, St. Louis, Missouri

Dan Sinclair

Mastery Educational Services, Fallbrook, California

CAPITOL 2 (WESTIN)

290 **AS** Assessing the Standards for Mathematical Practice

(6–12) Session

Assessing student mastery of the Standards for Mathematical Practice is as essential as assessing content mastery. This presentation will illustrate how to align assessments to both content and practices through the use of examples and an in-depth analysis of the practices at various grade levels of secondary mathematics.

Janet M. Rummel

INIschools, Indianapolis, Indiana

107/108 (INDIANA CONVENTION CENTER)

291 Using Problem-Solving Maps to Improve Students' Math Thinking Skills

(6–12) Session

Participants will learn about three problem-solving maps that can be used to enhance students' abilities for thinking about math. The proposed thinking skills are inductive thinking, deductive thinking, and the ability to break down a problem into smaller problems. The maps are Example-conclusion graph, Multi-rule Branch, and Math Breaker.

Danilo Sirias

Saginaw Valley State University, University Center, Michigan

GRAND BALLROOM 5 (WESTIN)

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292 Rethinking the Trigonometric Functions through Technology

(9–12) Session

Many beautiful ideas in trigonometry emerge from the unit circle. We will use dynamic geometry software to generate trigonometric graphs. Then we will exploit similar technology to investigate generalized graphs and the behavior of a unit square and other polygons. In these new systems, how does our trigonometric system change and stay the same?

Chris Bolognese

Upper Arlington City Schools, Columbus, Ohio

GRAND BALLROOM 4 (WESTIN)

293 Using Tablet PCs to Teach Calculus to Diverse or Struggling Students

(Higher Education) Session

Using a tablet PC as a blackboard, students with diverse needs can learn mathematics, interact in class, and get ongoing support at home. I will demonstrate this wonderful tool and offer some of my own research results on students who did not succeed the first time in calculus. This technique benefits English language learners, struggling students, and struggling teachers.

Angela Thompson

Governors State University, University Park, Illinois

128 (INDIANA CONVENTION CENTER)

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Friday



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The Indiana Council of Teachers of Mathematics is dedicated to promote excellence in school mathematics curriculum, instruction, and assessment and to provide services and opportunities for professional growth and development of teachers of mathematics and future teachers of mathematics. To support its goals, ICTM holds an annual conference for teachers, administrators, and mathematics educators, conducts summer professional development sessions, publishes the *Indiana Mathematics Teacher* journal, provides professional development grants for teachers and schools, gives scholarships to preservice mathematics teachers, sponsors an award for outstanding mathematics students, and coordinates the state mathematics contest for middle and high school students..



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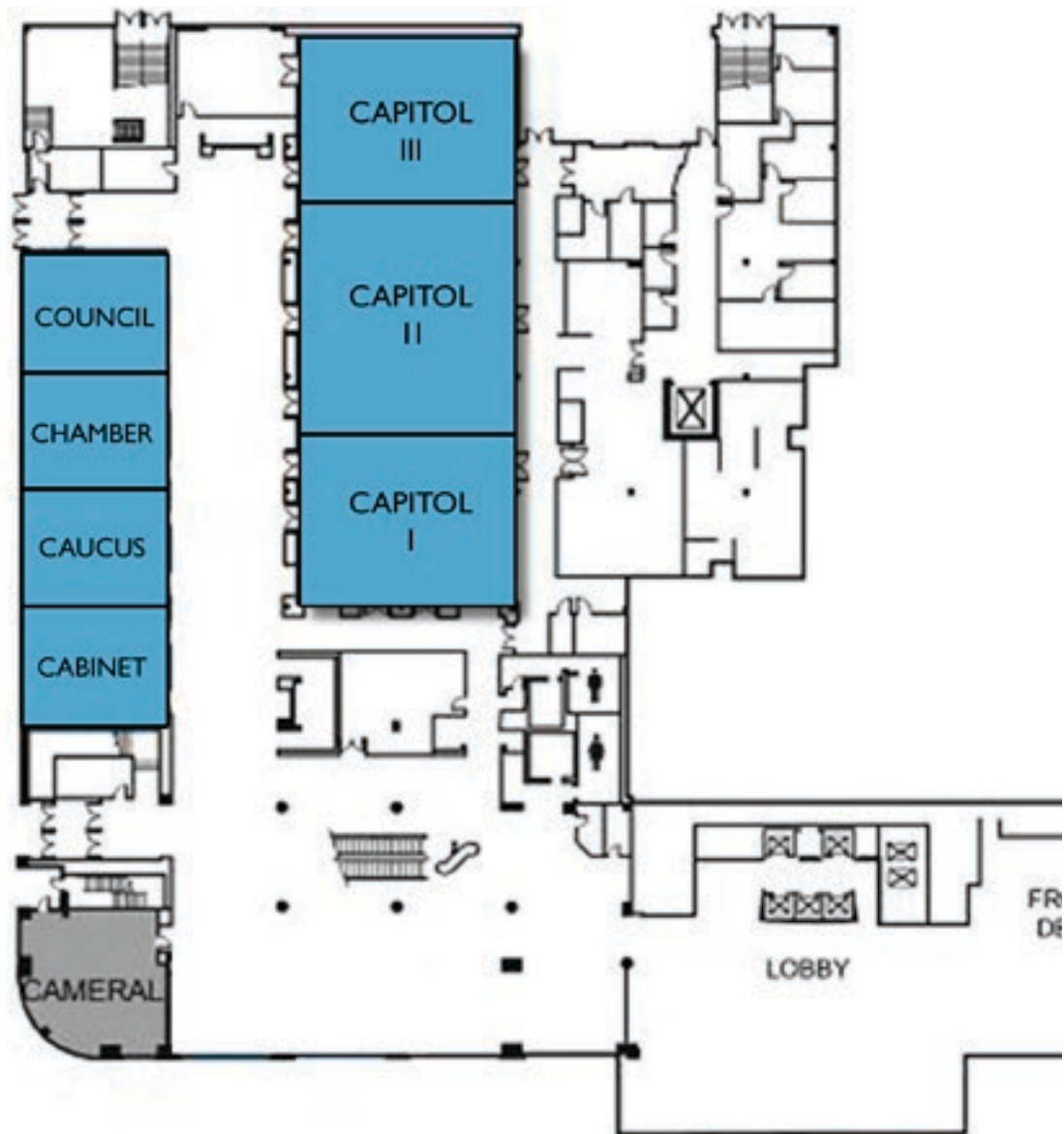
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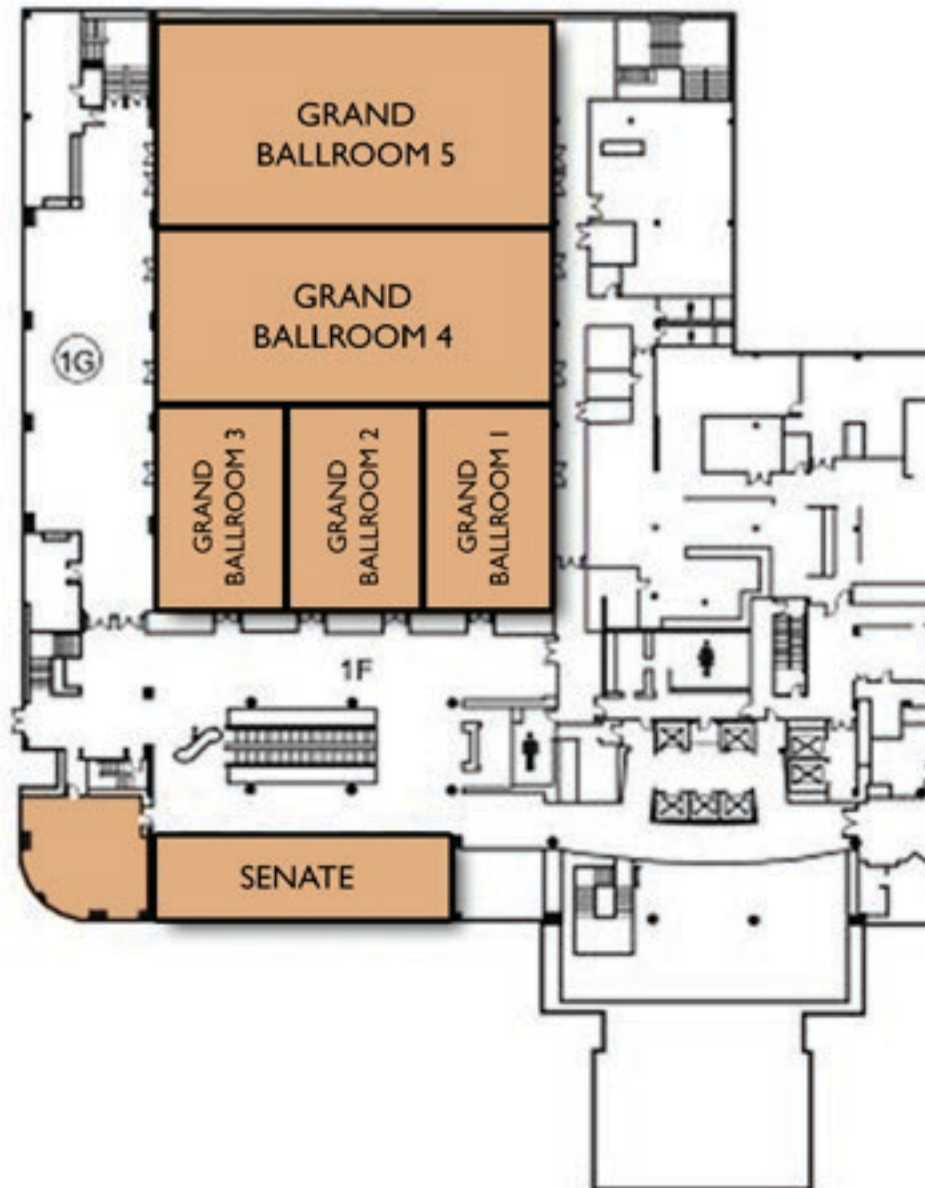
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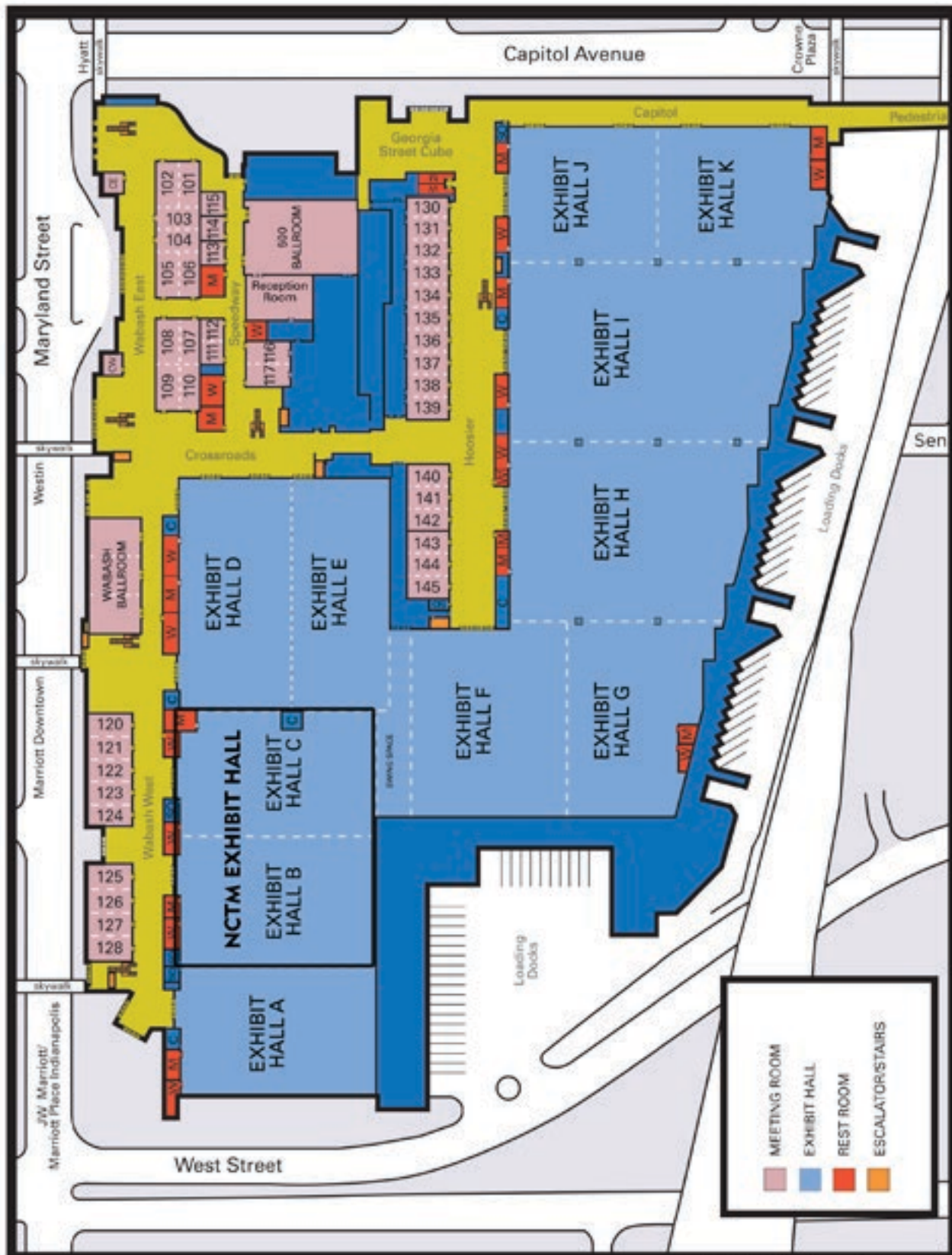


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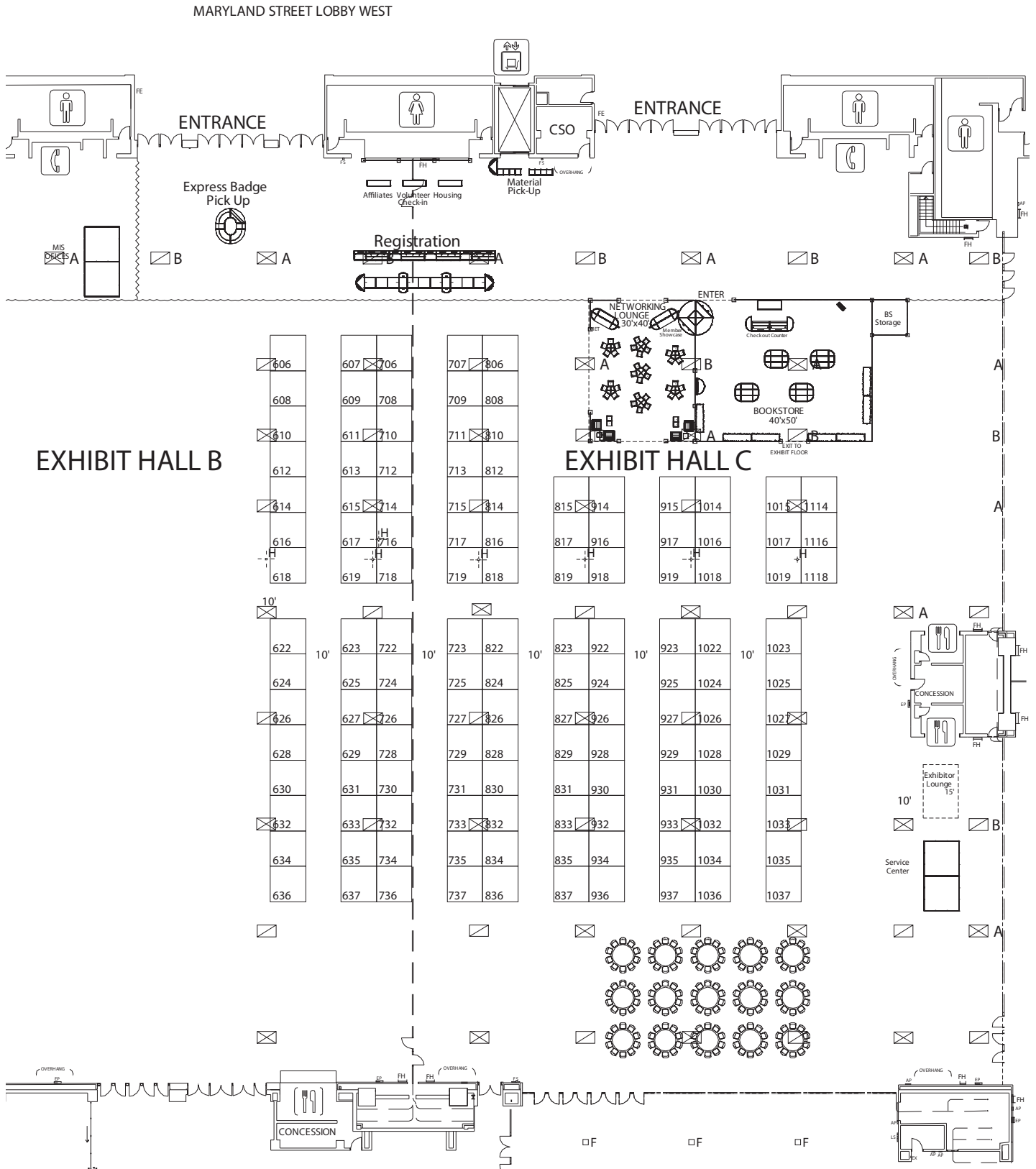
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www.bedtimemath.org

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K

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L

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Montreal, Quebec, Canada
PH: 888-844-9022
www.learningbird.com

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Learning Carpet-TLC, Inc.

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Layton, Utah
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Learning Wrap ups, Inc. is the developer and publisher of Learning Wrap ups, Learning Palette, and Learning Palette Online. These unique products have been developed to assist the K–5 student with development of fact fluency, and conceptual understanding of important math skills. The products of Learning Wrap ups have been utilized in the classroom for over 30 years and have been called the "best learning center products" available.

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Booth: 708

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lonestarlearning.com

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www.MasteryEd.com

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Booth: 714

Salem, Oregon
PH: 800-575-8130
www.mathlearningcenter.org

The Math Learning Center (MLC) is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based curriculum, resources, and professional development. Our products and services are used by educators throughout the United States and in many international locations.

Math Teachers Press

Booth: 914

Minneapolis, Minnesota
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www.movingwithmath.com

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www.mindresearch.net

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bannekermath.org; www.todos-math.org;
www.wme-usa.org

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Booth: 1023

Washington, D.C.
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Booth: 726

Worthington, Ohio
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teachinglearningcollaborative.org

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U

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Booth: 1027

Columbia, Missouri
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online.missouri.edu/MathMED

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Woot Math

Booth: 607

Boulder, Colorado

PH: 303-449-6284

wootmath.com/

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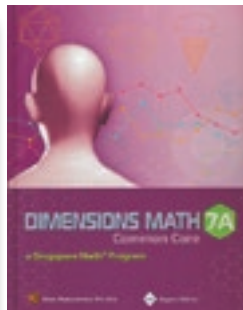
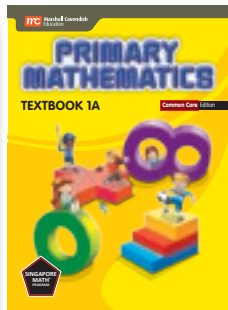
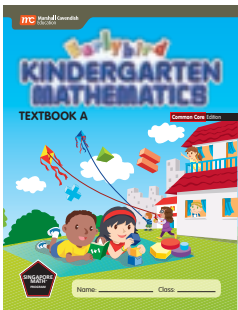
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