



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENTS

2015 NCTM REGIONAL CONFERENCE & EXPOSITION

Minneapolis • November 11–13

Program Book

See valuable
COUPONS
beginning on
page 89



nctm.org/minneapolis



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2015 NCTM REGIONAL CONFERENCE & EXPOSITION

Minneapolis • November 11–13

HOST

Minnesota Council of Teachers of Mathematics (MCTM)

MEETING FACILITY

All Regional Conference presentations will be held at the Minneapolis Convention Center. See pages 73–77 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.

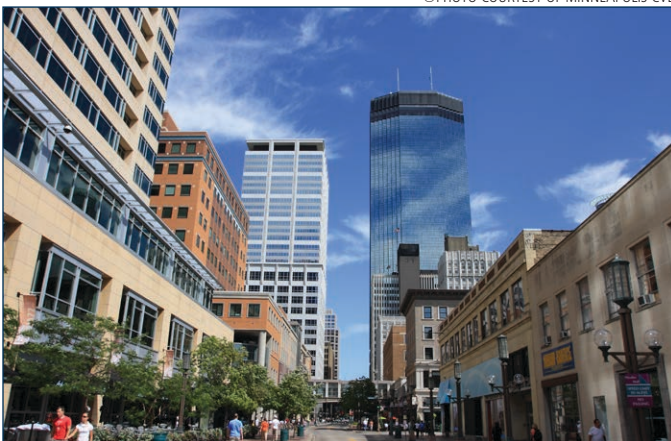
EXHIBITS

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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www.nctm.org/minneapolis

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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

Printed in U.S.A.

Welcome to Minneapolis!



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Welcome to the NCTM Regional Conference & Exposition in Minneapolis. We invite you to enjoy our beautiful city in the “Land of 10,000 Lakes.” While at the conference you will have many opportunities to learn and share new ideas aimed at improving mathematics learning for all children. We hope you will meet colleagues, new and old, and leave the conference energized to implement innovative ideas in your classrooms, schools, and districts.

The Program Committee has been working for nearly two years to make this an exciting and worthwhile program with more than 180 presentations covering a wide range of areas. You will find sessions addressing our six themes:

- Developing Leaders in Effective Teaching
- Promoting Productive Struggle
- Computational Fluency
- Beyond Algebra II
- Increasing Student Growth and Teacher Development through Technology
- Beyond Catchphrases and Statistics: Equity and Instructional Practice

Join us on Wednesday night at our opening IGNITE session where seven talented speakers share their professional passions in this high-energy, thought-provoking program. Speakers will address issues related to our six conference strands but they each only have eight minutes and twenty slides to communicate his/her message. It promises to be a fast-paced, entertaining program.

While in Minneapolis be sure to find time to enjoy this city. Stroll along Nicollet Mall, one of the most popular and well-known shopping areas in the cities. For pure shopping power, there is no better site than the nation’s largest shopping center, Mall of America. Light rail can take you from downtown Minneapolis to the Mall of America in short order.

Additionally, the Twin Cities area offers a wide selection of cultural and entertainment offerings. There are several public museums, art galleries, and music venues in and near downtown Minneapolis. The Dakota Jazz Club, a premier music club, is walking distance from the convention center. Take advantage of the many restaurants and pubs in downtown Minneapolis. They offer you a great place to meet friends and colleagues.

On behalf of the MCTM Board, the Program Committee, the NCTM staff, and the many volunteers who have worked countless hours making this conference a reality, we invite you to enjoy the conference!



Kathleen Cramer
Program Committee Chair
University of Minnesota



Emily Larsen
Volunteer Committee Chair
South Washington County Schools,
Cottage Grove, Minnesota

The NCTM 2015 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 provide 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 due to fire regulations, only those with seats will be allowed to stay 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.
200 AB (Minneapolis Convention Center)

Regional Conference Overview & Orientation

Whether you are new to NCTM or a seasoned veteran, there is something new for everyone! Hosted by members of the Board of Directors, this session will show you how 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 and 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!

Thursday and Friday
7:15 a.m.–7:45 a.m.
L100 FG (Minneapolis Convention Center)

Program Updates

Check online for a digital copy of the program updates including all of the latest changes, cancellations, and additions!

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.

Ignite Sessions (90 minutes) are sessions where several speakers are each allowed a specified number of minutes and slides to communicate their message. The Opening Session on Wednesday will be an Ignite Session featuring seven thought-provoking speakers.

Workshops (75 minutes) are set with round tables for hands-on work and activities using manipulatives.

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.

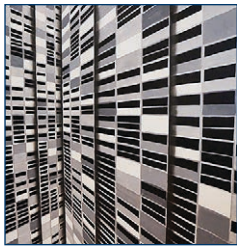
Exhibitor Workshops (60 minutes) are set theater style for at least 100 people. Exhibitors showcase their products and services away from the Exhibit Hall. Look for the symbol **ew** indicating exhibitor workshops in the program book.

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 Information



Emily Lynch Victory Artwork

Come view the artwork of Emily Lynch Victory, an abstract painter obsessed with pattern, symmetry, and mathematics. Emily creates systematic rules, applies repeated geometric shapes, and uses mathematical concepts as the basis for her artwork. Victory,

a former high school math teacher, has degrees in both mathematics and fine art. She works for a math publishing company in Minneapolis, and she paints from her studio in Independence, Minnesota.

Thursday

11:00 a.m.-4:00 p.m.

L100 Lobby (Minneapolis Convention Center)

Focus Strands

DEVELOPING LEADERS IN EFFECTIVE TEACHING

LEAD

The sessions in this strand will give language to and empower teacher leaders to move the practices of those that they work with to be aligned with the eight Mathematics Teaching Practices from NCTM's *Principles to Actions*. These eight Practices have the potential to meet this vision. Individual sessions will not necessarily address all eight practices but should address a subset of them. Participants will become empowered in using the eight effective teacher practices to engage students in meaningful mathematical learning.

Strand Sessions

Session #	Session title
27	Observing the Eight Mathematics Teaching Practices
55	Strategies and Tasks to Build Procedural Fluency from Conceptual Understanding
103	Implementing NCTM Teaching Practices from Principles to Actions
156	Focus on What Matters Most: Effective Teaching!
214	Number and Operations: Context for Examining the Mathematical Teaching Practices
236	So . . . You Have a Math Goal

PROMOTING PRODUCTIVE STRUGGLE **PPS**

Presentations in the Promoting Productive Struggles strand will address how teachers can build off students' thinking as they teach to state and Common Core math standards. Presentations will highlight how teachers move all students towards learning goals by capitalizing on mistakes or misconceptions students have. Presentations may also demonstrate how formal and informal assessments are an integral part of instruction and can be used to guide teachers' instructional decisions. Participants will learn how to establish classroom communities where mistakes are valued and pedagogical strategies are implemented that use student thinking as learning opportunities.

Strand Sessions

Session #	Session title
52	Intervention and Assessment Strategies for Students Who Struggle (Grades 2–5)
140	Putting the Principles into Action
144	Beyond Right and Wrong: Noticing and Responding to Student Thinking
154	Celebrating Struggles and Mistakes in the Math Classroom
175	A Growth Mindset in the Math Classroom
227	Students Solving Their Own Questions with Number and Visual Patterns

COMPUTATIONAL FLUENCY **COMP**

The Computational Fluency strand presentations will examine effective pedagogical strategies for teaching traditional algorithms and/or alternative strategies that promote a deep understanding of number and operations and assist students in being able to compute both accurately and efficiently. These sessions engage participants in thinking deeply about computational fluency in K–grade 5 and encourage conversations regarding effective teaching practices to promote understanding of both student-accessible and standard algorithms.

Strand Sessions

Session #	Session title
18	Developing and Assessing Addition Fact Fluency
38	Beyond Basic: Developing Fact Fluency
44	Unpacking Computational Fluency in K–2 Classrooms
82	A Properties-Based Approach to Developing Computational Fluency
110	Assessing Understanding of Number
136	Fluency with Fractions
233	Nurturing Computational Fluency and Mathematical Thinking

BEYOND ALGEBRA II **BA2**

The Beyond Algebra II strand will have sessions that focus on third- and fourth-year high school curricula that emphasize how to prepare high school students for career and collegiate level mathematics. Engage participants in deep discussions of higher-level mathematics curriculum including the plus standards from the Common Core, trigonometry, precalculus, or beyond. Sessions should address issues related to preparation for career and collegiate level mathematics.

Strand Sessions

Session #	Session title
85	College and Career Ready Mathematics: The Case for Rational Functions.
141	Swinging Into Parametric Equations
161	What Mathematics Is Important in Algebra II and Precalculus?
184	Using Simulation to Prepare High School Students to Reason Statistically
215	Sign Charts in Calculus: Use and Abuse
237	What Happens after Algebra II?

INCREASING STUDENT GROWTH AND TEACHER DEVELOPMENT THROUGH TECHNOLOGY **TECH**

Participants in the Increasing Student Growth and Teacher Development through Technology strand have the opportunity to learn about technology through two different lenses. They will learn about the use of technological tools and Web resources that students can use in the classroom to learn math in a deep and engaging way. In addition, some sessions will engage participants in ways that model how technological resources available to teachers can improve their pedagogical practice and support students in meaningful learning of mathematics. In all of these talks, speakers will be encouraged to give participants concrete “takeaways” that they can use in their own classrooms. Participants will be able to take concrete steps towards helping students learn through technology and facilitating teacher growth with the use of technology.

Strand Sessions

Session #	Session title
56	The 24/7 Staff Room
64	Connect Statistical Data with Algebraic Modeling Using the Twin Cities
76	I’m Blogging with the Man in the Mirror
90	The Pitfalls and Potential of Online Professional Development
107	Tech Tools and Ideas to Empower Students through Algebraic Creativity
126	Empowering Students with Rich Online Algebra Activities
135	Chains and Webs

BEYOND CATCHPHRASES AND STATISTICS: EQUITY AND INSTRUCTIONAL PRACTICE **EQUITY**

Participants in the Beyond Catchphrases and Statistics: Equity and Instructional Practice Strand have the opportunity to consider how to engage in the cultures, communities, and families of our students to improve classroom outcomes. Sessions may focus on instructional practice and programs that have shown to be effective for all students, in particular students who may have been denied access, in any way or for any reason, to educational opportunities, which as a result may have limited their mathematics learning. Sessions will address how strategies developed to help one type of student (e.g., English language learners, special education students) may actually help all students learn mathematics. These sessions will engage teachers in thinking about their instructional practice and in leveraging students’ families, communities, and lived experiences as an integral part of math teaching and learning.

Strand Sessions

Session #	Session title
6	Educators of Native American Students—Ideas for Teachers
94	Instructional Practice That Facilitates Equity for ELLs in Mathematics Classrooms
122	STEM: Mathematical Concepts Explored with Scientific Content and Models
148	Illuminating the Teaching Practices through Equitable Mathematics Tasks
229	Accessing Algebra in Urban Classrooms

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/planMINN.
- Become familiar with the layout of the Minneapolis Convention Center by reviewing the floor plans on pages 73–77.
- Visit NCTM Central: Stop by the **NCTM Bookstore** for the latest NCTM educational resources and **Member Services** to learn more about how NCTM can help you professionally and to 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 2015 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.

Information Booth

The NCTM Information Booth will be located in the Minneapolis Convention Center.

Staff can answer your questions about the city, assist with directions and transit, and provide information on historical sites, 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 Minneapolis Convention Center Security.

First-Aid Station

There will be a first-aid station at the Minneapolis Convention Center during the NCTM conference. If you need medical services while in Minneapolis, 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 2015 Regional Conference & Exposition. In the days following the Regional Conference, you will receive an e-mail asking for an evaluation of 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. To give you dedicated time to visit the exhibits, no presentations will take place from 4:00 p.m. to 5:00 p.m. on Thursday. Check out the list of exhibits and a map of the Exhibit Hall on pages 73–77.

Exhibitor Workshops

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

Conference App

The NCTM conference app keeps you connected with every aspect of the Regional Conference. The free app allows you to search sessions, speakers, and exhibits; view the Exhibit Hall floor plan; highlight your favorite presentations; 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 and online planner. Handouts will be available until **January 2016**.

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/planMINN to check it out.

NCTM Central

NCTM Central 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 seasoned 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 onsite and receive a free San Francisco Annual Meeting T-shirt (while supplies last).
- 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!
- Mathematics Education Trust (MET) Learn about grants, scholarships and awards for mathematics teachers, educators and prospective teachers.
- 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 a Minnesota 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 Minnesota 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 Minnesota are not valid for this Regional Conference.*

- Come and see the display of a Level 3 **Menger Sponge** created by teachers and students from across Minnesota. The Menger Sponge is a three-dimensional fractal that is made by taking a cube and cutting out a square section through the center in each of the three directions; then each of the resulting smaller cubes is cut out in the same way. The resulting object has zero volume but infinite surface area. Made entirely of standard business cards, this project has been in the works since the fall of 2014.

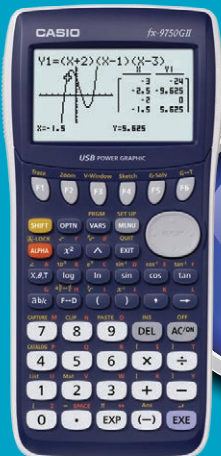


NCTM newbie? Attend the **Regional Conference Overview & Orientation** to learn how to enhance your conference experience and maximize your membership's benefits. See page 3 for details.

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OR

One (1) CASIO EcoLite XJ-V1 Projector





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HIGHLIGHTS

Opening Session: What Ignites Us?, 1



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
#NCTMregionals



Instagram

Follow us!
www.instagram.com/nctm.math
#NCTMregionals

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

What Ignites Us?

General Interest Session

Seven talented speakers share their professional passions in this high-energy, thought-provoking program. The catch: Each person has only 8 minutes and 20 slides to communicate the message. How can we develop leaders in effective teaching practices? How can we get students to persevere, even when they make mistakes? What does “computational fluency” mean, and how do we achieve it? What happens after a student completes Algebra II? How can technology help students and teachers grow? What can we do to ensure equity?

L100 (MINNEAPOLIS CONVENTION CENTER)



Robert Q. Berry III
University of Virginia, Charlottesville

Robert Q. Berry III is an Associate Professor of Mathematics Education at the University of Virginia in the Curry School of Education with an appointment in Curriculum Instruction and the Special Education department, where he serves as the coordinator of the Elementary Education program. Berry teaches elementary and special education mathematics methods courses in the teacher education program. His research focuses on equity issues in mathematics education, with a particular focus on African American boys. Additionally, he does research on mathematical instructional quality. Berry has published over 75 articles, book chapters, and proceedings. His articles have appeared in the *Journal for Research in Mathematics Education*, *Journal of Teacher Education*, *American Educational Research Journal*, *Mathematics Teaching in the Middle School*, *Teaching Children Mathematics*, and others. He was on the writing team for NCTM’s landmark publication *Principles to Actions: Ensuring Mathematical Success for All* (2014). Berry served on the NCTM Board of Directors from 2011 to 2014, was recipient of NCTM’s Linking Research to Practice Publication Award for volume years 2010 and 2014, and currently serves on the board for the Virginia Council of Teachers of Mathematics.



Diane J. Briars
President, National Council of Teachers of Mathematics, Reston, Virginia

Diane J. Briars is president of the National Council of Teachers of Mathematics (NCTM), a 70,000-member international mathematics education organization. Previously, Briars was a mathematics education consultant; a senior developer/research associate on the NSF-funded Intensified Algebra Project; and Mathematics Director for Pittsburgh Public Schools. She is a past president of the National Council of Supervisors of Mathematics (NCSM) and has served in leadership roles in various other national organizations. Briars holds a PhD in Mathematics Education, MS and BS in Mathematics from Northwestern University and did postdoctoral study in the Psychology Department of Carnegie-Mellon University. She began her career as a secondary mathematics teacher.



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

Gail Burrill is currently an academic specialist in the Program for Mathematics Education at Michigan State University and was a secondary teacher and department chair in suburban Milwaukee, Wisconsin, for more than 28 years. She received the Presidential Award for Excellence in Teaching Mathematics, served as president of the National Council of Teachers of Mathematics, and served as Director of the Mathematical Sciences Education Board. Burrill co-chaired the College Board Commission on the Calculus Framework and is currently a member of the College Board’s Advanced Placement Calculus Development Committee. She directs the Teachers Program component of the Park City Mathematics Institute, chairs the United States National Commission on Mathematical Instruction, and is a T3 National Instructor. Her research interests are statistics education, the use of technology in teaching mathematics, and professional development for mathematics teachers.



Annie Fetter

The Math Forum, National Council of Teachers of Mathematics, Reston, Virginia

Annie Fetter has worked at the Math Forum since before there was a Math Forum. She has a BA in mathematics and music and is apparently still certified to teach in Pennsylvania. She started the Geometry Problem of the Week in 1993, and she worked with her college classmate Nick Jackiw on the grant that developed the first version of The Geometer’s Sketchpad®. Her first Ignite talk, “Ever Wonder What They’d Notice? (if only someone would ask),” has been watched more than 16,000 times.



Linda M. Gojak

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

Linda Gojak, Immediate Past-President of the National Council of Teachers of Mathematics, began her teaching career in a self-contained fifth-grade classroom. She was the first person in the state of Ohio to receive a K–8 mathematics specialist endorsement—in 1976! After teaching mathematics in grades 4–8 for 28 years, Linda became the first director of the Center for Mathematics Education, Teaching and Technology at John Carroll University. She has worked with K–8 teachers from all over the United States to improve mathematics teaching through a lens on student sense making. Linda has authored a series on problem solving for grades 3–6 entitled Paths to Problem Solving and several teacher resources including *What’s Your Math Problem?* and *The Common Core Mathematics Companion*.



John J. SanGiovanni

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

John SanGiovanni is an elementary mathematics supervisor in Howard County, Maryland. There he leads mathematics curriculum, digital learning, assessment, and professional development for 41 elementary schools and more than 1,500 teachers. John is an adjunct professor and coordinator of the Elementary Mathematics Instructional Leader graduate program at McDaniel College. He is an author and consultant for curriculum and professional development. John is a frequent speaker at national conferences. He is active in different professional organizations and currently serves on the Board of Directors for National Council of Teachers of Mathematics (NCTM).



Max Ray-Riek

The Math Forum, National Council of Teachers of Mathematics, Reston, Virginia

Max Ray-Riek is a Professional Collaboration Facilitator at the Math Forum, and the author of the book *Powerful Problem Solving*. The Math Forum (<http://mathforum.org>) is a leading online resource for improving math learning, teaching, and communication, with a focus on problem solving and mathematical practices. Max is a former secondary mathematics teacher who has presented at regional and national conferences on fostering problem solving and communication and valuing student thinking, including presenting an Ignite talk proving that “ $2 > 4$ ”: <http://www.youtube.com/watch?v=daCtIac24yU>. At the Math Forum, his responsibilities include running the Trig/Calc Problem of the Week, reading all of the student submissions for the Pre-Algebra and Algebra Problems of the Week, running the Online Mentoring Program that trains pre-service teachers to be “math pen-pals” for elementary and middle-school students, teaching online professional development courses, and coaching teachers in an area high school.

Get Them Here First: New Books Just Released

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MATH IS ALL AROUND US

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It's Elementary: A Parent's Guide to K-5 Mathematics

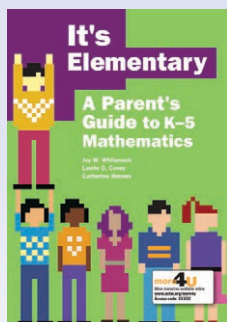
BY JOY W. WHITENACK, LAURIE O. CAVEY, AND CATHERINE HENNEY

A VITAL NEW RESOURCE:

Help Parents Effectively Participate in Their Children's Math Education

Parents are sometimes baffled by the way elementary mathematics is taught in today's classrooms. This book reintroduces them to the subject, discussing not only the *how* of today's teaching methods but also the *why*. It provides insights into children's mathematical thinking and its development through the early grades, as well as information on helping with homework, engaging children in math at home, and participating in children's math education.

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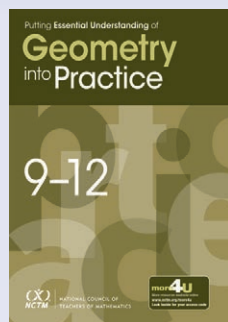
Putting Essential Understanding of Geometry into Practice in Grades 9-12

TERRY CRITES, VOLUME EDITOR

BY ROBERT N. RONAU, DAN MEYER, AND TERRY CRITES

Do your students think that shapes can be translated only horizontally or vertically? Do they suppose that a triangle can be constructed from any three line segments of given length? What tasks can you offer—what questions can you ask—to determine what your students know or don't know—and move them forward in their thinking? This book focuses on misconceptions that students often bring to the exploration of diagrams and definitions, transformations, and proof in the high school geometry classroom. A variety of tasks and strategies guide teachers in addressing and dispelling common misunderstandings while developing robust understanding of the central ideas of geometry.

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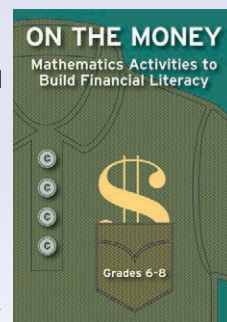


On the Money: Math Activities to Build Financial Literacy, Grades 6-8

BY JENNIFER M. BAY-WILLIAMS, SARAH B. BUSH, SUSAN A. PETERS, AND MAGGIE B. MCGATHA

More than half of today's teens wish they knew more about how to manage their money. Students who develop financial literacy are equipped to make better financial decisions—about budgeting, saving, buying on credit, investing, and a host of other topics. Math is essential to money management and sound financial decision making, and activities in this book draw on and extend core concepts related to ratios and proportions, expressions and equations, functions, and statistics, while reinforcing critical mathematical practices and habits of mind. The authors show how the activities align with the Common Core State Standards and the Jump\$tart Financial Literacy Standards.

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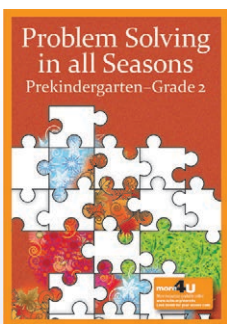


Problem Solving in All Seasons, Pre-K-Grade 2

BY KIM MARKWORTH, JENNI MCCOOL, AND JENNIFER KOSIAK

This book delivers thirty-two appealing, real-world mathematical tasks, arranged in grade-level order, to engage young learners in problems tied to the Common Core and designed to allow children to participate in the Common Core Standards for Mathematical Practice. Each task includes a complete implementation guide, and handouts and ancillary materials can be accessed online. This is your all-in-one practical handbook for problem solving in the primary years.

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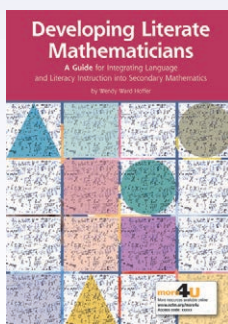


Developing Literate Mathematicians: A Guide for Integrating Language and Literacy Instruction into Secondary Mathematics

BY WENDY WARD HOFFER

How can we integrate literacy instruction authentically into mathematics content to support mathematical understanding? Busy secondary mathematics teachers who seek to respond to the needs of their students and the demands of the Common Core State Standards will welcome this book, which offers lively classroom examples, usable research, and specific ideas and resources. Enrich your students' understanding of mathematics by attending to reading, vocabulary, discourse, and writing through a workshop model.

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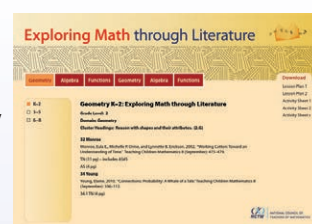


Exploring Math Through Literature, Pre-K-8 (online product)

EDITED BY DIANE THIESSEN

Draw on the appeal of literature to bring mathematics to life in your classroom. This online resource offers teachers of K-8 students an array of lesson plans and activity sheets that relate mathematical concepts to literature highlighted in articles from NCTM's award-winning journals *Teaching Children Mathematics* and *Mathematics Teaching in the Middle School*.

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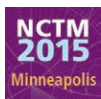
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THURSDAY



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Registration Hours

7:00 a.m.–3:00 p.m.

Exhibit Hours

8:00 a.m.–5:00 p.m.

NCTM Central Hours

8:00 a.m.–5:00 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.

2 Regional Conference Overview & Orientation

General Interest Session

Hosted by members of the Board of Directors, this session will show you how to maximize your overall conference experience. Learn what's new or discover something you've missed in the past, how to navigate presentations, use the Conference App, and network with other attendees.

Paul Kelley

Board of Directors, National Council of Teachers of Mathematics;
Anoka High School, Minnesota

[L100 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

8:00 A.M.–9:00 A.M.

3 4 Essential Elements of RTI for Mastery of Rational Numbers

6–8 Session

You are the student. We are the teachers. Walk through the four essential elements of successful elementary RTI programs. Take a pretest, make decisions, engage in explicit instruction using manipulatives within the C-R-A process, and conclude with progress monitoring. All activities emphasize the Standards for Mathematical Practice for rational numbers.

Mark Mueller

St. Paul Public Schools, Minnesota

Emily S. Lynch

Math Teachers Press, Inc., Minneapolis, Minnesota

[M100 AB \(MINNEAPOLIS CONVENTION CENTER\)](#)

4 Conceptualizing the Trigonometric Functions Using Technology

9–12 Session

In this session, I will present activities that can be used to engage students in reasoning about the trigonometric functions through an interactive geometry environment. This approach can help students build conceptual understanding of the functions and their properties thereby reducing meaningless memorization and mnemonics. Laptops are welcome!

Josh Hertel

University of Wisconsin-La Crosse

[101 E \(MINNEAPOLIS CONVENTION CENTER\)](#)

5 Discrete Mathematics in High School

9–12 Session

Why do you feel safe using your credit card information online? How many Facebook steps away from you are the people on your flight? The foundation of networks, encryption, and modern technology is discrete mathematics. We will see how these topics can be (and, in some high schools, already are) offered as a “Beyond Algebra 2” course.

Brian Hopkins

Saint Peter's University, Jersey City, New Jersey

[M100 IJ \(MINNEAPOLIS CONVENTION CENTER\)](#)

6 **EQUITY** Educators of Native American Students—Ideas for Teachers

General Interest Session

Educators of Native American Students (EONAS) is a Special Interest Group within TODOS and is focused on improving instruction of American Indian and Alaskan Native students emphasizing the integration of culture in mathematics. Participants will receive sample lessons and resources to develop their own lessons that meet Common Core standards.

Richard Sgarlotti

Bay de Noc Community College, Iron Mountain, Michigan

James Barta

Bemidji State University, Minnesota

[101 CD \(MINNEAPOLIS CONVENTION CENTER\)](#)

7 Mathematical Practices: Connecting Abstract Algebra to High School Algebra

Research Session

This research session explores preservice teacher engagement in mathematical practices. In an abstract algebra class designed for teachers, participants had opportunities to learn math content, practices, and pedagogy. Participants improved their engagement in mathematical practices. This has implications for supporting novice teacher learning.

Erin E. Baldinger

Arizona State University, Phoenix

[M101 C \(MINNEAPOLIS CONVENTION CENTER\)](#)

THURSDAY

8 Math Is My Life!

3–5 Session

In this session we will use multiple examples of everyday scenarios to teach computation, problem solving, number sense, and operations for students in grades 3–5. The activities in this session will focus on the use of numbers and number operations where there are several ways and multiple steps to come to a solution.

Michele Koomen

Gustavus Adolphus College, Saint Peter, Minnesota

Robin Larson

Morristown Elementary School, Minnesota

200 H (MINNEAPOLIS CONVENTION CENTER)

9 Orchestrating Productive Discussions in Math Class: Moving Beyond Showing and Telling

General Interest Session

Orchestrating discussions that use student-developed work as the launching point places significant demands on the teacher. This session will focus on a model that specifies key practices that teachers can learn in order to use student responses more effectively: (1) anticipating, (2) monitoring, (3) selecting, (4) sequencing, and (5) connecting.

Margaret Smith

University of Pittsburgh, Pennsylvania

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

10 PK–2 Students as Problem Solvers

Pre-K–2 Session

What is the role of problem solving in PK–2 mathematics? What are essential elements of rich tasks in the PK–2 classroom? In this session, you will explore several robust problem solving tasks across multiple CCSSM content domains and practice standards. We will also examine student work samples to investigate common strategies and misconceptions.

Jenni K. McCool

University of Wisconsin—La Crosse

Jennifer Kosiak

University of Wisconsin—La Crosse

Kim A. Markworth

Western Washington University, Bellingham

101 AB (MINNEAPOLIS CONVENTION CENTER)

11 Using Manipulatives to Help Students be Successful with Algebra

6–8 Session

Do your students struggle with algebraic concepts? See how your students can benefit from a visual approach to algebra and learn how virtual and hands-on manipulatives can help promote their understanding of algebraic concepts. Topics include integer operations, solving equations, polynomial expressions, graphing, and more!

Kevin Dykema

Mattawan School District, Michigan

200 C (MINNEAPOLIS CONVENTION CENTER)

12 What Can Elementary Mathematics Teachers Learn from Interviewing Their Students?

3–5 Session

Clinical interviews can be used to assess students' mathematical thinking. Teachers in a professional development program that used clinical interviews will share what they learned about designing interview protocols and analyzing responses to understand students' thinking. Curricular resources that support these types of assessments will be highlighted.

Cecilia C. Arias

Rutgers University, Piscataway, New Jersey

101 H (MINNEAPOLIS CONVENTION CENTER)

13 **ew** Getting Started with TenMarks Math

General Interest Exhibitor Workshop

This session is an introduction to TenMarks Math and how to integrate the free version of the program into your classroom. In this session, attendees will get up close and personal with our content. You will learn about how TenMarks assignments can easily integrate with, complement, and enhance your existing instructional practices.

TenMarks/Amazon Education

TenMarks, an Amazon Company, Burlingame, California

M100 H (MINNEAPOLIS CONVENTION CENTER)

8:00 A.M.–9:00 A.M.

14 **ew**

Unleash the Power of Game-Based Learning with Mangahigh

General Interest Exhibitor Workshop

Discover how Mangahigh helps you build a true 21st-century classroom, with interactive games and clever adaptive quizzes aligned to curriculum for K–10. In this session, you'll learn ways to differentiate your instruction and create an environment where each student is motivated to work at the best of their ability.

Mangahigh

Mangahigh, London, United Kingdom

[M100 C \(MINNEAPOLIS CONVENTION CENTER\)](#)

8:00 A.M.–9:15 A.M.

15

Applying Mathematics in Real-World, Hands-On STEM Problems, Grades 3–5

3–5 Workshop

Apply mathematics in real-world, hands-on STEM problems to promote your students' understanding, reasoning, and problem-solving skills. Participants will work through a sample design task and will be provided with additional lesson ideas and a planning guide to help them take what they have learned and put it into practice.

Elizabeth Gajdzik

Purdue University, West Lafayette, Indiana

[L100 DE \(MINNEAPOLIS CONVENTION CENTER\)](#)

16

Building the Foundation for Transformational Proof

9–12 Workshop

The Great Mystery—What do transformational proofs look like? How do we write them? What are the foundational definitions, properties, and rules that support them? With the implementation of the Common Core and its emphasis on introducing congruence using transformations, we will lay out a new understanding and style of proof.

Mike Patterson

Clark County School District, Las Vegas, Nevada

[L100 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

17

Cooperative Activities for Calculus

9–12 Workshop

Explore group and partner activities to get students active and talking math. Participants will graph with derivatives, find the volume of a solid of revolution, take a journey through a slope field, and work with an AP review activity. Problems use multiple representations to build concept connections, and they are ready to bring back to your classroom.


Karen E. Hyers

Tartan High School, Oakdale, Minnesota

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THURSDAY

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18 **COMP**

Developing and Assessing Addition Fact Fluency

Pre-K–2 Workshop

What does it really mean to be fluent with addition facts, and how is this idea reflected in CCSSM? Come explore how we can use strategies, games, and activities in meaningful ways to develop a trajectory for helping all students become fluent with addition facts, and consider ways to authentically assess fact fluency.

Gina Kling

Western Michigan University, Kalamazoo

200 GF (MINNEAPOLIS CONVENTION CENTER)

19

Engaging Children with Number Sense, Geometry, and Real-Life Problem Solving

Pre-K–2 Workshop

The speaker will offer strategies, including use of manipulatives, to develop number sense, geometry, and problem-solving skills. She will actively engage attendees with hands-on activities and real-life problems, and she will model the use of effective mathematical discourse to develop concepts, critical thinking, and mathematics vocabulary. Handouts provided.

Donna L. Knoell

Educational Consultant, Shawnee Mission, Kansas

M100 DE (MINNEAPOLIS CONVENTION CENTER)

20

Knowing Children, Teaching Number

Pre-K–2 Workshop

This gallery workshop centers around young children and how they build number sense and develop strategies for computational fluency. We begin by exploring ways to make sense of quantity, reflect on transitioning from concrete objects to abstract representations, and conclude with investigating mental models and strategies for number and operations.

Nancy Wong

Growing Up Green Charter School, Long Island City, New York

Kathryn A. Pabarue

The School at Columbia University, New York, New York

Jennifer M. Dare

The School at Columbia University, New York, New York

200 AB (MINNEAPOLIS CONVENTION CENTER)

21

Math Is a Verb: Enhancing Achievement of American Indian Students

3–5 Workshop

Math is typically considered a noun and often is taught that way. In many American Indian languages, there is no single word for math; rather it is named in its action. Participants will learn activities that increase student interest and involvement as they learn to create their own activities that connect to the lives of the students they teach.

James Barta

Bemidji State University, Minnesota

Porter E. Coggins

Bemidji State University, Minnesota

101 FG (MINNEAPOLIS CONVENTION CENTER)

22

Opening Lines of Communication among Students Using Technology

Preservice and In-Service Workshop

Students learn much from each other if given the opportunity to share their thinking with each other. This presentation will model several activities where technology helps teachers select student work to share, sequence the whole-class discussion, and make meaningful connections among different student strategies.

Terry R. Wyberg

University of Minnesota, St. Paul

200 DE (MINNEAPOLIS CONVENTION CENTER)

THURSDAY

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

8:00 A.M.–9:15 A.M.

23

An Introduction to the Complex Instruction Model: Making Cooperative Learning in Mathematics Equitable

6–8 Workshop

Work cooperatively on a group-worthy, hands-on mathematical task. Use that experience to define the principles of the complex instruction model (based on Elizabeth Cohen’s equity work at Stanford) and to reflect on three questions: 1) What does it mean to do math in your classroom? 2) What does it mean to be ‘smart’ in math? 3) What are the ramifications for narrowing the achievement gap?

Anne M. Bartel

Retired, Minneapolis Public Schools & Region 11 Math and Science Center, Minnesota

M100 FG (MINNEAPOLIS CONVENTION CENTER)

24

Build the Understanding of Functions by Linking, Dropping, and Stacking

6–8 Workshop

Participants will engage in activities that support student understanding of both proportional and nonproportional linear functions. Also, participants will examine the role of mathematical practices in building student understanding through a series of selected function activities from rate/ratio, to direct variation, to linear functions.

Paul Agranoff

AIMS Education Foundation, Fresno, California

101 JI (MINNEAPOLIS CONVENTION CENTER)

9:30 A.M.–10:30 A.M.

25

Integrating Geometry and Physical Science to Effect Change

6–8 Session

This presentation will focus on blended learning using innovative learning and problem-solving strategies for teaching geometry and physical science using technology. More specifically, it will focus on helping middle school teachers apply geometric concepts and pedagogical skills to motivate students to understand geometry in our world.

Cathine Gilchrist Scott

G and H Educational and Research Foundation, Inc., Columbia, South Carolina

Patricia Smith

Shelby Intermediate School, North Carolina

Aftan C. Smith

Turning Point Academy, Shelby, North Carolina

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

26

Keeping It Real: Authentic Real-World Math Lessons (High School)

9–12 Session

How have video games changed over time? How many people should you date before you propose? Can you really trust your memory? In this presentation, we’ll engage in authentic (real-world) and cognitively rigorous activities for your middle school math classroom, and discuss how to use them to foster a culture of conversation and critical thinking.

Karim K. Ani

Mathalicious, Charlottesville, Virginia

101 AB (MINNEAPOLIS CONVENTION CENTER)

27 **LEAD**

Observing the Eight Mathematics Teaching Practices

General Interest Session

This session uses the eight Mathematics Teaching Practices from *Principles to Actions* as a framework for observing mathematics teaching. The presenter will discuss the eight practices using video clips of teaching. Session participants will discuss ways the video clips are representative of the practices and relative quality of instruction.

Robert Q. Berry

University of Virginia, Charlottesville

101 CD (MINNEAPOLIS CONVENTION CENTER)

THURSDAY

Interested in **speaking** at a Regional Conference? Submit to the 2016 Regional in Phoenix or Philadelphia at www.nctm.org/speak before December 1, 2015.

28**Place Value as a Multiplicative Relation**

3–5 Session

Place value at its core is a multiplicative rate of ten. This session will look at how explicitly working with factors of ten aids students' understanding of strategies used in multiplication and division. Underlying algebraic properties are identified as well as how relational thinking is nurtured.

James Brickwedde

Hamline University, St. Paul, Minnesota

M100 AB (MINNEAPOLIS CONVENTION CENTER)

29**Prepare2Nspire: Mathematical Learning Communities**

6–8 Session

The Prepare2Nspire mentoring and tutoring program is a cascading model where undergraduates from the University of Minnesota tutor eleventh graders and help prepare them for the ACT and high school math coursework in North Minneapolis. The eleventh graders, in turn, then tutor eighth graders in algebra to better prepare them for high school.

Lesa Covington Clarkson

University of Minnesota, Twin Cities STEM Education Center, St. Paul

101 H (MINNEAPOLIS CONVENTION CENTER)

30**Say It Loud, Say It Proud**

Pre-K–2 Session

NCTM's *Principles to Actions* acknowledges that facilitating meaningful math discourse is important for advancing the mathematical knowledge of the whole class. In this session, participants will explore engaging instructional strategies that will increase students' ability to share their mathematical thinking in a concise, clear, and confident manner.

Marni E. Driessen

Omaha Public Schools, Nebraska

M101 C (MINNEAPOLIS CONVENTION CENTER)

31**Think Hybrid: Another Model for RtI**

Pre-K–2 Session

Many schools find that more than 20 percent of their student population is at risk in the area of mathematics. Research suggests that universal instruction needs to be strengthened. A hybrid RtI model designed by classroom teachers is needed, as educators are the driving force behind improvements in education.

Mollie E. Gabrielson

US Math Recovery® Council, Apple Valley, Minnesota

101 E (MINNEAPOLIS CONVENTION CENTER)

32**Toward Effective Mathematics Pedagogy in a Critical Sociocultural Education Environment**

Higher Education Session

We present a three-tiered framework to support secondary mathematics teachers to develop effective pedagogy and a critical sociocultural approach to teaching. This approach explores ways to design tasks, organize a classroom, and create a culture of recognition in order to cultivate rich mathematical thinking and productive discourse.

Andrew Gatzka

Indiana University-Purdue University Indianapolis

Gina Borgioli Yoder

Indiana University-Purdue University Indianapolis

200 C (MINNEAPOLIS CONVENTION CENTER)

33**Transforming Mathematics Teacher Preparation Using a Networked Improvement Community**

Preservice and In-Service Session

The Common Core and more rigorous state standards, along with NCTM's *Principles to Actions*, necessitate rethinking the preparation of mathematics teachers. A consortium of universities and school partners from across the nation is addressing central issues in secondary mathematics teacher preparation using a networked improvement community model.

W. Gary Martin

Auburn University, Alabama

200 H (MINNEAPOLIS CONVENTION CENTER)

34 **TECH****What We Talk about When We Talk about Thinking . . . Online**

General Interest Session

NCTM identified eliciting student understanding and using it to inform instruction as one of the eight effective teaching practices. A panel of teachers will share the joys and frustrations of sharing and analyzing student work online. We'll talk about the transformative power of online collaboration, and why bringing student work online matters.

Max Ray-Riek

The Math Forum, National Council of Teachers of Mathematics, Reston, Virginia

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

35 **ew****10 Minutes of Code**

General Interest Exhibitor Workshop

Want to get your students interested in coding? This hands-on session will introduce you to the basics of coding on the TI-84™ Plus in just 10 minutes—no experience needed! Learn how coding in the math classroom can strengthen students' reasoning and problem-solving skills. Get free resources that you can start using in class right away.

Texas Instruments

Texas Instruments, Dallas, Texas

M101 B (MINNEAPOLIS CONVENTION CENTER)

36 **ew****Crazy 8s: It's Not Your Ordinary Math Club!**

3–5 Exhibitor Workshop

Crazy 8s is a high-energy after-school club for kids in K–grade 5, with hands-on activities like Spy Training and Toilet Paper Olympics. Our free club kit includes full directions and most materials to run eight one-hour sessions. Join us to get hands-on experience with Crazy 8s activities. It's time to make math the cool thing to do after school!

Bedtime Math Foundation

Bedtime Math Foundation, Summit, New Jersey

M100 H (MINNEAPOLIS CONVENTION CENTER)

37 **ew****Developing Fractions Sense: The Power of Fraction Blocks**

3–5 Exhibitor Workshop

In this presentation, intended for teachers of grades 3–6, we will share how fraction blocks (pattern blocks) can enable you to demystify all the operations related to fractions by having your students model those operations concretely. Learn the visual meaning of a common denominator and a way to divide without inverting and multiplying!

Borenson and Associates

Borenson and Associates, Inc, Allentown, Pennsylvania

M100 C (MINNEAPOLIS CONVENTION CENTER)

38 **COMP****Beyond Basic: Developing Fact Fluency**

3–5 Workshop

Fact fluency supports computational fluency. Effective fact instruction is beyond basic. In this session, participants will determine what automaticity is and how we can develop it in our mathematics class. Participants will consider how a different approach develops fluency with facts and multi-digit computation. Resources will be shared.

John J. Sangiovanni

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

M100 FG (MINNEAPOLIS CONVENTION CENTER)

39**Building Inquiry-Based Lessons Using Standards-Based Materials**

3–5 Workshop

Through project-based learning, students are given the opportunity to not only spark interest in the areas of STEM but also to become leaders while using decision making and working as a team in order to fulfill real-world tasks. Many standards-based materials are limited in inquiry. This session will help to build inquiry through traditional materials.

Deanna L. Sanders

Mahalia Jackson Elementary School, Chicago, Illinois

Lorna R. Robinson

Nicholson STEM Academy, Chicago, Illinois

200 DE (MINNEAPOLIS CONVENTION CENTER)

9:45 A.M.–11:00 A.M.

40 Geometry in a Box

6–8 Workshop

Transform greeting cards into boxes while delivering a better understanding of the relationships among perimeter, area, and volume. Give your students a thorough understanding of geometry terms and the nuances of definitions involved with polygons, especially quadrilaterals. Ratio and proportion are discussed as they relate to sizing the boxes.

Nicholas J. Restivo

Retired, Mineola Union Free School District, New York

101 FG (MINNEAPOLIS CONVENTION CENTER)

41 Hand-Held Technology + Hands-On Activities = CCSS Success!

9–12 Workshop

Hand-held technology coupled with inquiry-based learning helps students better apply linear, quadratic, and exponential functions to their real-world applications. Participants are provided with classroom-ready hands-on lessons that synthesize the Statistics, Functions, and Modeling strands of the Common Core State Standards.

Tom Beatini

Union City Public Schools, New Jersey

M100 DE (MINNEAPOLIS CONVENTION CENTER)

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THURSDAY

42**New and Preservice Teachers Workshop**

Preservice and In-Service 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

200 AB (MINNEAPOLIS CONVENTION CENTER)

43**Ratio & Proportion—What You See Is What You Get!**

6–8 Workshop

Students struggle with ratio and proportion problems because they focus on writing equations instead of understanding comparisons. Join us as we explore the relationships among fractions, ratios, proportions, and rates, and we learn an amazingly simple approach for making difficult word problems easy to solve. Middle school math will never be the same!

Greg Tang

GregTangMath.com, Cambridge, Massachusetts

L100 DE (MINNEAPOLIS CONVENTION CENTER)

44**COMP****Unpacking Computational Fluency in K–2 Classrooms**

Pre-K–2 Workshop

When students focus on following the steps of the traditional algorithm, they usually pay no attention to place value and do not consider whether or not their answers make sense. Participants will explore research-based strategies and methods that encourage efficient, flexible, and accurate mathematicians.

Tara Zuspan

Lincoln Public Schools, Nebraska

200 JI (MINNEAPOLIS CONVENTION CENTER)

45**Using Area Models to Teach Multiplying, Factoring, and Polynomial Division**

9–12 Workshop

This session uses algebra tiles and generic rectangles to build understanding of combining like terms, multiplying, factoring, completing the square, and dividing polynomials.

Lisa M. Fisher-Comfort

AFSA High School, Vadnais Heights, Minnesota

101 JI (MINNEAPOLIS CONVENTION CENTER)

46**Making “MODEL” Students: Using Math Models That Grow with Students**

Pre-K–2 Workshop

Development of modeling skills is one of the best ways to set your math students up for success! It empowers them with “entry points” into any problem solving situation. Attendees will explore using number tracks/number lines, number bonds and bar diagrams...models that grow with students through each grade of the Common Core Progressions.

Patti J. Dieck

Conceptual Learning Associates, Amityville, New York

Christopher M. Sarlo

Conceptual Learning Associates, Amityville, New York

L100 FG (MINNEAPOLIS CONVENTION CENTER)

47**Making Mathematics Culturally Relevant with Areas of Moccasin Patterns**

3–5 Workshop

Come explore a culturally relevant project that engages students in estimating areas of irregular regions. Participants will create a moccasin pattern and examine possible student strategies for estimating the area of the pattern. We will then discuss ways to modify activities, including the integration of other subjects.

Denise Mirich

Nampa School District, Idaho

Laurie Cavey

Boise State University, Idaho

200 GF (MINNEAPOLIS CONVENTION CENTER)

48**Developing Essential Understandings of Addition and Subtraction**

Pre-K–2 Session

Have you ever heard, “If only my students knew their basic facts.” This doesn’t come from drill-and-kill, flashcards, or timed tests; it comes from strong number sense. Participants will explore the essential understandings of addition and subtraction to build numerical literacy.

Amy L. Keller

Grant Wood Area Education Agency, Cedar Rapids, Iowa

Jeremiah R. McGraw

Grant Wood Area Education Agency, Cedar Rapids, Iowa

Susan Parker

Grant Wood Area Education Agency, Cedar Rapids, Iowa

[101 CD \(MINNEAPOLIS CONVENTION CENTER\)](#)**49****Does Differentiation Really Have to Be This Difficult?**

6–8 Session

Almost everyone in education understands the philosophy and benefits of differentiated instruction. Yet to put it into practice often seems daunting and unrealistic. During this session we will examine ways to make differentiation more meaningful and more manageable.

Timothy J. Blom

MSD Washington Township, Indianapolis, Indiana

[200 H \(MINNEAPOLIS CONVENTION CENTER\)](#)**50****Exploring the Number Line Model for Fraction Understanding**

3–5 Session

CCSSM standards includes the number line as a model that students should use to develop fraction understanding in third grade. The Rational Number Project team has explored the use of the number line in third grade and will share insights, strategies, and lessons that help students overcome common misunderstandings related to the number line.

Debra Monson

University of St. Thomas, St. Paul, Minnesota

Sue Ahrendt

University of Wisconsin-River Falls

Cristina Miller

University of Minnesota, St. Paul

[M100 IJ \(MINNEAPOLIS CONVENTION CENTER\)](#)**51****Give Piecewise a Chance**

9–12 Session

Real-world contexts for piecewise functions and composition of functions can fully engage students. We will use different tasks that address a wide range of entry points and that use multiple representations. We will also be sharing student work and discussing the pedagogy necessary to teach these concepts.

Kyle Eller

Wheaton Warrenville South High School, Illinois

Fred Dillon

Ideastream, Cleveland, Ohio

[101 AB \(MINNEAPOLIS CONVENTION CENTER\)](#)**52****PPS****Intervention and Assessment Strategies for Students Who Struggle (Grades 2–5)**

Preservice and In-Service Session

With the focus on multitiered systems of support, classroom teachers are seeking successful ways to assess and build instructional interventions for students who struggle in learning mathematics. This session includes interventions and assessments that consider multiple representations and strategies for learning number and operations.

Karen S. Karp

Johns Hopkins University, School of Education, Baltimore, Maryland

[M101 C \(MINNEAPOLIS CONVENTION CENTER\)](#)**53****Multiplying by Powers of 10**

3–5 Session

Do your students come to you saying “When you multiply a number by ten, just add a zero to the end of the number?” This session will explain why this rule has expired and will provide an alternative approach to teaching multiplying by 10 that is connected to the algebraic properties.

Janee M. Rivard-Johnson

Special School District #1, Minneapolis Public Schools, Minnesota

[200 C \(MINNEAPOLIS CONVENTION CENTER\)](#)

54**Sense Making? Aren't We Already Doing That in Literacy?**

3–5 Session

The very first CCSSM mathematical practice, “Make sense of problems,” includes many ideas that have long been foci of literacy instruction. Yet when “math” starts, both teachers and students often leave those good habits behind. We'll look at examples of this and explore how to translate literacy routines into good mathematical practices.

Annie Fetter

The Math Forum, National Council of Teachers of Mathematics, Reston, Virginia

101 H (MINNEAPOLIS CONVENTION CENTER)

55 LEAD**Strategies and Tasks to Build Procedural Fluency from Conceptual Understanding**

General Interest Session

Procedural fluency—skill in carrying out arithmetic and algebraic procedures flexibly, accurately, efficiently, and appropriately—is an important component of mathematical proficiency. Yet, many students fail to develop such fluency despite our best efforts. This session answers the questions: “What tasks and strategies help students build fluency from conceptual understanding?” and “What common pitfalls should I avoid?”

Diane J. Briars

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

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

56 TECH**The 24/7 Staff Room**

General Interest Session

Professional learning opportunities and resources are available around the clock, every day of the year, all for free. Learn how to connect with mathematics educator communities and mathematical practices from around the world and, in the process, strengthen online professional sharing for everyone.

David C. Wees

New Visions for Public Schools, New York, New York

M100 AB (MINNEAPOLIS CONVENTION CENTER)

57**What Do You Want on It? Statistics, Modeling, and Pizza**

6–8 Session

Modeling the real world can be as easy or difficult as ordering a pizza. This session's goal is to explore a sixth-grade task promoting modeling with mathematics and addressing several standards found in the 6.SP cluster of CCSSM. Attendees will solve one portion of the task and then discuss instruction for using it and ways to adapt it for their classroom.

Jonathan D. Bostic

Bowling Green State University, Ohio

Gabriel T. Matney

Bowling Green State University, Ohio

101 E (MINNEAPOLIS CONVENTION CENTER)

58 ew**CCSS Math Practices? Trust CPM's 25 Years of Writing Experience**

6–8 Exhibitor Workshop

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 grades 6–Algebra 2 (option for high school Integrated I-III.) Receive free access to CPM's entire Core Connections series.

CPM Educational Program

CPM Educational Program, Elk Grove, California

M100 C (MINNEAPOLIS CONVENTION CENTER)

59 ew**BYOD: Mathspace—Why You'll Never Grade Math Assignments Again. Seriously.**

6–8 Exhibitor Workshop

Meet Mathspace. You've seen it all, right? Adaptive learning? Yep. Handwriting recognition? Hmm. Every math question graded line-by-line? Whoa, that's new! Students can finally show their work, and get feedback at every step: all auto-graded for you. Bye-bye, multiple choice! BYOD (Bring Your Own Device) to try the award-winning Mathspace live, and ask about a free trial!

Mathspace

Mathspace, New York, New York

M101 B (MINNEAPOLIS CONVENTION CENTER)

11:00 A.M.–12:00 P.M.

60 **ew**

The NEW Investigations 3 is HERE for Grades K–5!

General Interest Exhibitor Workshop

Experience how the NEW Investigations 3 embeds the highly effective Mathematics Teaching Practices in every lesson to develop mathematical understanding in all students.

Pearson

Pearson, Boston, Massachusetts

M100 H (MINNEAPOLIS CONVENTION CENTER)

11:30 A.M.–12:00 P.M.

61

A Glimpse of Social Justice in Geometry

9–12 Burst

What is social justice and how can it be incorporated into my math classroom? I found myself asking these questions time and time again, so I researched the topic and developed a project that I could incorporate into my geometry class. This presentation will focus on my studies, project, and the data that I collected with my students.

Yashkumarie Premasukh

Champlin Park High School, Anoka Hennepin School District, Minnesota

200 GF (MINNEAPOLIS CONVENTION CENTER)

62

A Review of Undergraduate Mathematics Curriculum Based on Academic Performance

Research Burst

This session will present a review of the profiles and academic performance of students enrolled to the BS Mathematics Program of the University of the Philippines Baguio. This study included four to six years of academic records for 157 students admitted to the program. Data on age, income, proficiency levels, type of high school attended, and high school grades were also included.

Rizavel Corsino Addawe

University of the Philippines Baguio, Baguio City

200 AB (MINNEAPOLIS CONVENTION CENTER)

63

#codemaths: Using Programming to Review, Extend, and Enrich Math Concepts

6–8 Burst

This session will be a quick look at three tools for introducing computer programming to students who have little or no knowledge on the subject: Codecademy, Khan Academy (computer science lessons), and #codemaths (a web app developed by the presenter).

Andrew K. Schwen

Anoka Hennepin School District, Minnesota

101 JI (MINNEAPOLIS CONVENTION CENTER)

64 **TECH**

Connect Statistical Data with Algebraic Modeling Using the Twin Cities

9–12 Burst

This workshop will provide a pair of modeling activities using public data, one using data from the Twin Cities and one you can create with data from your town! We've constructed this talk from the knowledge of the teacher-led Global Math Department, which provides teachers with resources and support through online interaction.

Megan Schmidt

St. Francis High School, St. Francis, Minnesota

Carl Oliver

City As School High School, New York, New York

M100 FG (MINNEAPOLIS CONVENTION CENTER)

65

IEP Partnerships with Math Educators: Mutual Translations

Preservice and In-Service Burst

This session provides an overview of a pilot study and future research plans leading to information dissemination and resources for identifying what general educators want to know about the IEP's purpose and content in the math content area. Strategies will be given for sharing and translating insider information from special educators to math educators and reciprocation in turn.

Beverley Cush Evans

Lesley University, Cambridge, Massachusetts

Gail Cahill

Lesley University, Cambridge, Massachusetts

Linda Lengyel

Lesley University, Cambridge, Massachusetts

200 DE (MINNEAPOLIS CONVENTION CENTER)

THURSDAY

11:30 A.M.–12:00 P.M.

66

Pen Pals, Problem Solving, and Paper

3–5 Burst

Gain an understanding and vision of how the Standards for Mathematical Practice such as modeling and attending to precision can be enhanced through meaningful and authentic student engagement. Learn about a unique partnership between preservice teachers and students that taught both the power of communicating ones thinking.

Jeanine L. Haistings

William Jewell College, Liberty, Missouri

Samantha Brant

Platte County R3 School District, Platte City, Missouri

L100 FG (MINNEAPOLIS CONVENTION CENTER)

67

Role of Identity in High School Mathematics Classrooms

Research Burst

Math classrooms serve as platforms where students learn who they are and what they are capable of doing or not doing, and they develop their sense of achievement in mathematics. We will focus on how classroom environments influence students' views of themselves as "math persons" and on research on high school students' mathematics experiences and personal identities.

Forster D. Ntow

University of Minnesota, St. Paul

101 FG (MINNEAPOLIS CONVENTION CENTER)

68

Rules That Lead to Misconceptions in Math

Pre-K–2 Burst

In this session, you will learn how rules that are commonly taught in the early elementary years lead to misconceptions in later mathematics. This session will include rules found in addition, subtraction, and problem solving.

Theresa A. Haack

Lincoln Public Schools, Nebraska

Ashley Wergin

Lincoln Public Schools, Nebraska

Beth Topp

Lincoln Public Schools, Nebraska

200 JI (MINNEAPOLIS CONVENTION CENTER)

69

What English Language Development Taught Me about Math Instruction

General Interest Burst

As we increase rigor and incorporate the Standards for Mathematical Practice, what can we learn from best practices in English Language Development classrooms? Let's check out a few instructional tools that will foster all our students' abilities to express their mathematical ideas and reasoning when writing and speaking.

Abby AiPei Roza

Hennepin County Corrections, Plymouth, Minnesota

M100 DE (MINNEAPOLIS CONVENTION CENTER)

70

Doctorates in Mathematics Education: Jobs Available in Higher Education Institutions

General Interest Burst

The speaker will discuss the shortage of doctorates in mathematics education and report results from research on job opportunities in institutions of higher education. Suggestions for how to choose a doctoral program and how to transition into a career in higher education will be discussed.

Robert Reys

University of Missouri, Columbia

L100 DE (MINNEAPOLIS CONVENTION CENTER)

12:30 P.M.–1:00 P.M.

71

An Integrated Approach to Learning about Number for Elementary Teachers

Research Burst

This session presents results from an eight-week study in a mathematics content course for preservice elementary teachers (PSTs) that investigated which activities and representations supported, or failed to support, the PSTs' development of an integrated understanding of fractions, decimals, and whole numbers.

Christy Pettis

University of Minnesota, Twin Cities

M100 FG (MINNEAPOLIS CONVENTION CENTER)

THURSDAY

72**Breaking through Tracking from the Top Down**

9–12 Burst

This presentation will convey one high school's attempt to break through the chains of tracking by allowing students to take Algebra II with Trigonometry and Geometry at the same time. The presentation will present its findings from the three-year initiative.

Basil Conway

Lee County Schools, Opelika, Alabama

200 JI (MINNEAPOLIS CONVENTION CENTER)

73**Changing the Culture of Numeracy: Minnesota Numeracy Initiative**

Preservice and In-Service Burst

The Minnesota Numeracy Initiative is a professional development program that has led to a culture shift among teachers and programs, improved classroom instruction, given opportunities for teacher-leaders to emerge, and been shared nationally in the adult education community. In this session we will share this very successful program model.

Amy Vickers

Adult Education Instructor and Consultant, North Central, Wisconsin

Rebecca L. Strom

Mankato Area ABE, Mankato, Minnesota

200 GF (MINNEAPOLIS CONVENTION CENTER)

74**Creative Strategies: Increasing Student Performance in a High-Risk District**

3–5 Burst

Come explore specific strategies used in a small, high-risk district to increase student performance on achievement tests. We will illustrate how these strategies and teachers' beliefs work together to create classrooms that facilitate an average of 21 points of growth across a school year, while embracing the Common Core State Standards.

Margaret Burke

Penn State Erie, The Behrend College, Erie, Pennsylvania

Finbarr Barry Sloane

National Science Foundation, Arlington, Virginia

M100 DE (MINNEAPOLIS CONVENTION CENTER)

75**Engaging Students with Aurasma**

General Interest Burst

Tired of your boring old review sessions? Learn how to use Aurasma to increase student engagement and student choice in your classroom. Join us as we use this augmented reality app to allow students to select their learning target and a pace in which to develop mastery of it. A must-have app for the smart device user.

Bill Kujawa

Elmbrook School District, Brookfield, Wisconsin

Jennifer M. Toth

Elmbrook School District, Brookfield, Wisconsin

L100 FG (MINNEAPOLIS CONVENTION CENTER)

76**TECH****I'm Blogging with the Man in the Mirror**

General Interest Burst

If you want to make the world a better place, you'd better look at yourself and then write a blog! "But, Justin," you say! "What would I write about? Why would anyone read it?" Come join us as we discuss why and how spreading your brain jelly onto Internet toast can help you become the best teacher ever!

Justin M. Aion

Woodland Hills Junior High School, Pittsburgh, Pennsylvania

101 JI (MINNEAPOLIS CONVENTION CENTER)

77**Integers and Integer Operations: Playing Your Cards Right for Algebra**

6–8 Burst

We discuss the importance of conceptualizing integers as relative changes and the implications this has for integer operations. To illustrate this approach, we introduce participants to a card game for middle school students used to explore integer addition. In the card game, students reason with integers in ways aligned to the demands of algebra.

Andrew Gatzka

Indiana University-Purdue University Indianapolis

Erik S. Tillema

Indiana University-Purdue University Indianapolis

L100 DE (MINNEAPOLIS CONVENTION CENTER)

12:30 P.M.–1:00 P.M.

78

Making Sense of Math: Modeling with Mathematics in Pre-K–2

Pre-K–2 Burst

Creating models to represent mathematical ideas is an invaluable skill for student success. This session will provide information on the importance of allowing students to use models to make sense of mathematics and examine the considerations teachers need to make when utilizing them in teaching.

Karen Colum

Minnesota State University, Mankato

101 FG (MINNEAPOLIS CONVENTION CENTER)

79

Resequencing Calculus

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 focus primarily on assessment of the piloting efforts, and we discuss the next steps, including transfer and AP credit challenges.

Joe A. Stickers

Millikin University, Decatur, Illinois

200 AB (MINNEAPOLIS CONVENTION CENTER)

80

Mathematical Problem-Solving Skills of African American Teenage Males

9–12 Burst

This workshop will review the findings of a study designed to analyze the mathematical problem-solving skills of a group of African American teenage males. The analysis was based on the six dimensions of mathematical problem-solving: orientation, organization, execution and verification, flexibility, holistic or analytical reasoning, and persistence.

Timothy L. Weekes

San Francisco State University, California

200 DE (MINNEAPOLIS CONVENTION CENTER)

81

A Math Picture Is Worth 1000 Words

6–8 Session

How can you engage struggling students and still motivate your top students as you teach standards-based mathematics? On the days when I have hit the sweet spot in my lessons that engage all learners, I have taken the time to use a photo or video connected to that day's learning.

Sara Van Der Werf

Minneapolis Public Schools, Minnesota

101 H (MINNEAPOLIS CONVENTION CENTER)

82 **COMP**

A Properties-Based Approach to Developing Computational Fluency

3–5 Session

Explore the use of properties of operations as strategies to multiply basic facts and then link those strategies to alternative and traditional algorithms with the goal of supporting the development of computational fluency. Make sense of how to support this process during instruction through the use of classroom video.

Juli K. Dixon

University of Central Florida, Orlando

101 AB (MINNEAPOLIS CONVENTION CENTER)

83

Building Concepts: Making Sense of Statistics

6–8 Session

Engaging students in analyzing data should develop understanding of core statistical concepts: distributions, mean as “balance point,” random sampling, and box plots. Interactive dynamic technology and contexts such as maximum animal speeds, soccer scores, and the number of pairs of shoes students own make these important statistical ideas concrete.

Gail Burrill

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

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

THURSDAY

84**CCSS for Statistics: Paired Quantitative Variables, Grades 8–12**

9–12 Session

The session will focus on standards to “Summarize, represent, and interpret data on two . . . quantitative variables” and to “Interpret linear models.” We’ll explore linear models, correlation, interpretation of coefficients, residuals, and exponential and quadratic models. Participants will be prepared to foster students’ learning for 10 different standards.

John J. Diehl
CTAC, Plano, Texas

M100 AB (MINNEAPOLIS CONVENTION CENTER)

85**BA2****College and Career Ready Mathematics: The Case for Rational Functions**

9–12 Session

Rational functions are often difficult for students because they require understanding of zeroes, asymptotes, point discontinuities, and end behaviors. We will investigate behaviors of rational functions symbolically and graphically. Examples will include tasks that indicate what students need to know for work beyond their high school classes.

Christopher S. Hlas
University of Wisconsin-Eau Claire

200 C (MINNEAPOLIS CONVENTION CENTER)

86**Incredible Math Tasks! Supporting Productive Struggle in Learning Mathematics**

General Interest Session

In this hands-on session, we will explore how to use worthwhile math tasks to support student’s productive struggle. We will examine student work and videos to explore how tasks, paired with teacher moves and questions, can promote student engagement in the Standards for Mathematical Practice. Leave with 200+ resources you can use Monday morning.

Bill Barnes
Howard County Public Schools, Ellicott City, Maryland

Jenny Novak
Howard County Public Schools, Ellicott City, Maryland

101 CD (MINNEAPOLIS CONVENTION CENTER)

87**“Tech It Out!”—Using an iPad to Talk about Math**

Pre-K–2 Session

Participants will learn how to use the iPad to enhance classroom discussion about problem solving strategies. We know students who do the most talking do the most learning. Using models from a current classroom, participants will build knowledge around the five practices for orchestrating strong mathematical discussions with the use of technology.

Nicole Kuhse
Minneapolis Public Schools, Minnesota

101 E (MINNEAPOLIS CONVENTION CENTER)

88**Math Trauma: A Reality and a Challenge for All Teachers**

General Interest Session

“Math trauma” is a real thing, affecting students and adults at every level. Research from a range of fields—including psychology, cognitive science, and neuroimaging—indicates that such trauma keeps many students from succeeding mathematically. As math teachers, we play a powerful role in validating the condition and supporting healing.

Kasi C. Allen
Lewis & Clark College, Portland, Oregon

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

89**Studying Geometry, and Experiencing the Nature of Mathematics**

Higher Education Session

In a collegiate geometry course the instructor and students explored geometry on a sphere with the goal of creating an internally consistent axiomatic system. The students learned geometry and, in the process, experienced many facets of the work of mathematicians. Student reflections, videos, and some activities will be shared.

Stephanie R. Whitney
DePaul University, Chicago, Illinois

M101 C (MINNEAPOLIS CONVENTION CENTER)

12:30 P.M.–1:30 P.M.

90 **TECH**

The Pitfalls and Potential of Online Professional Development

Preservice and In-Service Session

There are many varieties of online professional development, and many challenges. This talk will analyze some of the issues around online PD and the development of eCMI, a live online PD serving multiple states and districts simultaneously. Discussion will include issues for both participants and presenters of online PD.

Bowen Kerins

Education Development Center, Inc., Waltham, Massachusetts

200 H (MINNEAPOLIS CONVENTION CENTER)

91 **ew**

A Look at enVisionmath2.0—Now for K–8!

General Interest Exhibitor Workshop

Pearson's rigorous new curriculum supports the habits of mathematical thinkers and learners through carefully differentiated instructional tools and personalized practice. Find out how optimal content organization, problem-based learning, visual learning, and smart assessments work together to support learning—and teaching.

Pearson

Pearson, Boston, Massachusetts

M100 H (MINNEAPOLIS CONVENTION CENTER)

1:30 P.M.–2:45 P.M.

92

5 Indicators of Decimal Understanding

3–5 Workshop

Recent research from a large urban school district with fourth graders revealed five indicators of rich decimal understanding. Participants in this workshop will experience a few of the research-based curriculum activities developed from the Rational Number Project to encourage these understandings as well as examine student work from the study.

Bethann Wiley

University of Minnesota, Minneapolis

Karen Colum

Minnesota State University, Mankato

M100 DE (MINNEAPOLIS CONVENTION CENTER)

93

How Fractions Build a Foundation to Success in Algebra

6–8 Workshop

Explore, discuss, and make connections between fraction proficiency and success in algebra. Participants will engage in hands-on activities to support conceptual understanding of fractions, proportional reasoning, and bridging the gap from fractions to algebra. Help students to understand that not all principles of whole numbers apply to fractions.

Melissa A. Fox

St. Paul Public Schools, Minnesota

Heather A. C. Evjen

St. Paul Public Schools, Minnesota

Terry Meryhew

St. Paul Public Schools, Minnesota

200 JI (MINNEAPOLIS CONVENTION CENTER)

THURSDAY



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BA2 Beyond Algebra II

COMP Computational Fluency

EQUITY Beyond Catchphrases and Statistics:
Equity and Instruction Practices

ew Exhibitor
Workshop

94 **EQUITY**

Instructional Practice That Facilitates Equity for ELLs in Mathematics Classrooms

3–5 Workshop

Learn how to establish equitable learning environments, position students for success, and enhance curriculum, instruction, and assessment to support English language learners' mathematics learning in grades 3–5.

Kathryn B. Chval
University of Missouri, Columbia

L100 DE (MINNEAPOLIS CONVENTION CENTER)

95

PictureSTEM: Using Literature and Engineering Design to Facilitate Mathematics Learning

Pre-K–2 Workshop

Ever wondered how to use STEM to teach math? This session will highlight a STEM integration unit for K–grade 2, using picture books to motivate STEM learning through the meaningful integration of mathematics, science, and engineering design. Participants will engage in measurement and sorting activities in order to design a toy box organizer.

Kristina M. Tank
Iowa State University, Ames

Tamara J. Moore
Purdue University, West Lafayette, Indiana

M100 FG (MINNEAPOLIS CONVENTION CENTER)

96

Rich Tasks That Provide Active Engagement and Deep Understanding While Integrating Technology

9–12 Workshop

In this highly interactive session, discover how to increase student learning and encourage meaningful collaboration with two superb activities. Get answers to: “How do we implement CCSS and its practices and still teach the ideas and make connections?” Incorporate the “5 Practices for Orchestrating Productive Math Discussions.” Obtain all materials.

Tom Reardon
Youngstown State University, Ohio

101 FG (MINNEAPOLIS CONVENTION CENTER)

97

Spaghetti Noodles, Patty Paper, Rope, and More . . .

6–8 Workshop

Explore the triangle inequality theorem, derive area formulas, investigate angle relationships, and engage in reasoning and proof activities. Come and engage in hands-on geometry activities that support student understanding of geometry concepts in grades 6–8.

Sonja L. Goerd
St. Cloud State University, Minnesota

L100 FG (MINNEAPOLIS CONVENTION CENTER)

98

Tasks That Promote Thinking and Dialogue in the Primary Classroom

Pre-K–2 Workshop

Needing tasks that go beyond a right answer? Come explore resources for finding these tasks and learn how to transform tasks already available. Turn your students into problem solvers who think and discuss once these tasks are given to them.

Cindy Beaman
Grand Island Public Schools, Nebraska

101 JI (MINNEAPOLIS CONVENTION CENTER)

99

“They’ll Need It for High School”

Preservice and In-Service Workshop

Some math topics can be emphasized, and teaching practices justified, all in the name of preparing students for high school. We’ll classify and critique some typical responses to “What do students need for high school?”, discuss more promising answers to this question, and explore activities that will truly help our students succeed in math class.

Chris Hunter
School District No. 36, Surrey, Canada

200 DE (MINNEAPOLIS CONVENTION CENTER)



1:30 P.M.—2:45 P.M.

100 Right Triangles and Trigonometry: Constructing the Unit Circle

9–12 Workshop

Help your students understand the unit circle, reference angles, and radians. You will experience the use of manipulatives to help students understand key trigonometric concepts through construction of the unit circle using special right triangles. Multiple representations and connections among topics will be highlighted.

Jacob C. Leibold

Urban Assembly School for Wildlife Conservation, Bronx, New York

David Berger

School District of the Menomonie Area, Wisconsin

200 GF (MINNEAPOLIS CONVENTION CENTER)

101 Thinking Like a Synthesizer: Applying Algebraic Transformations to Musical Melodies

9–12 Workshop

Every song's melody can be expressed as a series of integers, each of which represents the number of musical half steps above or below the first note in the song. Using various basic math and music technologies, we will create discrete graphs that we can transform horizontally and vertically—just like composers and synthesizers do!

Mike J. Reiners

Christ's Household of Faith School, St. Paul, Minnesota

200 AB (MINNEAPOLIS CONVENTION CENTER)

2:00 P.M.—3:00 P.M.

102 Connecting the Math through Meaningful Experiences

3–5 Session

As mathematics education evolves in this century, we can no longer teach concepts individually, but rather they must be viewed as connected concepts. Come experience meaningful tasks that will answer the questions: What does origami have to do with fractions? How can randomness increase student number sense?

Jennifer North Morris

Math Coach/Specialist, Tucson, Arizona

200 C (MINNEAPOLIS CONVENTION CENTER)

103 **LEAD**

Implementing NCTM Teaching Practices from *Principles to Actions*

3–5 Session

This session will provide an opportunity for participants to focus on four of NCTM's Mathematical Teaching Practices in grades 3–5: establish mathematics goals to focus learning; use and connect mathematical representations; build procedural fluency from conceptual understanding; and elicit and use evidence of student thinking.

Susan Wygant

Minnesota Department of Education, Roseville, Minnesota

101 CD (MINNEAPOLIS CONVENTION CENTER)

104 Interacting with Integers: Using Tools and Games to Explore Integers

6–8 Session

Integers often pose a challenge for students at all levels. In this session, participants will learn about tools and games to get students interacting with integers in a way that encourages conceptual understanding rather than just memorizing procedures. We will explore strategies useful for middle school students, ABE learners, and beyond.

Amber Delliger

Metro North Adult Basic Education, Blaine, Minnesota

Erin Marsyla

St Francis Xavier Middle School, Buffalo, Minnesota

101 AB (MINNEAPOLIS CONVENTION CENTER)

105 Multi-digit Multiplication and Division: A Workout That Promotes Flexibility

3–5 Session

Knowing basic facts is only part of the story. Successful students demonstrate conceptual understanding of multi-digit multiplication and division by using strategies flexibly. We will explore ways to foster this flexible thinking in the math classroom where as teachers we have a wide range of math knowledge.

Cristina Miller

University of Minnesota, St. Paul

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

106**Online Resources for Math Teachers: Finding (and Re-Finding) Great Lessons**

General Interest Session

Many great math lessons are available online but finding those lessons is often difficult. Come for a tour of some great sites with high-quality math lessons, games, and activities suitable for elementary, middle, and high school students. Also learn to find or create custom Google searches so that you can quickly access the resources *you* want.

Christy Pettis

University of Minnesota, Twin Cities

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

107 **TECH****Tech Tools and Ideas to Empower Students through Algebraic Creativity**

9–12 Session

We live in a naturally algebraic world. Through powerful collaboration and creativity, students can develop meaningful connections while sharing their mathematical world with their peers and global connections. Learn how students can leverage digital tools to empower algebraic reasoning.

Rafranz Davis

Arlington Independent School District, Texas

101 H (MINNEAPOLIS CONVENTION CENTER)

108**The Calculus of Corvettes**

9–12 Session

A nonroutine calculus task using data from a drag racing facility will be discussed. Participants will explore how this task provides flexible learning opportunities through mathematical modeling and data analysis to deepen students' understanding of calculus. Hallmarks of a good problem are identified and student work will be shared.

Jaclyn M. Murawska

Saint Xavier University, Chicago, Illinois

Keith A. Nabb

Moraine Valley Community College, Palos Hills, Illinois

101 E (MINNEAPOLIS CONVENTION CENTER)

109**They Can Cross Multiply, but Can They Reason Proportionally?**

General Interest Session

Traditional approaches of teaching the algorithm of cross multiply and divide fall short of developing robust proportional reasoning processes in students. More meaningful approaches, including the unit rate and the factor of change approaches, help students develop efficient and flexible proportional reasoning processes.

Megan J. Breit-Goodwin

University of Minnesota, Minneapolis

M101 C (MINNEAPOLIS CONVENTION CENTER)

110 **COMP****Assessing Understanding of Number**

Pre-K–2 Session

Research shows that a student's understanding of number in early elementary grades is the best predictor of school success. This session will highlight assessment protocols that help teachers make decisions about students' knowledge and flexibility with critical number concepts. Tasks to support further number development will also be presented.

David K. Pugalee

Center for STEM Education, University of North Carolina at Charlotte

M100 AB (MINNEAPOLIS CONVENTION CENTER)

111**Teaching Number Sense to the iGeneration**

6–8 Session

This session will examine how to engage, motivate, and teach the iGeneration (the Internet Generation). This session will examine rich problems and tasks that are generated via pictures and video (rather than words on paper) and demonstrate how such media can lead to deeper discourse, motivation, and mathematical understanding.

Eric Milou

Rowan University, Glassboro, New Jersey

200 H (MINNEAPOLIS CONVENTION CENTER)

2:00 P.M.—3:00 P.M.

112 **ew**

Building Concepts in Middle Grades

6–8 Exhibitor Workshop

Are fractions and ratios the same? What is the role of a variable in an expression? In this session, we will look at new ways of using technology to help students visualize, think about, connect and discuss mathematics across grades 6–8.

Texas Instruments

Texas Instruments, Dallas

M101 B (MINNEAPOLIS CONVENTION CENTER)

113 **ew**

Making Ideas Accessible with Virtual Manipulatives

General Interest Exhibitor Workshop

Learn how virtual manipulatives, combined with some simple teaching strategies, can be used to accessibly present elementary math ideas.

Matific

Slate Science, New York, New York

M100 H (MINNEAPOLIS CONVENTION CENTER)

114 **ew**

Moving Math Vocabulary to Excellence with Dinah Zike's Notebooking Central!

General Interest Exhibitor Workshop

Learn how to make rich connections between math vocabulary, classroom and personal experiences, and math content. Get on the cutting edge of interactive notebooks with new, brain-friendly materials from Dinah Zike's Notebooking Central! Session includes research, examples, and exclusive templates to make math vocabulary interactive.

Dinah-Might Adventures

Dinah-Might Adventures, San Antonio, Texas

M100 C (MINNEAPOLIS CONVENTION CENTER)

3:15 P.M.—4:30 P.M.

115

Connecting the Big Ideas In Whole Number and Fraction Operations

3–5 Workshop

Addition and subtraction of whole numbers and addition and subtraction of fractions are often treated as separate ideas. In reality, if teachers help students develop relational thinking about fraction equivalence it is possible to apply whole number strategies to add and subtract fractions. Come find out how in this engaging gallery workshop!

Michael J. Wallus

Minneapolis Public Schools, Minnesota

Sarah Moffett

Minneapolis Public Schools, Minnesota

Nina Smith

Minneapolis Public Schools, Minnesota

101 JI (MINNEAPOLIS CONVENTION CENTER)

116

Developing Number Sense in PK–2

Pre-K–2 Workshop

Incorporate the use of manipulatives, dot cards, and five- and ten-frames to build understanding of quantity and the concept of “10.” Model effective instructional strategies and routines developed based on the analysis of student misconceptions. Opportunities to practice instructional strategies in small groups. Copies will be available.

Betty J. Wendorff

St. Paul Public Schools, St. Paul,

Heather A. C. Evjen

St. Paul Public Schools, Minnesota

Melissa A. Fox

St. Paul Public Schools, Minnesota

M100 DE (MINNEAPOLIS CONVENTION CENTER)

Membership questions?
We've got answers!
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THURSDAY

117

Employing Effective Questioning Strategies and Mathematical Discourse to Increase Achievement

3–5 Workshop

Speaker will engage attendees using effective questioning strategies applied to complex, real-world problems. She will model how to design instruction where every child's instructional needs are addressed, thinking is visible, student feedback informs instruction, and standards-based learning results from thinking—not memorization. Handouts provided.

Donna L. Knoell

Educational Consultant, Shawnee Mission, Kansas

200 JI (MINNEAPOLIS CONVENTION CENTER)

118

How to Illustrate 3-D Geometry Problems with Hands-on Models

Preservice and In-Service Workshop

Make your teaching of spatial geometry super effective and memorable by discovering how to make 3-D concepts concrete and touchable. You will construct and describe 3-D solids, make a height, a diagonal and learn how to easily build polygons inside the solids to make accurate models illustrating typical and exotic 3-D geometry problems.

Aniceta Skowron

Geometro, Ancaster, Canada

200 AB (MINNEAPOLIS CONVENTION CENTER)

119

Linear Models of Fraction Operations: Cuisenaire Rods to Number Lines

6–8 Workshop

In this presentation, we begin linear modeling of fractions at the concrete stage with physical materials (Cuisenaire rods), transitioning to number lines to represent fractions and operations with fractions. Finally, we introduce the abstract paper-and-pencil algorithms that directly represent the mathematics that happened at the concrete level.

Adam P. Harbaugh

Missouri State University, Springfield

Kurt Killion

Missouri State University, Springfield

L100 FG (MINNEAPOLIS CONVENTION CENTER)

120

Playing with Numbers in My World

Pre-K–2 Workshop

Participants will view PowerPoint of pre-K–K students solving mathematical challenges with hands-on materials. Each table will have several student task packets. Each task will have a real world connection. Participants will complete one or more tasks. A graphic organizer will be completed to show what pre-K–K students would gain from this method.

Linda S. Prichard

Rutherford County Schools, Murfreesboro, Tennessee

101 FG (MINNEAPOLIS CONVENTION CENTER)

121

Problem Solving—MacGyver Style!

9–12 Workshop

What do you do when you need to solve a terrific problem and all you have is a laser, a protractor, a ruler, and, of course, duct tape? You MacGyver it! Come work some interesting problems that MacGyver would be proud of. Participants will solve hands-on math and science problems that use measuring and math skills taught in standard courses.

Dan W. Butler

Mounds View High School, Arden Hills, Minnesota

Michael D. Huberty

University of Minnesota, Minneapolis

L100 DE (MINNEAPOLIS CONVENTION CENTER)

122

STEM: Mathematical Concepts Explored with Scientific Content and Models

6–8 Workshop

Science, Technology, Engineering, and Math (STEM) integration is an idea that is gaining traction in the way curriculum and instruction are approached. In this session, the presenters will draw on scientific content and models to explore mathematical ideas in hopes to further develop strategies for meaningful interdisciplinary work between math and science for students.

Elizabeth Crotty

University of Minnesota, Minneapolis

Kyle Whipple

University of Minnesota, Minneapolis

200 DE (MINNEAPOLIS CONVENTION CENTER)

3:15 P.M.–4:30 P.M.

123

Preparing Today's Students for the Workforce of Tomorrow

9–12 Workshop

Learn how to better prepare students for the jobs available to them in the future and 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

M100 FG (MINNEAPOLIS CONVENTION CENTER)

3:30 P.M.–4:30 P.M.

124

4 Essential Elements of RtI for Mastery of Multiplication Facts

3–5 Session

You are the student. We are the teachers. Walk through the four essential elements of successful elementary RtI programs. Take a pretest, make decisions, engage in explicit instruction using manipulatives within the C-R-A process, and conclude with progress monitoring. All activities emphasize the CCSS Standards for Mathematical Practice for multiplication.

Debbie Ondov

Hopkins Schools, Minnesota

Amy L. Johnson

Math Teachers Press, Inc., Minneapolis, Minnesota

101 H (MINNEAPOLIS CONVENTION CENTER)

125

Are All Interventions Created Equal?

General Interest Session

In this session, participants will differentiate between effective and ineffective interventions and justify why one is more likely to impact student learning than the other. Participants will watch a video of students engaged in an effective intervention and identify the ways the intervention supports students' conceptual understanding.

Laurie B. Speranzo

Institute for Learning, University of Pittsburgh, Pennsylvania

101 AB (MINNEAPOLIS CONVENTION CENTER)

126 **TECH**

Empowering Students with Rich Online Algebra Activities

9–12 Session

Instead of having the computers program our students, let's have our students use mathematics to program the computers. This session introduces online lessons being developed at Desmos—lessons whose goal is empowering students with algebra, and lessons that put students' ideas together with networked devices.

Christopher Danielson

Normandale Community College, Bloomington, Minnesota

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

127

Exploring Equality Using Student Work

3–5 Session

Students' conceptual understanding of the equal sign is critical to building early algebraic thinking. This session will focus on framing discussions around student work as well as addressing content and mathematical practices outlined in CCSSM. The session includes analysis of student work and modeling teacher action within a CGI framework.

William Samsel

Minneapolis Public Schools, Minnesota

Mary V. Lambrecht

Minneapolis Public Schools, Minnesota

101 E (MINNEAPOLIS CONVENTION CENTER)

128

Let's Get Talking about Math!

Pre-K–2 Session

Are you tired of young mathematicians saying plussed or minussed? Even though teachers model academic math vocabulary, students fail to use it in conversation. A teacher of English learners and an elementary math coach will demonstrate strategies to help students in kindergarten–grade 5 use academic math vocabulary.

Sara G. K. George

Independent School District 196, Rosemount, Minnesota

Kim Mueske

Independent School District 196, Rosemount, Minnesota

101 CD (MINNEAPOLIS CONVENTION CENTER)

129

Technology and Strategies Assist Reluctant Learners at a Community College

Higher Education Session

Even with the Common Core, we still have students graduating high school needing some remediation upon entering college. With technology and careful selection of problem sets, we can assist students getting to the next level. Let's see how we can bring students up to speed using old and new methods that work.

James J. Landherr

Kennebec Valley Community College, Fairfield, Maine

200 H (MINNEAPOLIS CONVENTION CENTER)

130

What Does the Mean Mean? Helping Students Reason About Data

6–8 Session

Students can easily calculate statistics like the mean, median, and mode, but they often struggle to correctly use or interpret them. Using examples of actual student work, this session will explore student difficulties with data analysis. The session will also share ideas for activities that support students' as they work through these challenges.

Aran W. Glancy

University of Minnesota, Twin Cities

200 C (MINNEAPOLIS CONVENTION CENTER)

131

What Evidence "Counts" as Student Understanding of a Concept?

General Interest Session

Participants will learn about aspects of math tasks within a range of related tasks that provide a measure of students' conceptual understanding of a concept. Both mathematics tasks and student work will be analysed to determine what students know or don't know. Participants will consider ways of supporting student learning based on their findings.

Stephen W. Miller

Institute for Learning, University of Pittsburgh, Pennsylvania

Victoria L. Bill

Institute for Learning, University of Pittsburgh, Pennsylvania

L100 ABCJH (MINNEAPOLIS CONVENTION CENTER)

132

Modeling in Middle School: Find the Real Meaning of "Linear"

6–8 Session

We want students to get that lines have a constant slope, so we focus on $y = mx + b$. But by the end of algebra, students think that it's the only way to represent a line. By using data sets, the idea of slope, and other forms of the equation of a line, students get at what it really means to say that a relationship between two variables is "linear."

Ruth Miller

Greenhills School, Ann Arbor, Michigan

M100 AB (MINNEAPOLIS CONVENTION CENTER)



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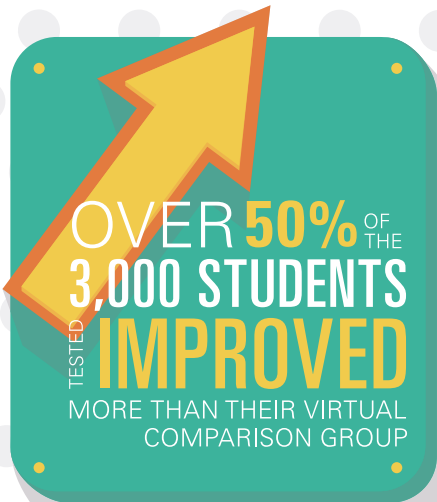
JOHNS HOPKINS UNIVERSITY

published the results of a research study analyzing the effectiveness of *ORIGO Stepping Stones*, a K–5 mathematics curriculum, at Worthington City School District in Worthington, Ohio. The findings reveal demonstrated gains from students using *Stepping Stones* over the comparison group.

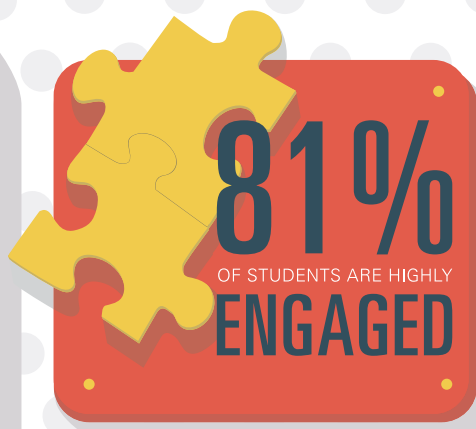
“We are seeing noticeable gains in achievement with Stepping Stones. Students and teachers are responding positively to the new program and that is reflected in the results of this study.”

-Gina Piero, instructional coach at Worthington School District

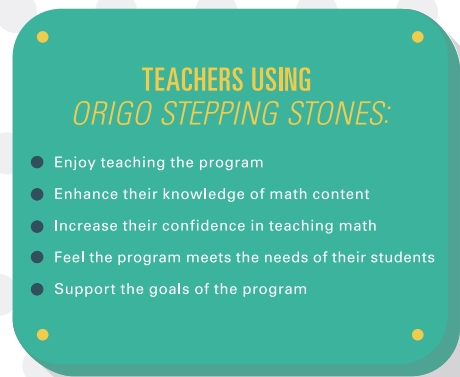
Stepping Stones helps students gain a deeper understanding of mathematics. By adopting a conceptual approach the authors teach students how to think critically.



OVER **50%** OF THE
3,000 STUDENTS
TESTED **IMPROVED**
MORE THAN THEIR VIRTUAL
COMPARISON GROUP

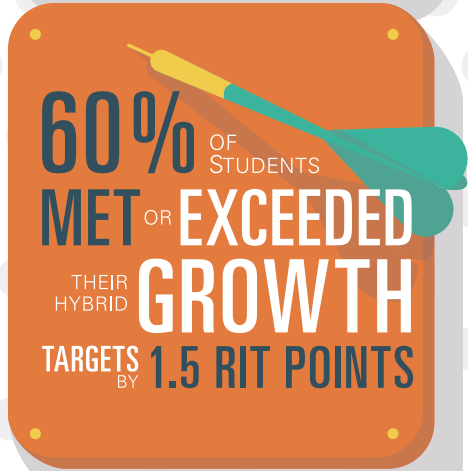


81%
OF STUDENTS ARE HIGHLY
ENGAGED

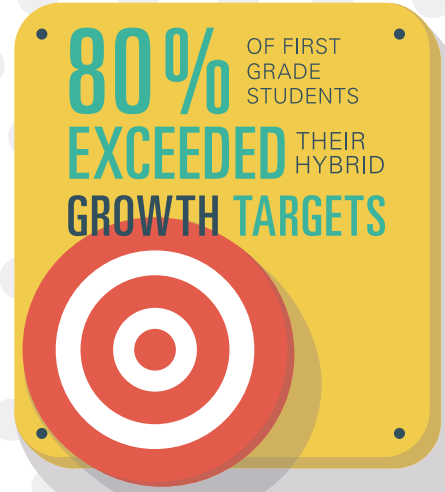


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- Increase their confidence in teaching math
- Feel the program meets the needs of their students
- Support the goals of the program



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THEIR HYBRID
GROWTH
TARGETS BY **1.5 RIT POINTS**



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GRADE STUDENTS
EXCEEDED THEIR
GROWTH TARGETS



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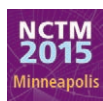


ORIGO
EDUCATION

HIGHLIGHTS

Regional Conference Overview & Orientation, 133
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New and Preservice Teachers Workshop, 170
Board Hot Topic: Productive Strategies for Engaging Students in Productive Struggle, 176
Using Simulation to Prepare High School Students to Reason Statistically, 184
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COMP	Computational Fluency	136, 233
EQUITY	Beyond Catchphrases and Statistics: Equity and Instruction Practices	148, 224, 229
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LEAD	Developing Leaders in Effective Teaching	156, 214, 236
PPS	Promoting Productive Struggle	140, 144, 154, 175, 227
TECH	Increasing Student Growth and Teacher Development through Technology	135



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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.

133

Regional Conference Overview & Orientation

General Interest Session

Hosted by members of the Board of Directors, this session will show you how to maximize your overall conference experience. Learn what's new or discover something you've missed in the past, how to navigate presentations, use the Conference App, and network with other attendees.

Paul Kelley

Board of Directors, National Council of Teachers of Mathematics;
Anoka High School, Minnesota

L100 FG (MINNEAPOLIS CONVENTION CENTER)

8:00 A.M.–9:00 A.M.

134

Building Proportional Reasoning in Developmental Mathematics Students

Research Session

Proportional reasoning is an important component in the foundation of college-level mathematics. Many developmental mathematics students struggle to reason proportionally. Come explore ways that proportional reasoning can be meaningfully built in postsecondary developmental mathematics students.

Megan J. Breit-Goodwin

University of Minnesota, Minneapolis

200 C (MINNEAPOLIS CONVENTION CENTER)

135

TECH

Chains and Webs

General Interest Session

Is the Internet essential to your classroom, or just bells and whistles? Come and hear how you can use the Internet to bring you and your students to a wider vision of math—one that's vibrant, connective, and evolving—a web instead of a chain. You'll leave ready to transform your classroom and kick-start your professional development. Come connect.

Justin Lanier

Georgia Tech University, Atlanta

101 CD (MINNEAPOLIS CONVENTION CENTER)

136 **COMP**

Fluency with Fractions

3–5 Session

Both the Common Core State Standards and the guide *Developing Effective Fractions Instruction for Kindergarten through 8th Grade* stress understanding fractions as numbers and the importance of using number lines when teaching fraction concepts. We will discuss these ideas and how they can support developing computational fluency with fractions.

Jim Lewis

University of Nebraska–Lincoln

101 H (MINNEAPOLIS CONVENTION CENTER)

137

Fostering Number Sense in Primary Children through Number Talks

Pre–K–2 Session

Learn a powerful way to build number sense in your kids in as little as five to ten minutes a day through the use of Number Talks. This session will define what Number Talks are and address important concepts to target with this age group. The content presented will be largely based on the book *Number Talks* by Sherry Parrish.

Brooke Williams

Anoka-Hennepin School District #11, Anoka, Minnesota

M100 AB (MINNEAPOLIS CONVENTION CENTER)

138

Interpreting the NCTM Communication Process Standard: Promoting Deep Mathematics Learning

3–5 Session

“Students should be able to communicate their mathematical thinking coherently and clearly.” How can this be interpreted? We constantly make decisions on the continuum between algorithms and memorization at one extreme and depth and understanding at the other. Different interpretations result in different classroom practice and student achievement.

Matthew D. Reames

University of Virginia, Charlottesville

M101 C (MINNEAPOLIS CONVENTION CENTER)

FRIDAY

BA2 Beyond Algebra II

COMP Computational Fluency

CSM Celebrating Struggles and Mistakes

EQUITY Beyond Catchphrases and Statistics: Equity and Instruction Practices

EW Exhibitor Workshop

139

Keeping It Real: Authentic Real-World Math Lessons (Middle School)

6–8 Session

How long does it take to burn off a Big Mac? Do taller Olympic sprinters have an unfair advantage? Is *Wheel of Fortune* rigged? In this presentation, we'll engage in authentic (real-world) and cognitively rigorous activities for your middle school math classroom, and we will discuss how to use them to foster a culture of conversation and critical thinking.

Karim K. Ani

Mathalicious, Charlottesville, Virginia

101 AB (MINNEAPOLIS CONVENTION CENTER)

140 PPS

Putting the Principles into Action

General Interest Session

Principles to Actions provides a clear road map to equitable mathematics experiences for all students. The Effective Teaching and Learning Principle includes concise suggestions for instructional moves that ensure student success. How do we help teachers to put these moves into practice? Let's look at some practical suggestions and models.

Linda M. Gojak

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

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

141 BA2

Swinging Into Parametric Equations

9–12 Session

Engage your students in the modeling process, exploring data that represents the motion of a swinger. We will demonstrate how to capture data from a video and build trigonometric models for the horizontal and vertical position of the swinger. Data will be shared along with a video that helps students make sense of amplitude, period, and phase shift.

Maria L. Hernandez

North Carolina School of Science and Mathematics, Durham, North Carolina

101 E (MINNEAPOLIS CONVENTION CENTER)

142

The Right Tool for the Job

Pre-K–2 Session

This interactive session will get teachers exploring how common math tools promote different strategies for problem solving. Through our explorations and conversations, teachers will have a deeper understanding of how tools can be selected with intentionality to provide their students with a robust math experience.

Margaret E. Williams

Anoka-Hennepin ISD #11, Anoka, Minnesota

Sandy J. Posey

Anoka-Hennepin ISD #11, Anoka, Minnesota

200 H (MINNEAPOLIS CONVENTION CENTER)

143

Using GeoGebra for All the Right Reasons

9–12 Session

GeoGebra files from geometry, transformations, functions, and data analysis will illustrate the benefits of using dynamic computer applications. Discussion will focus on the use of GeoGebra to (a) allow students to engage in “what if” explorations, (b) model mathematics concepts, and (c) allow teachers to use GeoGebra as a teacher productivity tool.

Chuck Friesen

University of Nebraska–Lincoln

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

Download Speaker Handouts!

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

144 **PPS****Beyond Right and Wrong: Noticing and Responding to Student Thinking**

3–5 Workshop

You plan and teach the highest quality lessons, yet your students still make mistakes! Learn three shifts that you can make in your grading and assessment practices that will not only make the time you spend grading papers more relevant to instruction, but also help you decipher mistakes and errors, turning them into opportunities for learning.

Kimberly Morrow Leong

George Mason University, Fairfax, Virginia

M100 DE (MINNEAPOLIS CONVENTION CENTER)

145**Composing and Decomposing—What’s the Big Deal?**

Pre-K–2 Workshop

The focus will be on building foundations for place value and properties of operation through exploring the CCSS domain Number and Operations in Base Ten. What does it really mean to compose/decompose numbers and why does it matter? Understand progressions from K–grade 2 and how to build and assess student understanding. The session is interactive and discussion oriented.

Terrie R. Evans

Little Rock School District, Arkansas

Patricia Goodman

Little Rock School District, Arkansas

Sherrie Shelton

DeQueen School District, Arkansas

200 JI (MINNEAPOLIS CONVENTION CENTER)

146**Exploring Geometry and Measurement through Children’s Literature**

Pre-K–2 Workshop

See how geometry ideas and measurement ideas come alive in children’s books. Engage in rich mathematical tasks that explore shapes, location, movement, symmetry, and length.

Kay A. Wohlhuter

University of Minnesota Duluth

L100 FG (MINNEAPOLIS CONVENTION CENTER)

147**Games and Activities for Integer Addition and Subtraction**

6–8 Workshop

Subtracting negative numbers is notoriously difficult for students. Manipulatives, stories, and clever rhymes have been tried but mostly with limited success. This session will explore the weaknesses of these approaches and ways to improve upon them. Come try out classroom-tested activities to help build student understanding of these concepts.

Christy Pettis

University of Minnesota, Twin Cities, Minnesota

Aran W. Glancy

University of Minnesota, Twin Cities, Minnesota

200 AB (MINNEAPOLIS CONVENTION CENTER)

148 **EQUITY****Illuminating the Teaching Practices through Equitable Mathematics Tasks**

6–8 Workshop

Participants will experience and see how the use of equitable mathematics tasks, such as multiple entry level and group worthy, can help all students to reason and make sense of mathematics. NCTM’s eight Mathematics Teaching Practices will be illuminated as ways to facilitate students’ engagement and understanding as they complete the tasks.

Marilyn E. Strutchens

Board of Directors, National Council of Teachers of Mathematics; Auburn University, Alabama

200 DE (MINNEAPOLIS CONVENTION CENTER)

149**Modernizing, Motivating, and Mastering Mental Mathematics**

3–5 Workshop

Mental math is a goal of computation. All students must be fluent with number facts and then with examples beyond the facts that are mentally manageable. This session will demonstrate methods that motivate and enable students to achieve this goal for multiplication and division. Games will be prominent to achieve this goal.

Calvin James Irons

Mathematics Education Consultant, Brisbane, Australia

101 JI (MINNEAPOLIS CONVENTION CENTER)

150

Prove it! . . . with Rigid Motion Transformations

9–12 Workshop

Participants will be presented with pairs of geometric figures. Through exploration, we will devise strategies for using one or more rigid motion transformations to prove, or disprove, congruency. Along the way, we will analyze the merits of paper folding, compass-straight edge, and handheld technology as we perform the various constructions.

John Ashurst

Harlan Independent Board of Education, Harlan, Kentucky

101 FG (MINNEAPOLIS CONVENTION CENTER)

151

Shapes in Shapes: Build Number Sense Using Your Own Model

9–12 Workshop

Fit squares, triangles, and circles inside of each other to compare relative lengths and areas. Get a feel for the relative values of common radical numbers as they come up naturally. Learn how to build a tetrahedron and an octahedron and then construct a stellated octahedron. Explore questions about these three-dimensional structures using your model.

Nina Chung Otterson

The Hotchkiss School, Lakeville, Connecticut

M100 FG (MINNEAPOLIS CONVENTION CENTER)

152

Surface Area, No Formulas—How Can That Be?

6–8 Workshop

Participants will use GeoModels, Polydrons, and color cubes to facilitate calculation of surface area in support of the CCSSM approach to teaching surface area.

Candide Walton

Southeast Missouri State University, Cape Girardeau

Tamela Randolph

Southeast Missouri State University, Cape Girardeau

L100 DE (MINNEAPOLIS CONVENTION CENTER)

153

Understanding Statistical Significance

6–8 Workshop

Get ready to experience a task that shows how student expectations in statistics change as students move from middle into high school. Participants will engage in a hands-on activity that follows the progression of the CCSSM Statistics standards. Leave the presentation with activities ready to be used immediately.

Jeff Ziegler

Brookhill Institute of Mathematics, Waukesha, Wisconsin

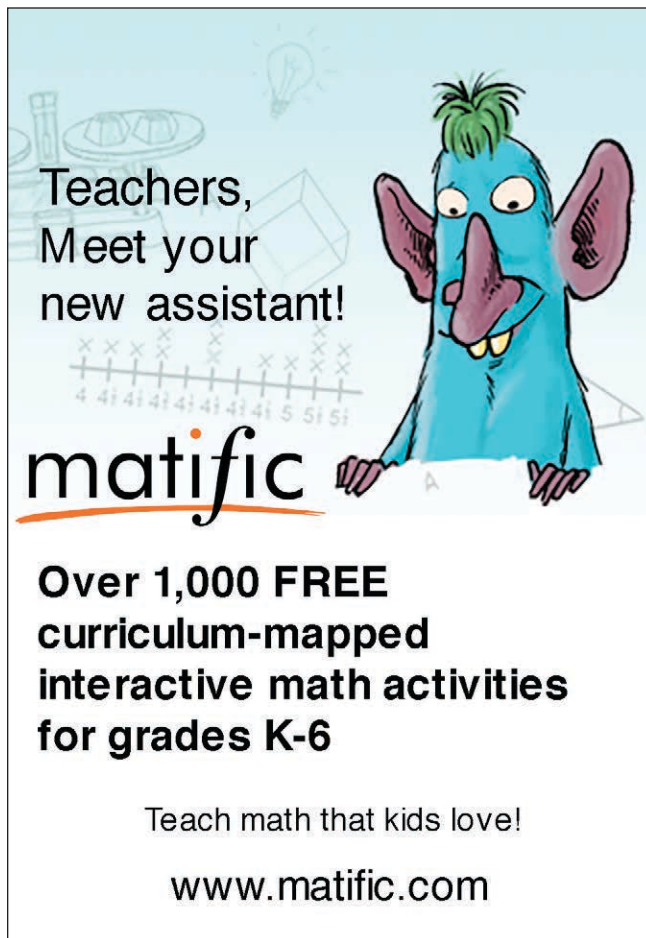
Sara Brown

Brookhill Institute of Mathematics, Waukesha, Wisconsin

Paige Richards

Brookhill Institute of Mathematics, Waukesha, Wisconsin

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FRIDAY

154 **PPS****Celebrating Struggles and Mistakes in the Math Classroom**

6–8 Session

Participants will learn how to establish a classroom atmosphere where mistakes are valued and strategies can be implemented that use student thinking as learning opportunities. Participants will discuss student thinking and develop meaningful conversations that will help students stop fearing and start making mistakes.

Barbara L. Lynch
Lakewood City Schools, Ohio

101 E (MINNEAPOLIS CONVENTION CENTER)

155**Unpacking Standards as a Math Test Development Specialist**

General Interest Session

We will be discussing how test developers view content standards in relation to grade level, other standards in the strand, and the breadth of difficulty and rigor needed to fully assess each standard. The goal is for this view to both reinforce and broaden educators' understanding of the standards and how the standards are assessed.

Angela Hochstetter
Data Recognition Corporation, Plymouth, Minnesota

Eric Jenson
Data Recognition Corporation, Plymouth, Minnesota

101 CD (MINNEAPOLIS CONVENTION CENTER)

156 **LEAD****Focus on What Matters Most: Effective Teaching!**

General Interest Session

The overarching message of *Principles to Actions* is that effective teaching is the non-negotiable necessary to ensure that all students learn mathematics at high levels. Specific actions you can take to implement the eight high-leverage instructional practices will be examined and illustrated with video examples.

Matthew Larson
President-elect, National Council of Teachers of Mathematics;
Lincoln Public Schools, Nebraska

1100 ABCJH (MINNEAPOLIS CONVENTION CENTER)

157**Generate More Numerically Nimble Students**

Pre-K–2 Session

Discover ways to efficiently implement CCSSM. These engaging activities and strategies promote greater sense making as students increase their fluency and proficiency with number, utilize visual models, and build confidence and competence. Selected activities differentiate instruction and enhance students' reasoning abilities.

Laura Choate
Fallbrook Union Elementary School District, California

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

158**Helping Our Students Look for and Make Use of Structure**

Preservice and In-Service Session

Students often use several Common Core mathematical practices (MPs) when solving a new problem. Surprisingly, the practice of looking for and applying structure in mathematics (MP.7) is often underutilized and may not be well understood. We will explore tasks and examine student work looking for and making use of structure to promote deeper understanding, flexibility and efficiency.

Kathryn Ernie
University of Wisconsin–River Falls

Erick B. Hofacker
University of Wisconsin–River Falls

Sherrie Serros
University of Wisconsin–Eau Claire

M101 C (MINNEAPOLIS CONVENTION CENTER)

159**MS Algebra: The “Linear” in Linear Regression**

6–8 Session

Hear about ways to connect the introduction of linear equations to real-world uses of the idea of linearity. Before students learn the skills of finding slope, defining “function,” or solving for “b,” we use a regression problem to give them an understanding of what the use of the word “linear” implies, and a feel for what a “model” does.

Ruth Miller
Greenhills School, Ann Arbor, Michigan

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160

Using Discourse and Tasks to Uncover Student Thinking

6–8 Session

What our students know and don't know is often left uncovered. Students today are required to construct viable arguments and critique the reasoning of others. In this session, strategies will be explored for uncovering student understanding through the use of academically productive discourse as well as tasks that allow for discourse.

Genni Steele

Math Solutions, Sausalito, California

101 H (MINNEAPOLIS CONVENTION CENTER)

161

BA2

What Mathematics Is Important in Algebra II and Precalculus?

9–12 Session

What should students know before they are prepared for career and collegiate level mathematics? Why are concepts such as logarithms and trigonometry important, and how can we make sure students really understand them? And what is the role of dynamic interactive technology in making this happen?

Gail Burrill

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

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162

Key Words No More . . . The Real Keys to Problem Solving

3–5 Session

Strong problem solvers are able to decontextualize and “find the math” in word problems. They do this by assessing the problem and representing it visually . . . *not* by circling, underlining, or highlighting key words. This workshop will introduce teachers to “Read It–Write It–Picture It,” the last problem-solving method students will need to learn.

Christopher M. Sarlo

Conceptual Learning Associates, Amityville, New York

Patti J. Dieck

Conceptual Learning Associates, Amityville, New York

101 AB (MINNEAPOLIS CONVENTION CENTER)

163

Using Mathematical Modeling to Engage All Learners

9–12 Session

Modeling is both a practice standard and a content standard of CCSSM. Modeling is also listed in the Next Generation Science Standards as one of the four fundamental practices to understanding the nature of science. Learn how modeling is implemented as part of a successful mathematics class and how to engage students in their learning to make meaning of mathematics.

David Ebert

Oregon High School, Wisconsin

200 H (MINNEAPOLIS CONVENTION CENTER)

164

ew

Transform Teaching and Learning with MathXL® for School

9–12 Exhibitor Workshop

Through online personalized learning, MathXL® for School allows middle and high school teachers to focus on the important aspects of teaching, while students receive an individualized learning experience with immediate feedback, interactive learning aids, and lots of practice. Come preview this exciting mobile-compatible math technology.

Pearson

Pearson, Boston, Massachusetts

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165

An Introduction to the Rational Number Project

3–5 Workshop

We will share student videos and classwork to describe the Rational Number Project Curricula and discuss how models help develop strong mental images to make sense of fractions. We will include parts of the actual lessons and instructional strategies for helping students make sense of fractions and fraction operations.

Sue Ahrendt

University of Wisconsin–River Falls

Debra Monson

University of St. Thomas, St. Paul, Minnesota

[200 DE \(MINNEAPOLIS CONVENTION CENTER\)](#)

166

Are You Ready for Some Nspiring Football

9–12 Workshop

How “normal” is your favorite NFL team? Is your teams passing or rushing data skewed or normally distributed? This session will explore real-world NFL data distributions using quarterback passing and running back rushing information and more. Beginners through advanced users of the TI-Nspire are welcome at this session.

Lisa Conzemius

Detroit Lakes High School, Detroit Lakes, Minnesota

Becky Byer

Kelly Walsh High School, Casper, Wyoming

[101 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

167

Build Understanding with Geofix Pieces and Engaging Tasks

6–8 Workshop

Geofix pieces are snap-together polygons that can be used to explore characteristics and properties of polygons and polyhedra. A collection of engaging tasks related to grades 6–10 geometry standards will be presented, focusing on angle measure, symmetry, similarity, transformations, surface area, and more.

Laurie Boswell

The Riverside School, Lyndonville, Vermont

[L100 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

168

Mathematics and Engineering: Making a Real-World STEM Connection

6–8 Workshop

This presentation will explore how a real-world disaster can be used to engage students in mathematics. Participants will begin by participating in an engineering design challenge based on a real-world disaster (an oil spill) followed by an exploration of the mathematics that can be highlighted through this challenge.

Deborah Besser

University of St. Thomas, Saint Paul, Minnesota

Debra Monson

University of St. Thomas, St. Paul, Minnesota

[M100 DE \(MINNEAPOLIS CONVENTION CENTER\)](#)

169

Multiplication and Division: Building Conceptual Understanding and Fluency

3–5 Workshop

Experience hands-on strategies to help students understand multiplication and division. Explore various situations described by the operations and strategies for building fluency with algorithms. Manipulatives will be used in a Concrete-Representational-Abstract learning cycle to connect conceptual understanding to procedural fluency as students learn.

Sara Delano Moore

ETA hand2mind, Vernon Hills, Illinois

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170**New and Preservice Teachers Workshop**

Preservice and In-Service 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

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171**Puzzles & Games: Teaching Tools in Disguise**

Pre-K–2 Workshop

Not only do puzzles and games have the capacity to engage students, they also have the capacity to provide meaningful learning. This presentation introduces puzzles and games that promote number understanding. Participants will have the opportunity to try a selection of puzzles and games and observe how they are really teaching tools in disguise!

Celia M. Baron

MathImagine, Winnipeg, Canada

101 JI (MINNEAPOLIS CONVENTION CENTER)

172**Raise the Bar: Deep Mathematical Thinking Is the Higher Goal**

3–5 Workshop

Children today live in a world with technological tools that compute more quickly and efficiently than we can ourselves. This begs the question: “What is our purpose in teaching operations?” Algebraic thinking is the answer. But what does that look like in elementary classrooms? Through powerful explorations for pre-K–5 mathematics, you will soon know. Join us!

Monica Neagoy

Monica Neagoy Consulting Services, Arlington, Virginia

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173**Teaching Statistics in Middle and High School through Real-World Experiments**

9–12 Workshop

In this hands-on session, middle and high school teachers will engage in two experimental activities. Participants will collect data, represent it graphically, draw comparisons, and generate inferences. No prior experiences teaching interpretation of graphical representations and inference is needed. Lesson plans and activities will be provided.

Maryann Elizabeth Huey

Drake University, Des Moines, Iowa

Wendy Weber

Central College, Pella, Iowa

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174**Using Rekenreks to Introduce and Develop Number Sense**

Pre-K–2 Workshop

Rekenreks provide a visual model that students need to discover number relationships and develop fluency. Through the use of this tool students can generate a variety of addition and subtraction strategies. Participants will watch video of students working with rekenreks and identify important elements for planning and implementing a number talk.

Nina Smith

Minneapolis Public Schools, Minnesota

Nicole Kuhse

Marcy Open School, Minneapolis Public Schools, Minnesota

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and teacher resources?
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175 **PPS****A Growth Mindset in the Math Classroom**

6–8 Session

What is a growth mindset and how can you develop it? Research shows that having a growth mindset rather than a fixed mindset leads to success. We will look at a class studying ratios and proportions that has been exposed to growth mindset learning. Come see the effects of mindset on students and their perception of mistakes and challenges.

Jennifer E. Chen

New York City Department of Education, New York

Rachel Gordon

New York City Department of Education, New York

M100 AB (MINNEAPOLIS CONVENTION CENTER)

176**Board Hot Topic:
Productive Strategies for Engaging
Students in Productive Struggle**

General Interest Session

In this session, we'll look at "productive struggle"—what it is, what it isn't, and how it can help your students. We'll look at some rich, engaging tasks for each grade band, and discuss ways to have students experience productive struggle in a positive way in your classroom.

Paul Kelley

Board of Directors, National Council of Teachers of Mathematics; Anoka High School, Minnesota

Diane J. Briars

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

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

177**Developing Number Sense**

Pre-K–2 Session

We will examine the strategies students use to solve a variety of number stories. We will also look at how number talks and solving real-world problems can be used to evaluate and develop a student's number sense. Be able to answer questions such as: What does number sense look like? How do you assess it? How can it be developed in our students?

Amy TerEick

Mounds View Schools, Sunnyside Elementary, New Brighton, Minnesota

200 H (MINNEAPOLIS CONVENTION CENTER)

178**LEAD** Developing Leaders in Effective Teaching**PPS** Promoting Productive Struggle**TECH** Increasing Student Growth and Teacher Development through Technology**Enriching Instruction and Assessment**

Preservice and In-Service Session

During the last three years we have been involved in a math partnership with more than 50 middle and high school math teachers from western Wisconsin. We will discuss how our involvement in the community has affected our approach to instruction and assessment. Examples of rich mathematical tasks in the areas of geometry and algebra I will be explored.

Ashlee LeGear

Eau Claire North High School, Wisconsin

Melanie Griesbach

Eau Claire North High School, Wisconsin

Erick B. Hofacker

University of Wisconsin–River Falls

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179**Flipping with a Twist: Promoting
Inquiry While Flipping the Classroom**

9–12 Session

This presentation encourages people to amend the usual method for a lecture/homework flipped classroom. I have added inquiry-based activities both before and after video lectures. Many of these activities can be done in other classes to promote understanding of Common Core concepts. We will simulate a two-day cycle of this form of instruction.

Jonathan M. Osters

The Blake School, Minneapolis, Minnesota

101 E (MINNEAPOLIS CONVENTION CENTER)

180**High School Integrated Curricula
and College-Level Mathematics
Performance**

Research Session

It is important to understand the relationship between various high school mathematics curricula and students' subsequent college mathematics achievement, course-taking patterns, and persistence. An NSF-funded program of research (2007–2011) examined this issue over four years of college work for 12,000+ students in 32 four-year institutions.

Thomas R. Post

University of Minnesota, Twin Cities

Michael Harwell

University of Minnesota, Minneapolis

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181**Make Math Meaningful for Preschoolers: Use Relevant, Everyday Experiences!**

Pre-K–2 Session

Math concepts are interwoven in the everyday experiences of young children. Patterning, calendar and group-time activities, games, cooking, graphs, and surveys are just some of the ways that math concepts can be made meaningful and relevant in preschool classrooms. Photos and samples of children's work will be used as examples for discussion.

Kim Johns

Baker Demonstration School, Wilmette, Illinois

101 H (MINNEAPOLIS CONVENTION CENTER)

182**Rich Tasks for the Middle Grades**

6–8 Session

Engage in classroom-ready tasks designed to promote increased student discourse. Work through grades 6–8 activities from a student perspective and then discuss “What makes a task rich?” Learn what it takes to create your own activities using the Five Practices for Orchestrating Productive Mathematics Discussion. Take-home materials will be provided.

Mary Jo Hughes

Anoka-Hennepin Schools, Minnesota

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

183**Teaching Multiplication, Division, and Fractions Using Physical and Virtual Manipulatives**

3–5 Session

Physical and virtual manipulatives significantly affect the development of students' problem-solving skills and conceptual understanding. Participants attending this session will learn how to use physical and virtual manipulatives for affirming a relational understanding of math concepts by making connections between visual depictions and symbolic models

Joseph Sencibaugh

Webster University, Saint Louis, Missouri

Dan Sinclair

Mastery Educational Services, Fallbrook, California

Jennifer Bond

Ferguson-Florissant School District, St. Louis, Missouri

101 CD (MINNEAPOLIS CONVENTION CENTER)

184**BA2****Using Simulation to Prepare High School Students to Reason Statistically**

9–12 Session

Individuals who aspire to all careers in our data-centric society must be statistically literate. This session will focus on using simulation and randomization tests to help our high school students gain statistical reasoning skills to understand key statistical concepts of sampling distribution, statistical significance, and p-value.

Christine Annette Franklin

University of Georgia, Athens

101 AB (MINNEAPOLIS CONVENTION CENTER)

185**ew****Engage Students, Teachers, and Administrators with RTI Solutions using Manipulatives**

General Interest Exhibitor Workshop

Experience how Moving with Math provides pre-K–high school RTI solutions! Students are engaged in successful experiences that build their conceptual understanding through concrete-representational-abstract lessons. Teachers love the hands-on lessons, games, and journals that are easy to use. Administrators can easily measure growth through embedded assessments.

Math Teachers Press

Math Teachers Press, Inc., Minneapolis, Minnesota

M100 C (MINNEAPOLIS CONVENTION CENTER)

186**ew****BYOD: Mathspace—Why You'll Never Grade Math Assignments Again. Seriously.**

9–12 Exhibitor Workshop

Meet Mathspace. You've seen it all, right? Adaptive learning? Yep. Handwriting recognition? Hmm. Every math question graded line-by-line? Whoa, that's new! Students can finally show their work, and get feedback at every step: all auto-graded for you. Bye-bye, multiple choice! BYOD (Bring Your Own Device) to try the award-winning Mathspace live, and ask about a free trial!

Mathspace

Mathspace, New York, New York

M101 B (MINNEAPOLIS CONVENTION CENTER)

11:00 A.M.–12:00 P.M.

187 **ew**

New K–5 Math Curriculum for Building Mathematical Thinkers

General Interest 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. Learn more about work places, visual models, and putting the mathematical practices into action.

Math Learning Center

Math Learning Center, Salem, Oregon

[M100 H \(MINNEAPOLIS CONVENTION CENTER\)](#)

11:30 A.M.–12:00 P.M.

188

An Examination of Students' Reasoning about Trigonometric Functions with Representations

Research Burst

Translations among different representations based upon creative reasoning are more likely to lead students to complete given tasks. This presentation will illustrate how college students employ their reasoning during open-ended and unfamiliar tasks, which help students to disclose their reasoning in informal ways without memorizing solutions.

Soo Yeon Shin

Minnesota State University, Mankato

[M100 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

189

Discussing Common Core Math with Parents

General Interest Burst

Getting parents involved in supporting their children's mathematical learning and in supporting math teachers is vital. Yet many parents don't understand the changes occurring in math classrooms today due to the Common Core. Come explore effective ways to discuss the Common Core with parents and garner their support.

Daniel J. Ross

Maryville College, Tennessee

[101 JI \(MINNEAPOLIS CONVENTION CENTER\)](#)

190

Formative Assessment: Helping Students Understand Their Role in the Process

Preservice and In-Service Burst

Quality formative assessment requires action from both the teacher and the students. This session will provide specific examples of ways teachers can help students become more actively involved in managing their own learning through a formative assessment task.

Terry R. Wyberg

University of Minnesota, St. Paul

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191

Incorporating Writing in College Math Classes

Higher Education Burst

This presentation will demonstrate various methods of using writing in undergraduate mathematics classes to help dispel “word problem” anxiety and to enhance mathematical understanding.

Tonya S. Adkins

Johnson & Wales University, Charlotte, North Carolina

Heather L. Lucas

Sedgefield Elementary, Charlotte-Mecklenburg Schools, North Carolina

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192

MN Mathematics Standards Revision

General Interest Burst

The MN Mathematics Standards Review is currently underway! Participants will hear about the review process, the current work of the committee, and ways to provide feedback during the review process.

Susan Wygant

Minnesota Department of Education, Roseville

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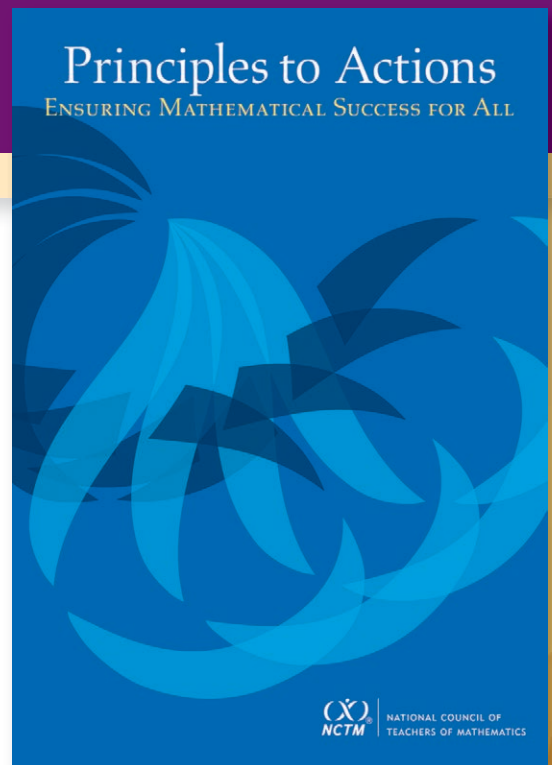
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 Assessment
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Taking Action
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193

Sneetches and Clifford and Yertle . . . and Math

9–12 Burst

Students often fail to see the mathematics that surrounds them, but it is present everywhere, even in children’s literature. Students can study inverse functions, calculus, trigonometry, ratios of volumes, and more using the books that they read to their little brothers and sisters as their inspiration.

Karen Paschke

Madison Metropolitan School District, Wisconsin

Mary K. Paulson

Madison Metropolitan School District, Wisconsin

200 JI (MINNEAPOLIS CONVENTION CENTER)

194

Start STRUCTURING and Start SMILING!

3–5 Burst

Structuring numbers is the ability to combine and partition numbers, which is imperative for moving students beyond counting-by-ones and also provides for the development of mental strategies for addition and subtraction involving two-digit numbers. Join an elementary math coach and learn about how structuring can transform the way students look at numbers!

Cindy J. Storhaug

Alexandria Public Schools, Minnesota

M100 DE (MINNEAPOLIS CONVENTION CENTER)

195

Test Prep Is Boring, Saving the World Is Not

6–8 Burst

Help your students prepare for high-stakes tests by creating their own superheroes, training them, and battling against supervillains. This adaptable teaching strategy uses a combination of gamification, group work, and formative assessment to increase student engagement while improving conceptual understanding and procedural fluency.

Ronald F. Lodetti

Salk School of Science, New York, New York

200 DE (MINNEAPOLIS CONVENTION CENTER)

196

The Noisy Classroom: Promoting Math Discussion through Effective Questioning

Pre-K–2 Burst

“Silence is golden” is not the rule anymore! Guide your classroom to focused and sophisticated math talk and discussions. Help students learn how to explain their work and reasoning by using questions on their own to produce collaborative conversations. This session will include examples of questions and sentence starters to take back to classrooms!

Ashley Wergin

Lincoln Public Schools, Nebraska

Beth Topp

Lincoln Public Schools, Nebraska

Theresa A. Haack

Lincoln Public Schools, Nebraska

101 FG (MINNEAPOLIS CONVENTION CENTER)

197

Using a String to Tie Ratio Reasoning to Linear Functions

6–8 Burst

A string of carefully crafted tasks and questions supports students in generalizing new mathematical concepts from their existing understandings. In this session you will engage in such a string, through which linear equations in slope-intercept form are built using your existing knowledge of rate of change and composed unit strategies.

Anne E. Adams

University of Idaho, Moscow

Robert Ely

University of Idaho, Moscow

Brittany Wnek

University of Idaho, Moscow

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12:30 P.M.–1:00 P.M.

198

An Introduction to Number Talks to Build Number Sense

Pre-K–2 Burst

This presentation will give an introduction to what number talks are and the rationale for their importance in helping to develop number sense. Examples using dot patterns, ten-frames, Rekenreks, and number sentences will be modeled.

Bethann Wiley

University of Minnesota, Minneapolis

200 JI (MINNEAPOLIS CONVENTION CENTER)

199

Critical Thinking and High-Level Discourse in a 1:1 Environment

Preservice and In-Service Burst

Learn about our experiences co-teaching a K–8 methods course using 1:1 tablets in a high-tech lab. This innovative course included a move away from a textbook to a dynamic research-based curriculum supported by NCTM resources and CCSSM as well as integral utilization of apps, web 2.0 tools, and professional learning networks.

Ryan G. Zonnefeld

Dordt College, Sioux Center, Iowa

Valorie L. Zonnefeld

Dordt College, Sioux Center, Iowa

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200

Effects of a Flipped Classroom Model on Students' Attitude in Mathematics

Research Burst

This study determined the extent to which high school students' attitudes toward mathematics changed during the course of their mathematics class, delivered via the flipped classroom model. It examined how the implementation of flipped classroom affects the students' self-confidence, motivation, enjoyment, and valuing of mathematics.

Peter J. Esperanza

Barstow Unified School District, California

101 FG (MINNEAPOLIS CONVENTION CENTER)

201

Estimation, Motivation, Technology Integration

6–8 Burst

Andrew Stadel, at Estimation180.com, has developed a rich resource that uses novel contexts to stimulate estimation and number sense. PearDeck.com is an online platform that seamlessly engages whole-class participation, giving each student the opportunity to share thinking. See the two combined for meaningful use of modern technology.

Seth Leavitt

Minneapolis Public Schools, Minnesota

101 JI (MINNEAPOLIS CONVENTION CENTER)

202

How Students Apply Statistical Concepts in Science and Engineering Classes

Research Burst

In math classes, teachers work to develop deep understanding of statistical concepts, but are students able to apply that knowledge in science or engineering contexts? This session will describe the challenges fifth-grade students faced when attempting to make sense of real data in integrated STEM settings.

Aran W. Glancy

University of Minnesota, Twin Cities

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203

Leadership Development in the Math Classroom

9–12 Burst

Do you create a classroom culture that encourages positive attitudes toward math? Why not take it a step further and use the math classroom as a workshop for leadership development? In this session you will hear research, strategies, and examples of using the challenges and practices of math to transform your students into leaders!

Lindsey C. Cermak

Minnesota Literacy Council, St. Paul

Amy Vickers

Adult Education Instructor and Consultant, North Central, Wisconsin

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FRIDAY

BA2 Beyond Algebra II

COMP Computational Fluency

CSM Celebrating Struggles and Mistakes

EQUITY Beyond Catchphrases and Statistics: Equity and Instruction Practices

EW Exhibitor Workshop

12:30 P.M.–1:00 P.M.

204

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.

Linda M. Fulmore

Mathematics Education Consultant, Cave Creek, Arizona

[L100 DE \(MINNEAPOLIS CONVENTION CENTER\)](#)

205

Using a Tiered and Intensive Online Math Intervention Approach

General Interest Burst

Presenters will discuss the implementation of an intensive, online math intervention program, for students in both MTSS and general education. Presenters will share the school-wide implementation process, discuss challenges faced during its initial application, and evaluate the impact of our strategies on student achievement using MAP test data.

Jennie J. Escobedo

Chicago Public Schools, Illinois

Michelle Cox

Chicago Public Schools, Illinois

[M100 DE \(MINNEAPOLIS CONVENTION CENTER\)](#)

206

Wolves, Sheep, and Graph Transformations: Simulating a Predator-Prey Model

Higher Education Burst

This presentation will describe a project for a pre-calc or trig class featuring a pair of free programs, GeoGebra and NetLogo, to model a relationship exhibiting the predator-prey dynamic. The presenter will demonstrate how students can use NetLogo to generate cyclic data and model it with GeoGebra via transformations of trigonometric functions.

Nick Haverhals

Avila University, Kansas City, Missouri

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207

Say This, Don't Say That

3–5 Burst

Join us as we explore shifts in vocabulary and instruction present in today's mathematics classroom. The focus will be on progressive vocabulary utilization, authentic mathematical language, and the rationale behind shifts. Find out how to avoid misconceptions and reteaching caused by ineffective vocabulary choices.

Michelle M. Dupree

School District of the Menomonee Area, Wisconsin

Amy K. Zuber Seguin

School District of the Menomonee Area, Wisconsin

[L100 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

12:30 P.M.–1:30 P.M.

208

Create Better Tests, Lessons, and Mathematical Thinkers with Rigorous Rubrics

9–12 Session

Students often care more about grades and less about understanding mathematics because percent-based grading systems distract from key outcomes. Learn how teachers collaborated to turn standards into Novice-Expert rubrics that improved tests, lessons, and student performance. Hear how rubrics transform curriculum, grading, and rigor at any grade level.

Tim Hudson

DreamBox Learning, Bellevue, Washington

[101 CD \(MINNEAPOLIS CONVENTION CENTER\)](#)

209

Empowering Preservice Teachers with NCTM's *Principles to Actions*

Preservice and In-Service Session

Principles to Actions: Ensuring Mathematical Success for All clarifies the conditions, structures, and policies needed to promote conditions for all students to be successful in mathematics. Learn how this book can be used as a resource to foster secondary preservice math teachers' competency in teaching, learning, and other essential elements of education.

Jamalee Stone

Black Hills State University, Spearfish, South Dakota

Zachary Zenk

Black Hills State University, Spearfish, South Dakota

[200 H \(MINNEAPOLIS CONVENTION CENTER\)](#)



210**Experience the Math Practices with Games and Online Tools**

General Interest Session

Online tools and inquiry-based lessons build deep understanding. Apps, online graph calcs, and interactives such as Angle Explorer and Shape Shifter motivate lessons about angles, patterns, and sequences, and engage students in the math practices. It's all about engagement and fun—be prepared to laugh, think, and get inspired.

Patrick Vennebush

Discovery Education, Silver Spring, Maryland

101 AB (MINNEAPOLIS CONVENTION CENTER)

211**Flipped Learning: Improve Student Engagement and Learning**

9–12 Session

The Peer Instruction Flipped Learning and Mastery Flipped Learning models are two great ways to improve student engagement and improve student learning in the classroom. In this presentation you will learn about these models and how to implement them in your classroom. Data will be shared showing their effectiveness.

Troy Faulkner

Byron High School, Minnesota

101 H (MINNEAPOLIS CONVENTION CENTER)

212**Measurement Activities for CCSSM**

3–5 Session

Over the past eight years our research team has designed and tested hundreds of tasks with students from grades 2–5. In this session we will lead a discussion around samples of these tasks along with student work. Each task has been mapped to CCSSM, providing a resource for teachers working to implement the Common Core into their classrooms.

Craig J. Cullen

Illinois State University, Normal

David B. Klanderma

Trinity Christian College, Palos Heights, Illinois

Jeffrey E. Barrett

Illinois State University, Normal

200 C (MINNEAPOLIS CONVENTION CENTER)

213**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 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

101 E (MINNEAPOLIS CONVENTION CENTER)

214 **LEAD****Number and Operations: Context for Examining the Mathematical Teaching Practices**

3–5 Session

Video cases will be presented in which students investigate properties of and relationships among operations. These cases will illustrate how teachers enact the Mathematical Teaching Practices found in NCTM's *Principles to Actions*, with particular emphasis on promoting reasoning and problem solving, using and connecting representations, and facilitating meaningful mathematical discourse.

Susan Jo Russell

TERC, Cambridge, Massachusetts

Deborah Schifter

Education Development Center, Inc., Waltham, Massachusetts

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

215 **BA2****Sign Charts in Calculus: Use and Abuse**

9–12 Session

A sign chart is a very useful tool for describing the behavior of a function. However, on the AP Calculus exam, a sign chart alone is not sufficient justification for relative or absolute extrema. This session will focus on the use of sign charts, expectations, and the communication necessary for AP Calculus justification.

Stephen Kokoska

Bloomsburg University, Pennsylvania

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

12:30 P.M.–1:30 P.M.

216

Turning Your Research into an Article for *MTMS*

6–8 Session

This session will help you think about ways to publish your research in *Mathematics Teaching in the Middle School (MTMS)*. As one of NCTM’s practitioner journals, the articles in *MTMS* are primarily utilized by teachers, teacher leaders, teacher educators, and curriculum specialists. Work with the Editorial Panel to develop your ideas for articles.

Terry R. Wyberg

University of Minnesota, St. Paul

M101 C (MINNEAPOLIS CONVENTION CENTER)

217

Reasoning about Fractions: Using Number Lines to Understand Fraction Comparison

3–5 Session

Participants will explore the big ideas of fraction comparison and quantitative reasoning as well as related CCSS recommendations and students’ common misconceptions about these topics. Using the number line model and strategies to help build quantitative reasoning, this session will focus on helping students reason about and compare fractions.

Nadine Bezuk

Board of Directors, National Council of Teachers of Mathematics; San Diego State University, California

M100 AB (MINNEAPOLIS CONVENTION CENTER)

218 

Algebra Readiness for All: The Critical Role of Innovative Technology

General Interest Exhibitor Workshop

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 fifty state standards, IXL delivers truly differentiated, thoughtfully crafted technologies to engage students and close achievement gaps.

IXL Learning

IXL Learning, San Mateo, California

M100 C (MINNEAPOLIS CONVENTION CENTER)

1:30 P.M.–2:45 P.M.

219

Applying Mathematics in Real-World, Hands-On STEM Problems for K–2

Pre–K–2 Workshop

Apply mathematics in real-world, hands-on STEM problems to promote your students’ understanding, reasoning, and problem-solving skills. Participants will work through a sample design task and will be provided with additional lesson ideas and a planning guide to help them take what they have learned and put it into practice.

Elizabeth Gajdzik

Purdue University, West Lafayette, Indiana

200 DE (MINNEAPOLIS CONVENTION CENTER)

220

Explorations in Calculus Using the TI-84 and TI-Nspire

9–12 Workshop

Participants will be presented with calculus explorations using TI-84 from “Calculus Using the TI-84 Plus and TI-Nspire” by Venture Publishing to motivate and discover concepts. Topics include the derivative of sine/cosine functions, chain rule, exponential function, total area versus net area, and more. Participants should have a TI-84 calculator.

Evanthia Basias

Hunter College High School, New York

200 GF (MINNEAPOLIS CONVENTION CENTER)

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FRIDAY

221**Get Associated with Statistics!**

6–8 Workshop

Participants will engage in reasoning tasks about statistical association of both categorical and quantitative variables that they could use in their own classrooms. The presenter will lead a discussion of teaching the topic, including students' conceptions and the important differences between statistics and mathematics relevant to the topic.

Stephanie Casey

Eastern Michigan University, Ypsilanti

M100 FG (MINNEAPOLIS CONVENTION CENTER)

222**Let's Examine Length: Using the Mathematical Practices to Learn Measurement**

Pre-K–2 Workshop

Research shows students are performing below proficiency on measurement concepts. By incorporating children's literature, utilizing manipulatives, and exploring classroom surroundings, engaging instruction can help students develop a deeper understanding of measurement. Join this interactive session to learn how to create measurement wizards!

Kristin E. Harbour

University of Alabama, Tuscaloosa

101 FG (MINNEAPOLIS CONVENTION CENTER)

223**Magic of Symmetry at Your Fingertips**

6–8 Workshop

Students learn best through manipulation of models—come to discover how to turn geometry into fun and play. You will use mirrors and magnets to make a magical reflected cube and rotate solids in 3-D. You will learn strategies for exploring symmetry of simple and exotic solids to deepen understanding of these basic, yet difficult, concepts.

Aniceta Skowron

Geometro, Ancaster, Canada

101 JI (MINNEAPOLIS CONVENTION CENTER)

224 EQUITY**Math Teachers Are Language Teachers: Academic Language and Common Core**

Pre-K–2 Workshop

This workshop will provide background information about academic language for English learners and the increased need for attention to language in light of the Common Core mathematics standards. Attendees will consider the language needs of learners given specific math lessons by writing academic language objectives and language-based assessments.

Michelle E. Benegas

University of Minnesota, Minneapolis

200 JI (MINNEAPOLIS CONVENTION CENTER)

225**Modeling and Simulation: Teaching Introductory Statistics for Deeper Understanding**

9–12 Workshop

This presentation will introduce how a modeling and simulation-based approach to teaching statistical inference can deepen students' understanding of the content and enable them to investigate more complex phenomena. Participants will also be exposed to several resources to help them implement the ideas from the presentation into their classrooms.

Michael D. Huberty

University of Minnesota, Minneapolis

Andrew S. Zieffler

University of Minnesota, Minneapolis

M100 DE (MINNEAPOLIS CONVENTION CENTER)

226**Place Value: Building Bridges to Understanding and Retention**

3–5 Workshop

Whole and decimal number place value concepts that support and secure procedural skills are essential to mathematics achievement. Computational error pattern analyses guide the design of targeted instruction linked to Common Core standards. We will analyze student work samples and explore intervention strategies. Handouts will be provided.

Helene Sherman

University of Missouri–St. Louis

L100 DE (MINNEAPOLIS CONVENTION CENTER)

1:30 P.M.—2:45 P.M.

227 **PPS**

Students Solving Their Own Questions with Number and Visual Patterns

9–12 Workshop

Number patterns, visual patterns, and functions are topics that are powerful when used for treating students as sense makers, and for supporting them in taking risks and trying out their ideas. It also can be a great opportunity to build collaborative classroom culture, with useful protocols and structures for small-group and whole-class discussion.

Matthew Blue Taylor

New Visions for Public Schools, New York, New York

Russell West

New Visions for Public Schools, New York, New York

L100 FG (MINNEAPOLIS CONVENTION CENTER)

228

Using Equal Sharing Stories to Introduce and Develop Fraction Concepts

3–5 Workshop

Students frequently misapply whole number concepts when working with fractions. Through student work examples and videos, participants in this session will learn how fraction concepts and problem-solving skills can be introduced as extensions of the whole number concepts students already understand.

Sarah K. Moffett

Minneapolis Public Schools, Minnesota

Nina Smith

Minneapolis Public Schools, Minnesota

Michael J. Wallus

Minneapolis Public Schools, Minnesota

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and learn in the
Exhibit Hall and
NCTM Central!

2:00 P.M.—3:00 P.M.

229 **EQUITY**

Accessing Algebra in Urban Classrooms

Research Session

Accessing algebra in the intermediate and middle school grades *can* be engaging. This session explores multiple activities to aid in the development of algebraic thinking in grades 3–9. Participants will also examine student work and experiences from eighth-grade algebra classrooms.

Lesa M. Covington Clarkson

University of Minnesota, Minneapolis

200 C (MINNEAPOLIS CONVENTION CENTER)

230

Engaging Activities + Effective Instructional Strategies = Numerically Nimble Students

3–5 Session

Discover ways to efficiently implement CCSSM, particularly the Standards for Mathematical Practice. These engaging activities and strategies promote greater sense making, as all students increase their numeric fluency and proficiency. Selected activities differentiate instruction, infuse algebraic thinking, and enhance students' reasoning abilities.

Leigh Childs

San Diego County Office of Education, California

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

231

Insights from the MAA National Study of College Calculus

Higher Education Session

This is a summary of recently published findings about Calculus I: student background and preparation, experience in college calculus, and success rates. It explains how this experience differs from that encountered in high school calculus and why so many mathematically successful high school students encounter difficulties when they enter college.

David Bressoud

Macalester College, St. Paul, Minnesota

M101 C (MINNEAPOLIS CONVENTION CENTER)

2:00 P.M.–3:00 P.M.

232

Learning the Language of Mathematics in the Early Years

Pre-K–2 Session

Success with mathematics depends on language that builds pictures of concepts and hence understanding. Children are encouraged to use their own language and then new terms are introduced. This session will focus on the language for the addition and subtraction concepts. Practical classroom learning experiences will be shared.

Rosemary R. Irons

Early Childhood Mathematics Consultant, Brisbane, Australia

101 CD (MINNEAPOLIS CONVENTION CENTER)

233 **COMP**

Nurturing Computational Fluency and Mathematical Thinking

Pre-K–2 Session

Explore the Common Core computational fluency standards with a variety of models and materials (frames, racks, arrays, and number lines). Nurture the mathematical practices and help your students to develop efficient, accurate, and flexible thinking strategies that promote conceptual understanding and procedural fluency.

Pia M. Hansen

Math Learning Center, Salem, Oregon

200 H (MINNEAPOLIS CONVENTION CENTER)

234

Our Musical, Mathematical Brains: Ideas to Turn STEM to STEAM

General Interest Session

Worldwide, the STEAM movement infuses Arts into the STEM curriculum, fostering creativity and innovation. This high-energy session will offer dozens of ideas backed by brain research for using music in any math classroom to engage students, improve retention, connect concepts, and develop problem-solving skills. No musical ability required!

Deborah J. Char

St. Louis Community College at Forest Park, Missouri

L100 ABCJIH (MINNEAPOLIS CONVENTION CENTER)

235

Solving Ratio and Proportional Problems on the Cartesian Coordinate Plane

6–8 Session

Modeling ratio, rate, and proportion using multiple representations is the focus. Double number lines, tape diagrams, and the Cartesian coordinate plane are models for proportional reasoning. Computation with fractions will also be modeled on the Cartesian coordinate plane as it is an effective representation for visual learners or for remediation.

Anne M. Collins

Lesley University, Cambridge, Massachusetts

101 AB (MINNEAPOLIS CONVENTION CENTER)

236 **LEAD**

So . . . You Have a Math Goal

General Interest Session

This interactive session will have participants envision the “dream” mathematics learner, what they as teachers do to support that dream learner, and what they as professionals need to learn and do in order to create the dream. Building a logic model, participants will identify short-, medium-, and long-term outcomes including measurements of change.

Terry Johanson

Saskatchewan Professional Development Unit, Saskatoon, Canada

101 H (MINNEAPOLIS CONVENTION CENTER)

237 **BA2**

What Happens after Algebra II?

9–12 Session

Students need mathematics for college and career readiness, but what does that mean? Should all students be prepared for calculus or statistics? What skills are upper education and employers saying are needed? We will look at problems and curricula for fourth-year courses that stress problem solving and modeling as goals for lifelong learning.

Fred Dillon

Ideastream, Cleveland, Ohio

101 E (MINNEAPOLIS CONVENTION CENTER)

FRIDAY

BA2 Beyond Algebra II

COMP Computational Fluency

CSM Celebrating Struggles and Mistakes

EQUITY Beyond Catchphrases and Statistics: Equity and Instruction Practices

EW Exhibitor Workshop

2:00 P.M.—3:00 P.M.

238

Will Women Run Faster Than Men in the Marathon?

9–12 Session

We'll look at world-best times in the marathon for men and for women over the course of a number of years, and do some data analysis on the findings. We'll discuss the best ways of interpreting and showing the results. Some ways might shed light on the issue, while others might cloud it more.

Paul Kelley

Board of Directors, National Council of Teachers of Mathematics;
Anoka High School, Minnesota

M100 AB (MINNEAPOLIS CONVENTION CENTER)

3:15 P.M.—4:30 P.M.

239

Calculating Our Future: Math Lessons on the Environment and Society

6–8 Workshop

Show students how to apply math skills to understanding and solving challenges to our natural environment and human well-being. Engage in interdisciplinary hands-on activities that address science and social studies themes—population growth, resource use, health, and education—while working on measurement, algebra, and more.

Angie Lawrence

East Carver County Schools, Chaska, Minnesota

200 JI (MINNEAPOLIS CONVENTION CENTER)

240

CCSS Mathematical Practices in the Middle School—It's Worth It!

6–8 Workshop

What's all the hype around the eight Standards for Mathematical Practice? How can these practices transform my middle school classroom? Let's dig into them and their connection to the eight high-leverage teaching practices. Engage in an activity that you can do with your students or other teachers to highlight the power of these practices in action.

Courtney M. LaRoche

Wayzata Public Schools, Plymouth, Minnesota

L100 FG (MINNEAPOLIS CONVENTION CENTER)

241

Conjecturing, Generalizing, Justifying Tasks: Interweaving Mathematical Content and Practices

9–12 Workshop

The Common Core State Standards demand that students have ongoing opportunities to make conjectures, generalize, and justify. These practices need to be embedded in grade-level content. In this session, participants will explore a range of secondary tasks designed to engage students in these practices as a means to deepen mathematical understanding.

Kristin Lesseig

Washington State University, Vancouver, Canada

101 JI (MINNEAPOLIS CONVENTION CENTER)

242

Developing Communal Understanding of Proof through Creating Classroom-Based Criteria

Preservice and In-Service Workshop

The Sticky Gum Problem (SGP) is an accessible task to middle grades and college students and focuses on reasoning and proof. Attendees will first evaluate sample arguments for the SGP and then will develop criteria for proof based on their judgments. We will discuss how to implement a similar activity to support secondary students' proof learning.

Yi-Yin Ko

Indiana State University, Terre Haute

Justin D. Boyle

University of Alabama, Tuscaloosa

Sean P. Yee

University of South Carolina, Columbia

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243

EXPLORE the CORE with Math on the Floor!

Pre-K–2 Workshop

In this highly interactive session, teachers will see the value of kinesthetically exploring math strands. Standards in the Common Core are physically demonstrated on a large 100-square floor grid. The emphasis of the workshop will be in developing a solid sense of number, with the remaining time given to geometry and measurement concepts.

Wendy E. Hill

Retired Elementary Teacher, Mississauga, Canada

L100 DE (MINNEAPOLIS CONVENTION CENTER)



3:15 P.M.–4:30 P.M.

244

From Abstract to Concrete: Making Measurement Lessons Count

3–5 Workshop

Tired of using abstract worksheets to teach measurement? This workshop consists of multiple concrete activities to move beyond traditional teaching and practice. After a brief history of measurement, including the metric system, attendees will make a model for classroom use. Participants leave with a kit ready for immediate student implementation!

Gregg Nelsen

Big Red Consulting, Grand Terrace, California

Laura LaBelle

Big Red Consulting, Grand Terrace, California

[200 DE \(MINNEAPOLIS CONVENTION CENTER\)](#)

245

Getting to the Point on Decimal Fractions

3–5 Workshop

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.

Peter Stowasser

ORIGO Education, Earth City, Missouri

[101 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

246

Using Manipulatives and Investigations to Teach Geometry

9–12 Workshop

Participants will use hinged mirrors, rubber bands, patty paper, paper plates, and other manipulatives, as well as interesting problems to develop and apply geometry concepts and review vocabulary. The CCSSM mathematical practices will be processed throughout. Topics include similarity, triangle heights, transformations, polygons, area, and more.

Christine Mikles

CPM Educational Program, Sacramento, California

[M100 FG \(MINNEAPOLIS CONVENTION CENTER\)](#)

247

What Is Number Sense and How Should We Teach It?

Pre-K–2 Workshop

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.

Lynn Rule

Math Consultant, Wheaton, Illinois

Christina Tondevoid

Mathematically Minded, LLC, Orofino, Idaho

[M100 DE \(MINNEAPOLIS CONVENTION CENTER\)](#)

3:30 P.M.–4:30 P.M.

248

5 Easy Steps to a Balanced Math Program

3–5 Session

How can teachers build mathematically powerful students who can solve real-life problems, communicate their understanding to others, and perform well on standardized achievement tests? This interactive session will share a proven model for “balancing” computational skills, with conceptual understanding and problem solving with any math program.

Pamela J. Richards

Leadership and Learning Center, Denver, Colorado

[101 E \(MINNEAPOLIS CONVENTION CENTER\)](#)

249

Grades 3–5 Students as Problem Solvers

3–5 Session

What is the role of problem solving in grades 3–5 mathematics? What are essential elements of rich tasks in the 3–5 classroom? In this session, you will explore several robust problem solving tasks across multiple CCSSM content domains and practice standards. We will examine student work samples to investigate common strategies and misconceptions.

Jennifer Kosiak

University of Wisconsin—La Crosse

Kim A. Markworth

Western Washington University, Bellingham

Jenni K. McCool

University of Wisconsin—La Crosse

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FRIDAY

250

Learning Styles: Reaching Students Who Think in Different Ways

General Interest Session

Do students constantly ask you to repeat? Do they make “silly” mistakes, or want step-by-step directions for every procedure? Do they need help making connections? These are signs that they process math differently from the way you do. This session will describe two basic learning styles and provide strategies for meeting the needs of all students.

Rita H. Barger

University of Missouri–Kansas City

Eddie L. Smith

Northwest Missouri State University, Maryville

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251

Problem Strings: A Lesson Format for All Students

6–8 Session

A problem string is a powerful lesson format where all students learn, have access to the problems, and are challenged. The success hinges on the order, the discussion, and the teacher modeling student strategies to build connections. Come experience strings of problems such as solving proportions, decimal operations, and solving equations.

Pamela Weber Harris

University of Texas, Austin

M100 IJ (MINNEAPOLIS CONVENTION CENTER)

252

Transformations, Congruence, and Proofs with Technology

9–12 Session

One major change in CCCSM is an emphasis on transformations in geometry. In this presentation, we will examine how dynamic geometry technology can help students develop an understanding of key properties of rigid motions. Using key questions about identifying rigid motions, we will investigate the role of transformations in congruence proofs.

Daniel R. Ilaria

West Chester University of Pennsylvania

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253

Using Technology to Teach Early Geometric Concepts

Higher Education Session

This presentation is focused on providing teacher educators technology resources to develop strong geometric understanding for preservice teachers. The activities presented are appropriate to increase preservice teachers’ understanding as well as to provide the preservice teachers with activities that can be differentiated for their future classrooms.

Crystal Marie Vesperman

University of Wisconsin–La Crosse

Lori C. Dilworth

Indiana University East, Richmond

Michael Daiga

Indiana University, Bloomington

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254

We’re On a Roll: Tools for Developing Early Number

Pre–K–2 Session

During children’s early numeracy development, they learn to say number words in order, read and write numerals, and coordinate counting to establish quantities. Participants will receive tools (numeral roll, numeral track, etc.) to use their classrooms and will discuss video clips to facilitate the development of all three aspects of number.

Carolyn K. Olijnek

US Math Recovery® Council, Apple Valley, Minnesota

M100 AB (MINNEAPOLIS CONVENTION CENTER)

255

What Is Working: Examples of Best Practice Internationally

General Interest Session

Early on we learned, “Two heads are better than one!” Why do we not do more to practice what is working for teachers in countries around the world? Participants will learn about international efforts in teacher training, curriculum, pedagogy, standards, and assessment. Come and “put our heads together” to improve the math we teach!

James Barta

Bemidji State University, Minnesota

101 CD (MINNEAPOLIS CONVENTION CENTER)



3:30 P.M.–4:30 P.M.

256

Developing Writing in Mathematics via an Electronic Pen Pals Project

Research Session

Learn how a modeling activity and technology-enhanced environment supported seventh-grade students' content knowledge and argumentative writing. We share how a school-university partnership improved students' understanding of ratios and proportions and concurrently gave preservice teachers practice in offering scaffolded feedback on argumentative writing.

Jonathan D. Bostic

Bowling Green State University, Ohio

Angela Thomas

Bowling Green State University, Ohio

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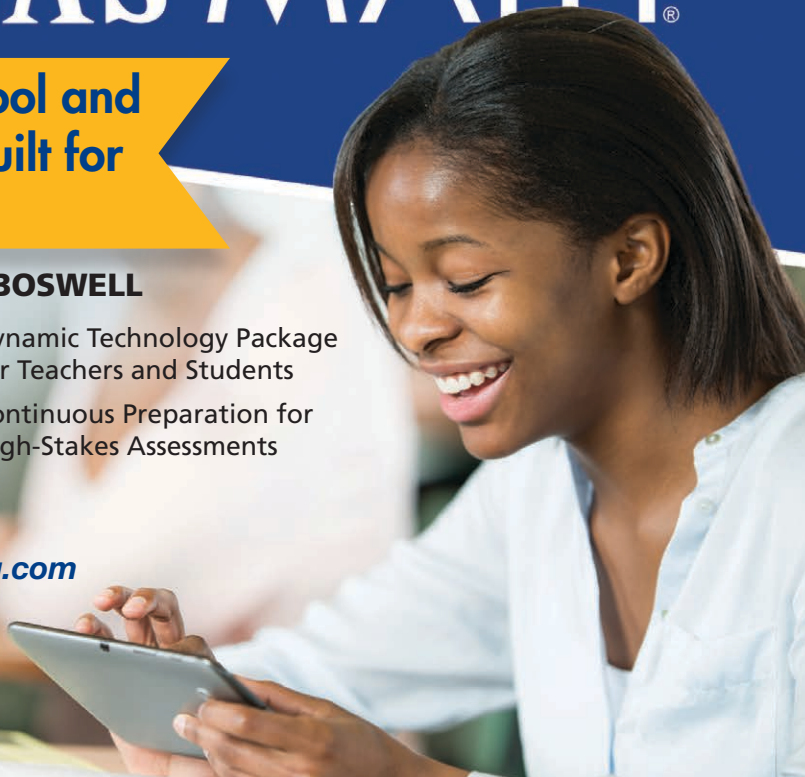
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Robert M. Doucette
Executive Director, NCTM

Diane J. Briars
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Once you have joined NCTM, membership in an NCTM Affiliate is a terrific way to round out your professional involvement. Affiliates offer you an opportunity to link with teachers in your state, region, or city for support, professional development opportunities, community outreach, political advocacy, and information sharing.

A list of Partner Affiliates in the conference's region and the Affiliates-at-Large appears below. To join one of these organizations, e-mail the Affiliate contact for membership information. NCTM has more than 200 Affiliates throughout the United States and Canada. For a list of all organizations affiliated with NCTM and information on how to join, please see the Affiliate Directory on the NCTM website.

Affiliate Information

IOWA

Iowa Council of Teachers of Mathematics

Jeannette Pillsbury, jpillsbury4428@msn.com

ILLINOIS

Illinois Council of Teachers of Mathematics

Marshall Lassak, mathdude@juno.com

INDIANA

Indiana Council of Teachers of Mathematics

Gina Borgioli Yoder, gbyoder@iupui.edu

KANSAS

Kansas Association of Teachers of Mathematics

Betsy Wiens, wienseli@usd437.net

KENTUCKY

Kentucky Council of Teachers of Mathematics

Jamie-Marie Miller, froggychick76@yahoo.com

Greater Louisville Council of Teachers of Mathematics

Gloria Beswick, grbeswick@aol.com

MICHIGAN

Michigan Council of Teachers of Mathematics

Lu Ann Murray, luann@quietsunsets.com

MINNESOTA

Minnesota Council of Teachers of Mathematics

Abram Schwartz, abe_schwartz@bemidji.k12.mn.us

MISSOURI

Kansas City Area Teachers of Mathematics (Missouri)

Rita Barger, bargerr@umkc.edu

Mathematics Educators of Greater St. Louis (Missouri)

Patrick Mooney, pmooney@pkwy.k12.mo.us

Missouri Council of Teachers of Mathematics

Cynthia Bryant, mo.mathgal@gmail.com

NORTH DAKOTA

North Dakota Council of Teachers of Mathematics

Julie Hintz, julie.hintz@sendit.nodak.edu

NEBRASKA

Nebraska Association of Teachers of Mathematics

JaLena Slack, jalena.slack@gmail.com

OHIO

Ohio Council of Teachers of Mathematics

Sr Mary Theresa Sharp, tsharp@ndec.org

Greater Cleveland Council of Teachers of Mathematics (Ohio)

Laura Anfang, lanf@roadrunner.com

SOUTH DAKOTA

South Dakota Council of Teachers of Mathematics

Jay Berglund, jay.berglund@k12.sd.us

WISCONSIN

Wisconsin Mathematics Council, Inc.

Cathy Burge, burcat@holmen.k-12.wi.us

WEST VIRGINIA

West Virginia Council of Teachers of Mathematics

Roger Bennett, rdb_edu_@hotmail.com

Affiliates-at-Large

Adult Numeracy Network

Pam Meader, mdr151@aol.com

Association of Mathematics Teacher Educators

Timothy Hendrix, hendrix@meredith.edu

Association of State Supervisors of Mathematics

Charles Watson, chaswatson@sbcglobal.net

Benjamin Banneker Association, Inc.

Mylah Deliford, mdeliford@outlook.com

Council for Technology in Mathematics Education

Stephanie Cooperman, scooperman@chatham-nj.org

Council of Presidential Awardees in Mathematics

Donald Scheuer, mathguy1@verizon.net

National Council of Supervisors of Mathematics

Sharon Rendon, rendosha@gmail.com

North American Study Group on Ethnomathematics

Janiece Edgington, janiece_edgington@yahoo.com

Society of Elementary Presidential Awardees

Martha Short, mshort@ldd.net

TODOS: Mathematics for ALL

Bob McDonald, mac@todos-math.org

Women and Mathematics Education

Andria Disney, andriadisney@live.com

About the Host Organization

The Minnesota Council of Teachers of Mathematics is an organization of nearly 1100 members representing K–16 mathematics educators. The mission of MCTM is to promote the teaching and learning of meaningful mathematics for all students by supporting educators in their effort to improve mathematics instruction.

MCTM is governed by a 23-member Board of Directors. The major program of MCTM is the annual Minnesota Mathematics Conference held at the end of April in Duluth, Minnesota, which is attended by nearly 1000 mathematics educators. In addition, the Ross Taylor Symposium for Mathematics Education and Leadership is held the day preceding the conference. MCTM also publishes the electronic newsletter “MathBits” ten times per year. The MCTM Foundation is an endowed fund that supports the professional development of teachers through scholarships and grants. Also, MCTM created and facilitated the “Math on a Stick” program, which was a huge success and was attended by thousands of students and their families at the 2015 Minnesota State Fair.

The current strategic plan of the Council is primarily being addressed by two task forces. The Equity Task Force is charged with helping educators address equity issues, primarily the Minnesota achievement gap in mathematics. The Instructional Practice Task Force is charged with promoting effective instructional practices in Minnesota’s mathematics classrooms.

More information about MCTM can be found at www.mctm.org.



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NCTM wishes to thank our **2015 Minneapolis Regional Conference Committees** for their generous support and dedication in planning this year's Regional Conference.

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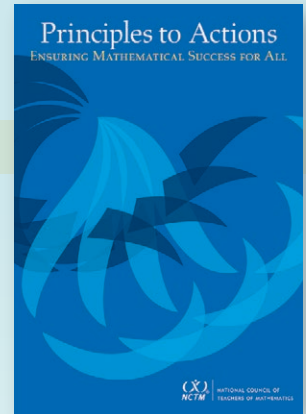
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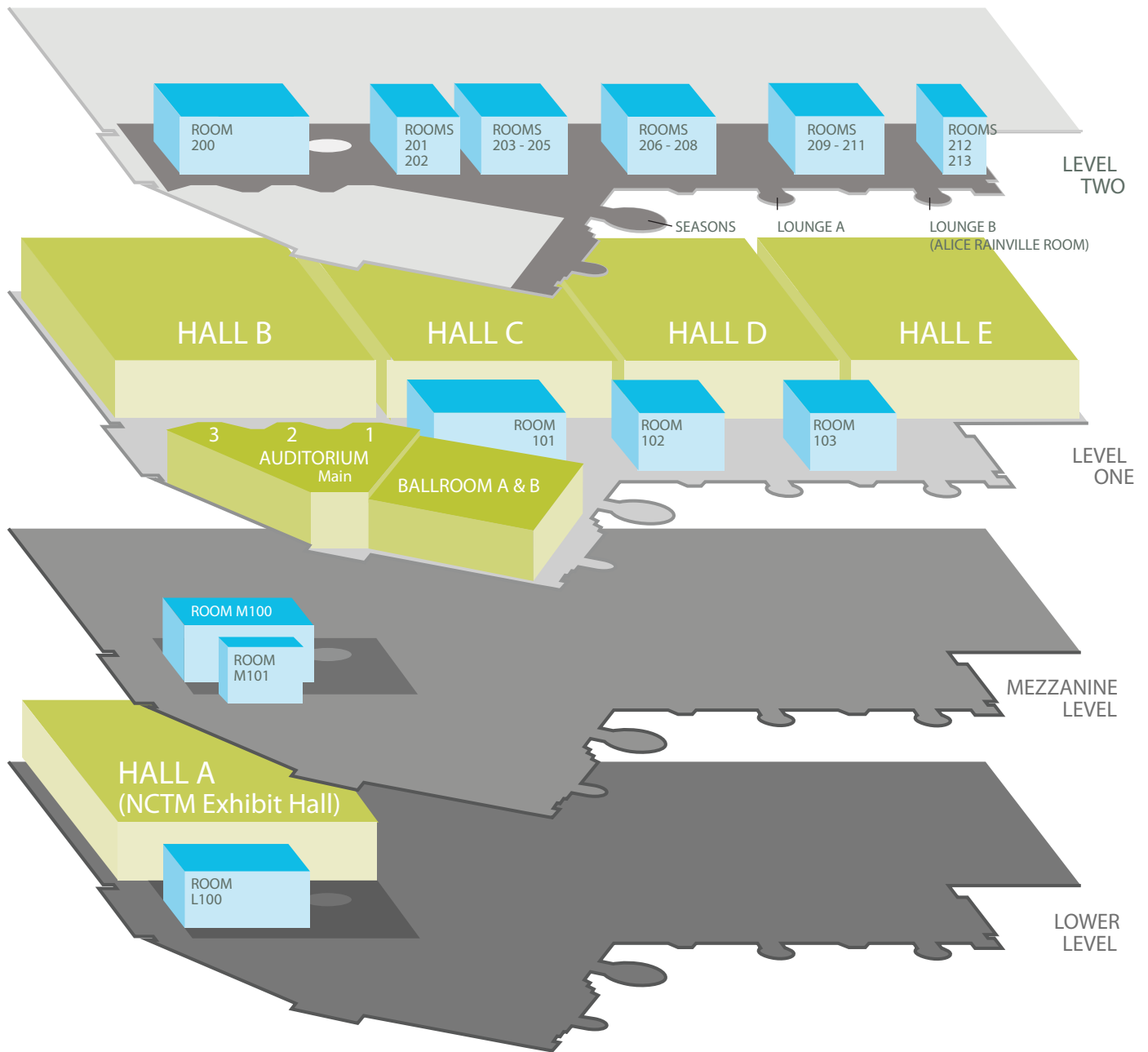
For more information visit nctm.org/institutes

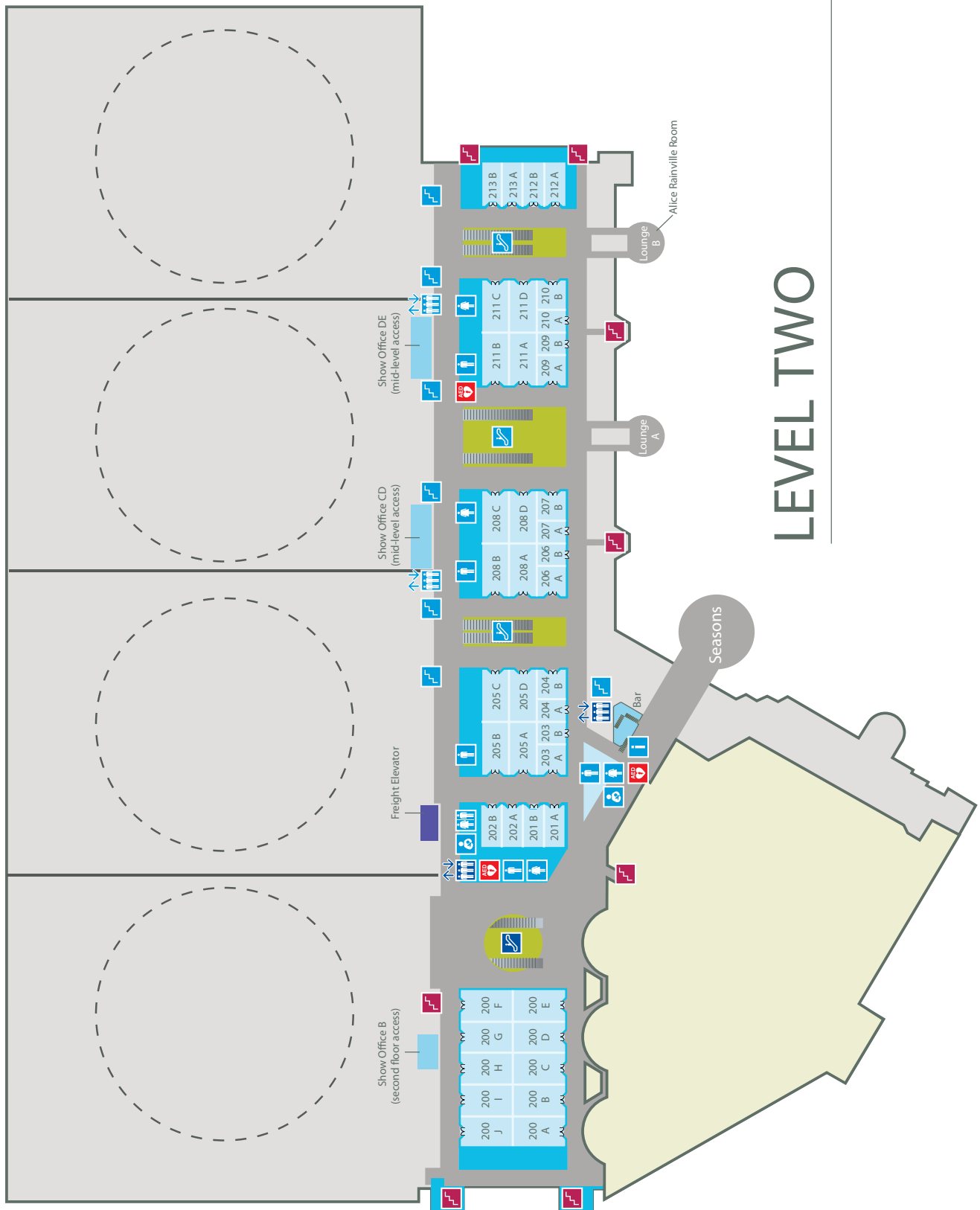


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Overview



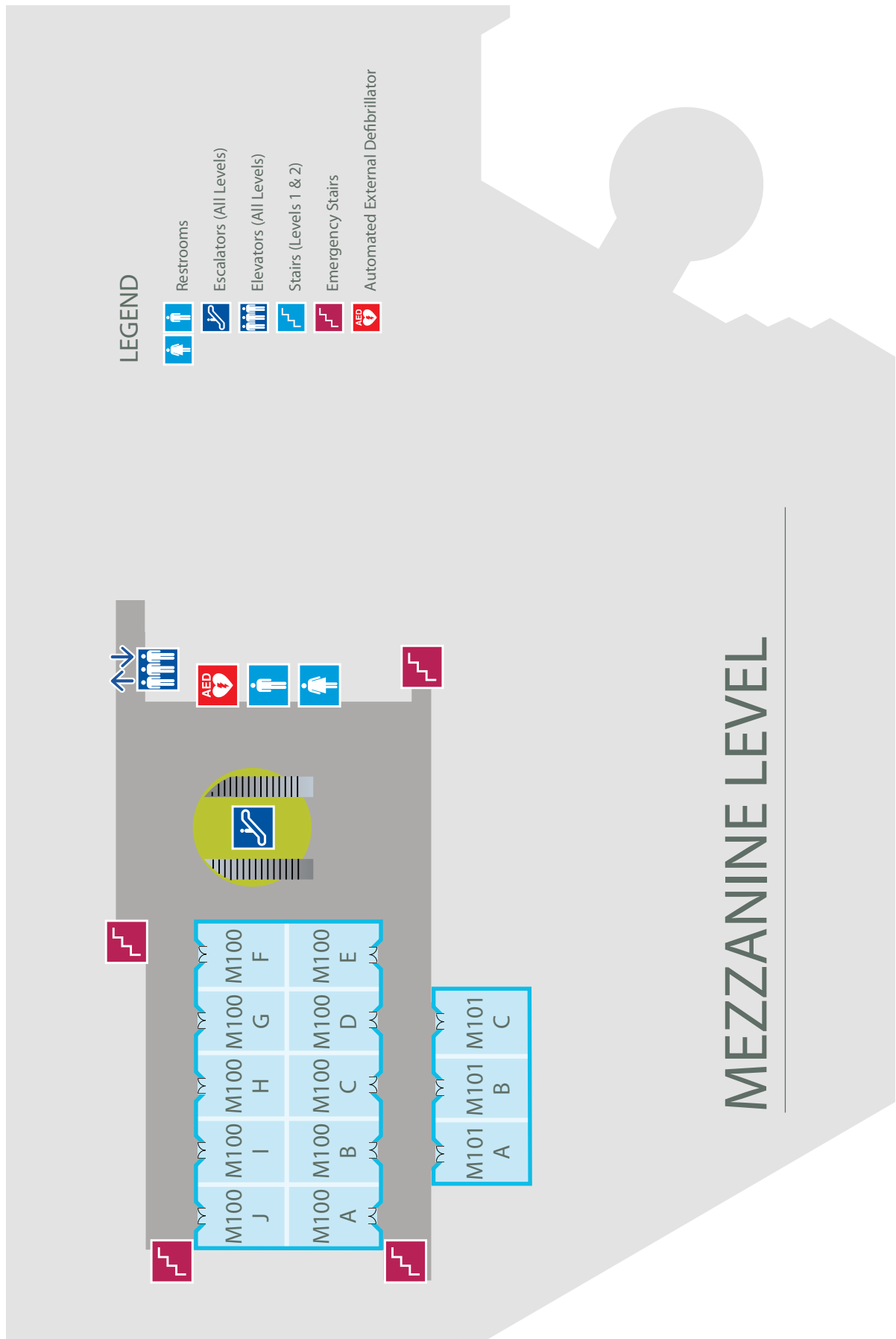


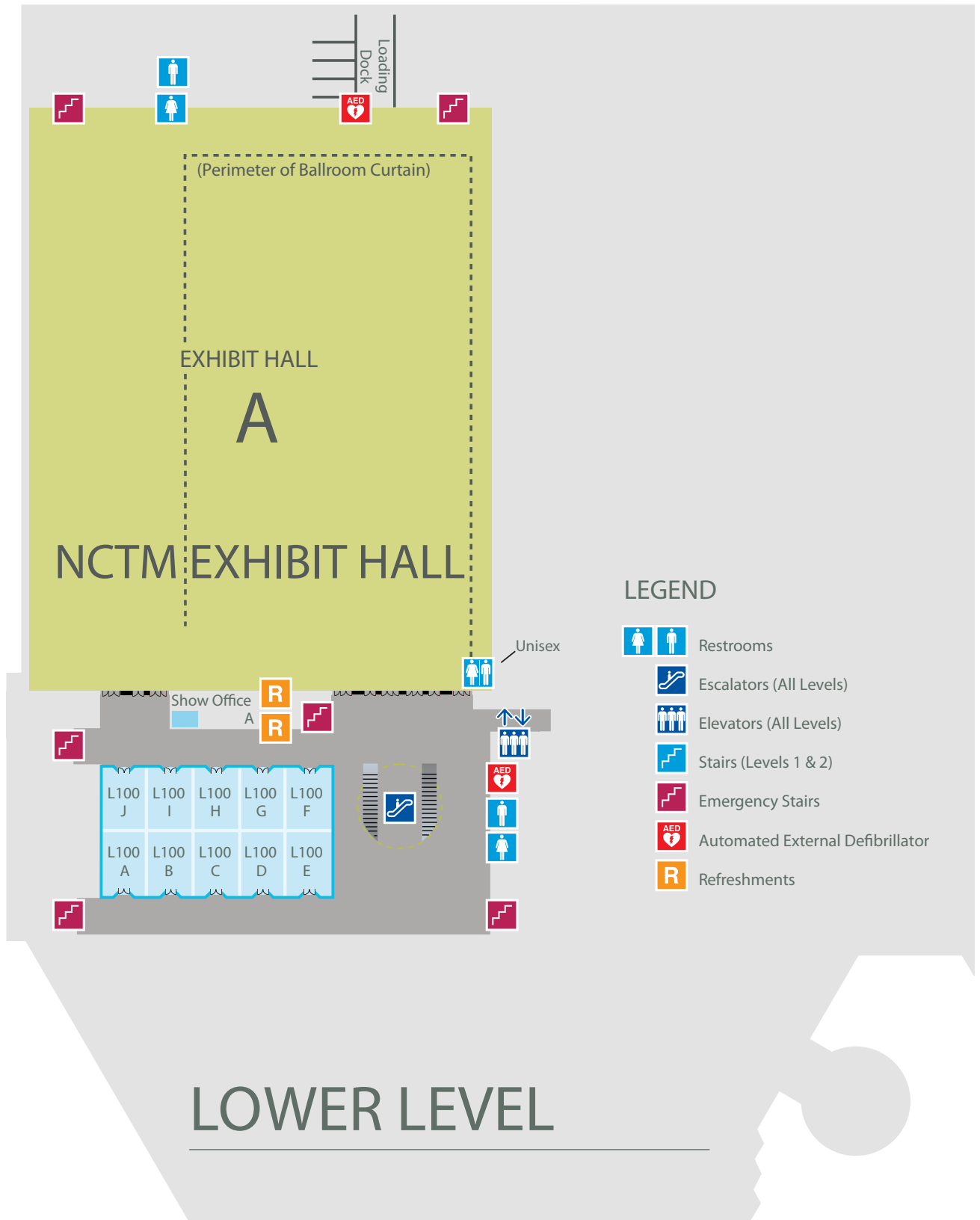
LEVEL TWO











PARKING

IMAGE NOT TO SCALE





LEGEND

-   Restrooms
-  Escalators (All Levels)
-  Elevators (All Levels)
-  Stairs (Levels 1 & 2)
-  Emergency Stairs
-  Automated External Defibrillator
-  Refreshments

LOWER LEVEL

Exhibit Hall Floor Plan

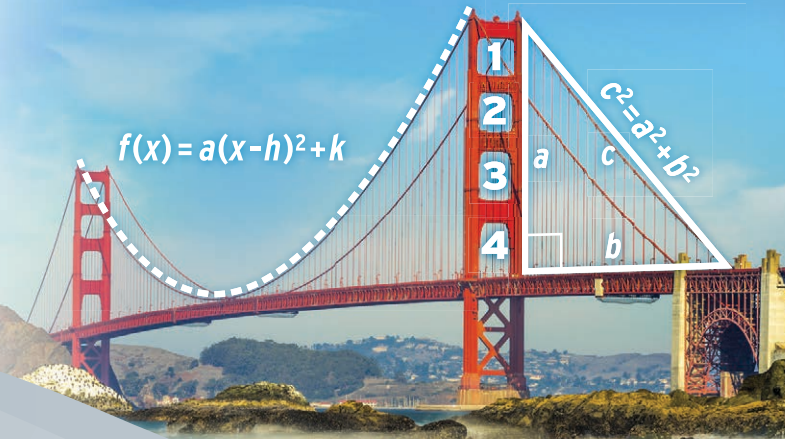
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525	524	Singapore 425	TenMarks 424	Nasco 325	Borenson 324		Hood 224								
Houghton Mifflin Harcourt 30'	The Learning 520	Origo Education 30'	Explore 420	Texas Instruments 20'	IXL Learning 320	Dinah-Might Adventures, 20'	Kendall Hunt 20'								
517	518		FACEi 418	319	Dream Box 318		219	218							
LEGO Educa 515	516	417	MOE MS 416	Ascend 317	Level up 316	Attain ment 217	Frog Public 216								
Casio America, 20'	The Math Learning 20'	Reasoning 415	UNI Overs 414	Eureka Math 315	Learn ing 314	Woot Math 215	214								
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HALL A



2016 NCTM ANNUAL MEETING & EXPOSITION

April 13-16 • San Francisco



Building a Bridge to Student Success

Join your peers in San Francisco at the country's leading math education event, where NCTM brings together thousands of education professionals to spur the exchange of ideas, present innovations in mathematics teaching, and drive quality learning practices that benefit you and your students.

- Explore hundreds of sessions and exhibits to advance your growth and career as an educator.
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- MATH TEACHER EDUCATORS
- NEW AND PROSPECTIVE TEACHERS
- MATH COACHES AND SPECIALISTS
- MATH RESEARCHERS
- SCHOOL AND DISTRICT ADMINISTRATORS

A

Ascend Education

Booth 317

Shreveport, LA
318-865-8232

www.ascendmath.com

Ascend Math is an intensive instructional math intervention that often results in students gaining one or two grade levels in as little as a semester or less. Ascend Math offers more award-winning online instruction and interactive multi-modal learning addressing conceptual as well as algorithmic approaches than any other supplemental math program. Ascend Math works on all tablets. Visit us at booth 317 and receive Flash Card Math, math facts fluency program free for all your students.

Attainment Company

Booth 217

Verona, WI
800-327-4269

www.attainmentcompany.com

Attainment is the leading provider of blended learning math solutions with traditional curriculum, apps, software, iwb programs, and AT solutions for special education. A scientific research-based approach to curricula in ELA, math, science, social studies, and literacy/language development provides a solid foundation for special education programs. Contact Attainment for your FREE Math Blended Learning Solutions guide. educationspecialist@attainmentcompany.com

B

Bedtime Math Foundation

Booth 211

Summit, NJ
908-444-4522

www.bedtimemath.org

Bedtime Math is a nonprofit organization dedicated to helping kids love numbers so they can handle the math in real life. For families, we offer a wacky nightly math problem on our website, our free app, and our daily email. For schools, we offer Crazy 8s, a hands-on after-school math club designed to get kids in K–grade 5 fired up about math with high-energy activities like Spy Training and Toilet Paper Olympics. Bring Crazy 8s to your school and help kids learn to love numbers.

Big Ideas Learning, LLC

Booth 501

Erie, PA
877-552-7766

www.bigideaslearning.com

The Big Ideas Math program provides both middle and high school students a balanced approach to instruction. Its combination of print and online materials are aligned to the Common Core State Standards and Progressions documents and incorporate the Standards for Mathematical Practice within each lesson. Using engaging activities followed by rich direct instruction lessons, Big Ideas Math offers opportunities for students to reason and incorporate real-life math scenarios in a classroom environment.

Borenson and Associates, Inc.

Booth 113

Allentown, PA
610-398-6908

www.borenson.com

Borenson and Associates, Inc., seek to make algebra and fraction concepts visual and intuitive for elementary and middle school students. The popular Hands-On Equations® program for learning basic algebra has now been used by more than a million students. In addition, more than 50,000 teachers of grades 3–8 have attended the popular Making Algebra Child's Play® workshop. Visit our booth to see how we demystify the teaching of algebra and help teachers and students make sense of fractions.

Box Cars & One-Eyed Jacks Inc.

Booth 214

Edmonton, AB, Canada
780-440-6284

www.boxcarsandoneeyedjacks.com

Box Cars and One-Eyed Jacks is the leader when it comes to math games. All of our award-winning K–10 resources are correlated to the Common Core standards and are used across the country. We are one of the leading suppliers of dice, cards, dominoes, and other math manipulatives. The Box Cars consulting team provides the best hands-on training in the country when it comes to games as a teaching strategy. We offer half, full, and intensive school-wide trainings.

C

Casio America, Inc.

Booth 511

Dover, NJ
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www.casio.com

CASIO® has a full line of calculators for every level of education. As a leading producer of graphing, scientific, and basic calculators, CASIO calculators are easy-to-use and their time-saving operation makes it easier for students to learn. CASIO also provides calculator emulators, print materials, and professional development for a total math solution. To see the full line of easy-to-use, cost-savings CASIO Calculators, visit: www.casioeducation.com.

CPM Educational Program

Booth 510

Elk Grove, CA
209-745-2055

www.cpm.org

CPM offers grades 6–12 mathematics textbooks that use problem-based learning in student-centered classrooms and supports it with funded professional development. The Core Connections series ©2013 is 100% aligned with CCSS content and practices. High school books offer both traditional and integrated pathways.

D

Didax Inc.

Booth 311

Rowley, MA
800-458-0024

www.didax.com

Didax publishes supplemental resources for pre-K–12, including books, games, interactive resources, manipulatives, and more. In addition, we partner with Math Perspectives to distribute Kathy Richardson's assessment and curriculum materials. Our materials provide teachers with innovative, hands-on ways to help students achieve the goals of the Common Core State Standards.

Dinah-Might Adventures, LP

Booth 219

San Antonio, TX
210-698-0123

www.dinah.com

Dinah-Might Adventures is an educational publishing and consulting company owned by Dinah Zike, Author/Speaker. Her books are known for their innovative ways to use "Foldables™" in teaching all subjects and grade levels. She also offers professional development at the Dinah Zike Academy, a unique trainer of trainers facility in the Texas Hill Country.

DreamBox Learning

Booth 318

Bellevue, WA
425-637-8900
www.dreambox.com

DreamBox® Learning provides a deeply personalized K–8 math learning experience with lessons that differentiate for the highest levels of student achievement. Driven by Intelligent Adaptive Learning™ technology, students benefit from a rigorous curriculum in English and Spanish and embedded formative assessments. The result is a game-like experience that students love, actionable data that supports teachers so they can be powerful coaches, and outcomes administrators are proud to share.

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EAI Education

Booth 410

Oakland, NJ
800-770-8010
www.eaieducation.com

Your one-stop source for math manipulatives, classroom resources, educational games, calculators, STEM products, and teaching aides for pre-K–grade 12. Stop by our booth to see our NEW products for 2015, watch exciting product demonstrations, enter to win prizes, and browse a selection of our most popular games and resources available for purchase. Come learn how EAI Education can create custom manipulative kits to complement your curriculum and SAVE your district funding.

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Booth 315

Washington, DC
202-223-1854
www.eureka-math.org

Eureka Math was built after the creation of the new standards, when a group of teachers came together to create a totally new, powerful pre-K–12 curriculum. Eureka wasn't retrofitted to meet the new standards, it was born from them. So the standards are seamlessly integrated, not shoved into old textbooks. Created by a nonprofit, Eureka offers basic curriculum at no charge along with customizable solutions to fit your needs. Learn more at eureka-math.org or call 844-853-1010.

ExploreLearning

Booth 420

Charlottesville, VA
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www.explorelearning.com

ExploreLearning develops online solutions to improve student learning in math and science. ExploreLearning Gizmos are the world's largest library of interactive, online simulations for math and science in grades 3–12. ExploreLearning Reflex is the most powerful solution available for math fact fluency. Gizmos and Reflex bring research-proven instructional strategies to classrooms around the world.

F

FACEing MATH

Booth 418

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We sell supplementary math books that are a unique blend of math and art. Our books are created by classroom teachers and are suitable for students in first grade through high school algebra 2.

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San Antonio, FL
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Systematic reinforcement programs, individualized educational plans, response to intervention, differentiated instruction, terrific ready-to-use learning centers, take-home parental involvement program, daily review, critical thinking, and dual language! All Frog games use the same easy-to-learn rules. Students needing different levels or skills can practice together!

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Hooda Math

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St. Louis Park, MN
612-437-9977
www.hoodamath.com

Hooda Math has over 20 free math apps for iPhone, iPad, Android, and Kindle. Visit their booth to try them out. For over five years they have been providing free online math games and tools at www.hoodamath.com. New this year, Hooda Math is proud to introduce our www.hoodamath.com Mobile that works on all mobile browsers (including iPad), no downloading required.

Houghton Mifflin Harcourt

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Austin, TX
512-721-7161
www.hmhco.com

Houghton Mifflin Harcourt is a global learning company with the mission of changing people's lives by fostering passionate, curious learners. Among the world's largest providers of pre-K–12 education solutions and one of its longest-established publishing houses, HMH combines cutting-edge research, editorial excellence, and technological innovation to improve teaching and learning environments and solve complex literacy and education challenges. For more information, visit www.hmhco.com.

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IXL Learning

Booth 320

San Mateo, CA
855-255-8800
www.IXL.com

IXL is a math practice website for K–12 aligned to state standards and the Common Core. IXL offers unlimited questions in a fun, dynamic format that students love. Plus, teachers can view detailed reports on students' progress and trouble spots—including complete question histories for individuals.

K

Kendall Hunt Publishing Company

Booth 218

Dubuque, IA
563-589-1075
www.kendallhunt.com/prek12

Kendall Hunt develops digital and print mathematics curriculum for pre-K–12. Offering both complete grade-level and supplemental programs, we focus on helping all students become mathematically proficient and college- and career-ready.

L

Learning Wrap-Ups

Booth 314

Layton, UT
801-497-0050
www.learningwrapups.com

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.

Exhibitor Directory

LEGO Education

Booth 515

Pittsburg, KS
620-231-0000
www.legoeducation.us

LEGO® Education combines the unique excitement of LEGO bricks with hands-on classroom solutions that engender engagement with the mathematical concepts. We focus on providing high-quality education solutions that appeal to a variety of learning styles and for all educational levels. Visit the LEGO Education booth to learn how our products can bring innovation to your classroom where students will feel encouraged and motivated to think, write, and speak freely about mathematics.

Level Up Math

Booth 316

Kissimmee, FL
347-863-6598
www.examtime.com

On behalf of Level up Math we would like to welcome all educators and personnel associated with molding our students into scholars. Level up Math is not only for today's students; it caters to parents, math coaches and even tutors. Where else will you find a one-stop shop that covers all strands of mathematics from fifth through eighth grades reinforcing everything you learn in class? We guarantee that this resource, to say the least will make your life as a parent/teacher much easier.

M

Mangahigh.com

Booth 505

London, England, UK
877-626-4244
www.mangahigh.com

Mangahigh's new approach to online math uses behaviorist techniques from the social games world to generate incredible student engagement. Adaptive technology and personalized learning pathways ensure that students not only master the curriculum, but learning to love math. "Mangahigh is delivering fun, competitive, game-based lessons that drive greater engagement and understanding"—Bill Gates annual letter, 2012. Get your FREE trial account: www.mangahigh.com.

Marshall Cavendish Education

Booth 213

Tarrytown, NY
914-332-8888
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Marshall Cavendish Education is a global provider of holistic education curricula that help teachers become facilitators and students to be critical thinkers. The company's products are published in 11 languages, in more than 50 countries, and are used by grades K–8 educators and students. Marshall Cavendish Education is revolutionizing learning and teaching with the Singapore Math® Approach, which uses the concrete, pictorial, and abstract (CPA) learning progression.

Mastery Ed

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Fallbrook, CA
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Mastery Ed, AR for Math-U-See, specializes in RTI Tier 2 and 3 level interventions. Mastery Ed can help you to develop a program that is truly geared to provide unique, individualized instruction for students. For sixteen years we have served to help with intervention and special education challenges in mathematics. Are you looking for a new math program, materials that meet the Common Core Math Practice Standards, or training?

Math Teachers Press

Booth 225

Minneapolis, MN
800-852-2435
www.movingwithmath.com

Provides pre-K–12 formative assessment and conceptual instruction using concrete manipulatives with research-based strategies and proven results. Includes the four essential elements of RTI: screening, decision making, explicit instruction, and progress monitoring. Instruction integrates the Concrete-Representational-Abstract (CRA) pedagogy with scripted lesson plans providing embedded PD. Objectives are correlated to state and national standards. Proven achievement gains. Optional Web-Based Technologies.

Mathspace

Booth 100

New York, NY
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Come see something truly different! Mathspace is the world's ONLY app that allows students to show all their work step-by-step for every question, writing naturally into their iPad, or in a web browser. Our feedback at every intermediate step of a question is like having a teacher side by side with the student, and our adaptive learning personalizes their math journey. So if you always say, "HOW you got the answer is as important as the final answer," come speak to us about a free trial!

Matific

Booth 313

New York, NY
646-259-3229
www.matific.com

Matific takes a unique approach to teaching K–6 math using hands-on, interactive mini-games called episodes. These immersive bite-sized apps for tablets and personal computers are based on a modular and progressive spiral learning system.

McGraw-Hill Education

Booth 525

Columbus, OH
614-430-4482
www.mheonline.com

McGraw-Hill Education is the digital learning experiences company intent on changing the world of education. Drawing on its rich heritage of educational expertise, the company offers highly personalized learning experiences that improve learning outcomes around the world. The company has offices across North America, India, China, Europe, the Middle East, and South America, and makes its learning solutions available in more than 60 languages.

MOEMS

Booth 416

Bellmore, NY
516-781-2400
www.moems.org

Math Olympiads is a not-for-profit corporation dedicated to stimulating enthusiasm, fostering creativity, and strengthening intuition in mathematical problem solving. Through the use of five monthly contests, teachers and teams of up to 35 students explore and review mathematical concepts while developing flexibility in solving non-routine problems. Certificates, medals, or trophies are awarded to all participants. Visit our booth for information, sample problems, and prizes.

N

Nasco

Booth 325

Fort Atkinson, WI
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National Council of Supervisors of Mathematics

Booth 507

Denver, CO
303-758-9611
www.mathedleadership.org

The National Council of Supervisors of Mathematics (NCSM) is a mathematics leadership organization for educational leaders that provides professional learning opportunities necessary to support and sustain improved student achievement. NCSM envisions a professional and diverse learning community of educational leaders that ensures every student in every classroom has access to effective mathematics teachers, relevant curricula, culturally responsive pedagogy, and current technology.

NextLesson

Booth 310

San Francisco, CA
415-968-9655
www.nextlesson.org

NextLesson connects learning to the real world. We offer 5,000 K–12 resources that engage students through topics they love, such as books, movies, sports, and technology, and provide students with opportunities to develop and apply critical thinking skills in real-world contexts. NextLesson resources are easy to use and adaptable for any classroom environment. They are designed by teachers and aligned to the Common Core and other state standards. Stop by to learn about our trial program!

O

ORIGO Education

Booth 417

Earth City, MO
314-475-3061
www.origoeducation.com

ORIGO Education covers all facets of elementary mathematics education: from traditional printed products to digital/interactive resources and professional learning. ORIGO Stepping Stones (aligned to CCSS) delivers a world-class mathematics program that seamlessly blends digital and print materials. ORIGO is committed to excellence by creating products that inspire and empower teachers and students. Our diverse selection of products bring a renewed enthusiasm to students' learning experiences.

P

Pearson

Booth 524

Boston, MA
800-848-9500
www.PearsonEd.com

As the leading education company, Pearson is serious about evolving how the world learns. We apply our deep education experience and research, invest in innovative technologies, and promote collaboration throughout the education ecosystem. Real change is our commitment, and its results are delivered through connecting capabilities to create actionable, scalable solutions that improve access, affordability, and achievement. For more information, visit www.pearsoned.com.

R

Reasoning Mind

Booth 415

Houston, TX
832-255-2903
www.reasoningmind.org

Reasoning Mind is a nonprofit dedicated to providing a first-rate math education for every child. Reasoning Mind has created an online learning platform complete with an internationally proven curriculum that fully engages students. Teachers receive access to a user-friendly data and reporting tool as well as a vast catalog of professional development courses. Reasoning Mind provides Core Curriculum, Ancillary Curriculum, and Common Core Assessment Readiness Materials for second through sixth grades.

Renaissance Learning

Booth 411

Wisconsin Rapids, WI
715-424-3636
www.renaissance.com

Daily and periodic progress-monitoring assessments provide teachers with vital information about each student's math-skills development by combining Renaissance Learning™ software, such as Accelerated Math™, Accelerated Math Fluency™, and STAR Math™, and classroom-proven best practices. The result: dramatically improved math skills for grade 1–12 students.

S

SingaporeMath Inc.

Booth 425

Tualatin, OR
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www.SingaporeMath.com

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Booth 512

Salem, OR
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www.mathlearningcenter.org

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Booth 509

Tempe, AZ

www.todos-math.org

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U

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Booth 414

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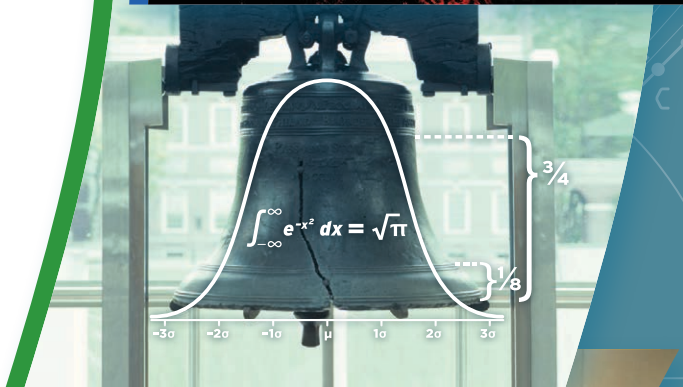
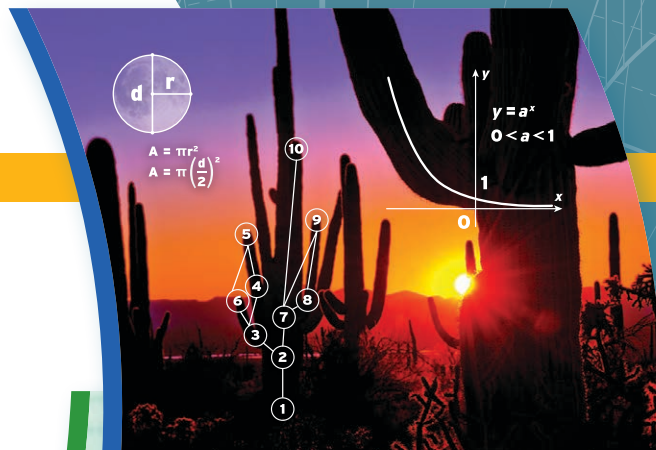
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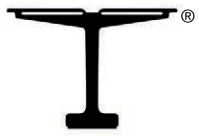


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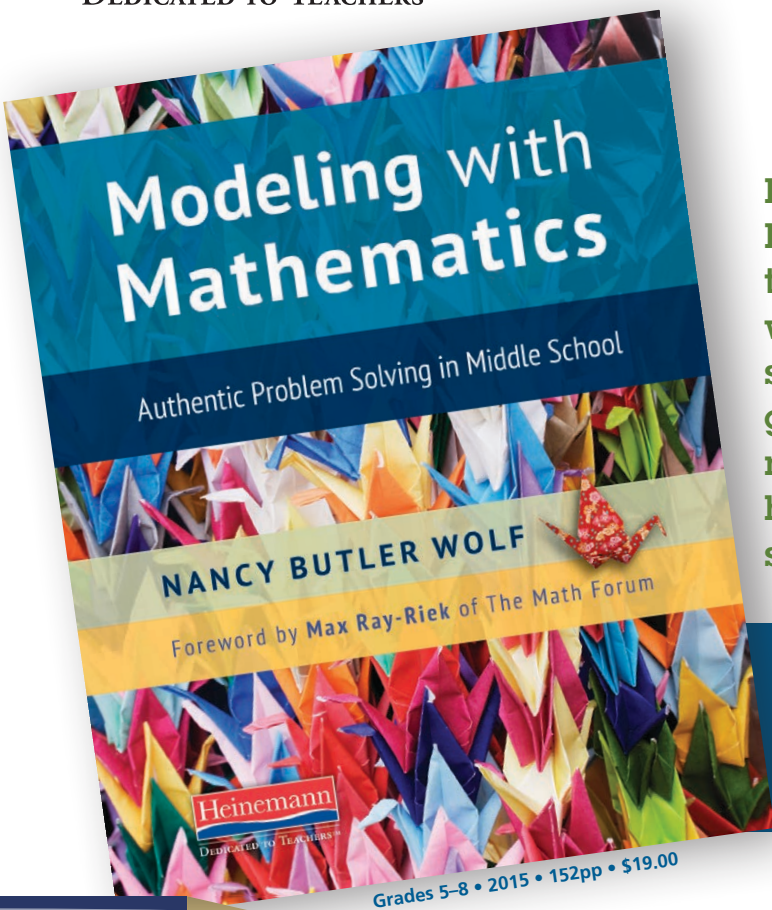
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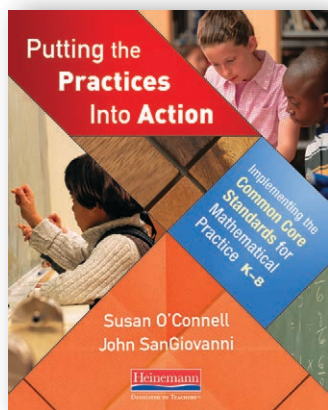


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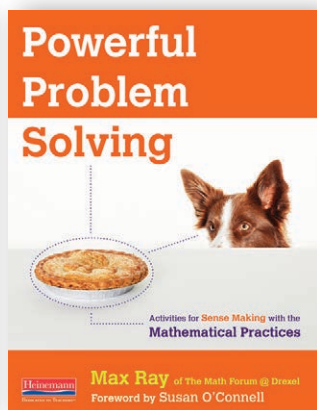


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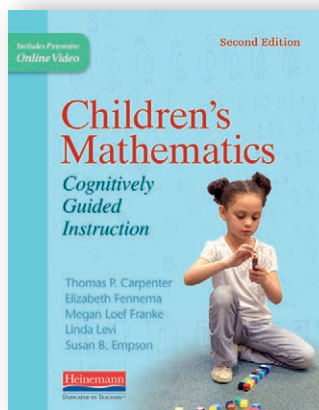
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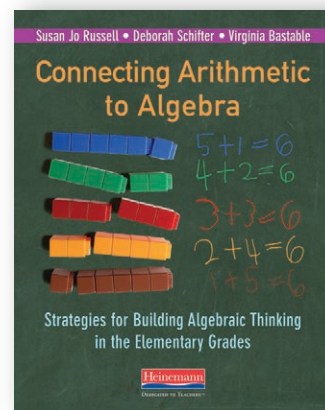
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