



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENTS

2015 NCTM REGIONAL CONFERENCE & EXPOSITION

Nashville • November 18–20

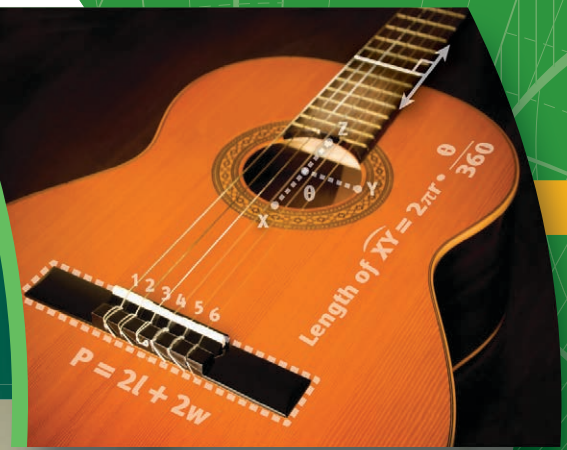
Program Book

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page 93

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2015 NCTM REGIONAL CONFERENCE & EXPOSITION Nashville • November 18–20

HOSTS

Middle Tennessee Math Teachers (MT)²
Tennessee Mathematics Teachers' Association (TMTA)

MEETING FACILITY

All Regional Conference presentations will be held at Music City Center and the Omni Nashville Hotel. See pages 74–77 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

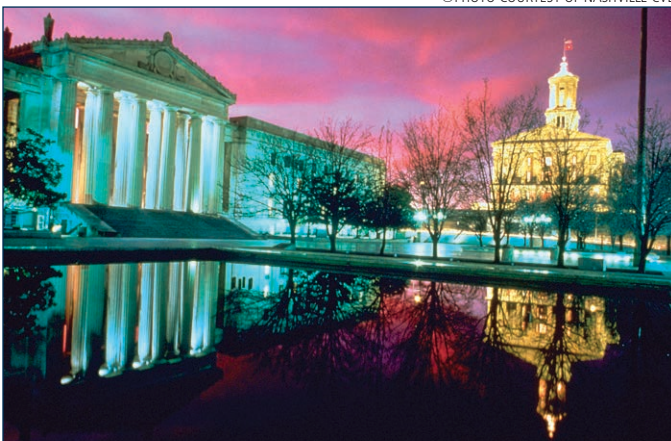
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www.nctm.org/nashville

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Welcome to Nashville!



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Welcome to the Music City! We are pleased that you have chosen to join us in Nashville. With you in mind, we have worked hard to provide a meaningful experience featuring a group of outstanding speakers. Whether you are interested in pedagogical strategies or meaningful tasks, we believe our conference program has the sessions that will meet your needs.

Steeped in a rich musical history, Nashville is home to the Grand Ole Opry, the Country Music Hall of Fame, and the Ryman

Auditorium. While here, we hope that you will take time to visit these or many of the other attractions in Music City. A quick stroll down Music Row will provide opportunities for shopping, dining, dancing, and singing.

Finally, we want to express our sincere gratitude to the many committee members, speakers, and volunteers who have supported this conference. Their expertise, dedication, and commitment are to be commended!



Angela Barlow
*Program Committee Co-Chair
Middle Tennessee State University
Murfreesboro, Tennessee*



Lois Coles
*Program Committee Co-Chair
Williamson County Schools
Brentwood, Tennessee*



Stephanie Kolitsch
*Volunteer Committee Chair
University of Tennessee at Martin
Martin, Tennessee*

Nashville's 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 am
Broadway Ballroom K (Omni Nashville)

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.
105 (Music City Center)


Types of Presentations

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

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

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  indicating exhibitor workshops in the program book.

Grade Bands

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

- **Pre-K–2**
- **Grades 3–5**
- **Grades 6–8**
- **Grades 9–12**
- **Higher Education**—university- and college-level issues including both two-year and four-year institutions
- **Preservice and In-Service**—content and techniques for providers of preservice teacher education and professional development for practicing teachers, supervisors, specialists, coaches, and mathematics educators
- **General Interest**—issues of interest to multiple grades and audiences
- **Research**

Program Updates

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

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/planNASH to check it out.

Program Information

Focus Strands

TEACHING WITH HIGH QUALITY TASKS **TASKS**

Participants will learn how to effectively implement problems worth solving to bolster students' critical thinking and ability to articulate their reasoning.

Strand Sessions

Session #	Session title
7	Implementing High-Level Tasks: Using Student Work to Reflect on Instruction
19	Motivating Our Students with Real-World Problem-Based Lessons
58	Keeping It Real: Authentic Real-World Math Lessons
104	Model with Mathematics Using Problem-Solving Tasks
158	Engaging Students in Critical Thinking through Rich Tasks
231	Keeping It Real: Authentic Real-World Math Lessons (Middle School)
277	Fumbling toward Inquiry: Starting Strong in Problem-Based Learning
279	Why Rich Tasks Are Better Than Poor Tasks

SUPPORTING THE TEACHER AS A PROFESSIONAL **PROF**

Participants will learn strategies to support effective mathematics instruction through meaningful collaboration and professional development.

Strand Sessions

Session #	Session title
3	Be Your Own Professional Development
23	Powerful, Active, and Engaged Mathematics Professional Learning!
152	Tweet, Connect, Repeat—Discovering Unlimited Resources in Limited Time
154	The Number Line Activity: Empowering Mathematical Thinking
176	The Math Department I've Always Wanted: Twitter as My PLC
189	Using a Three-Lens Approach in Mathematics Professional Development

EQUITY: ENSURING SUCCESS FOR ALL **EQUITY**

Participants will learn strategies to ensure high-quality mathematics curriculum implemented through effective teaching that promotes a growth mindset to achieve success for all learners.

Strand Sessions

Session #	Session title
10	Number Necessities: Number Sense, Fluency, and CCSSM
34	What Do Students Say about Equity in Math Education?
47	Use Problem Solving to Understand Ratios and Proportional Reasoning
135	Mathematics Worksheets Don't Grow Dendrites: 20 Strategies That Engage Brains
254	Intervention and Assessment Strategies for Grades 2–5 Students Who Struggle

EFFECTIVE TEACHING **TEACH**

Participants will learn how to effectively incorporate the eight Mathematics Teaching Practices described in *Principles to Actions* into their own practice.

Strand Sessions

Session #	Session title
30	Shifting Our Mindsets from Remembering How to Understanding Why
90	Mathematical Practices: Getting Our Students to Think Outside the Box!
95	Focus on What Matters Most: Effective Teaching!
151	Plan a Killer Lesson Today
229	Empowering Students with Rich Online Algebra Activities
233	Students' Informal Methods as a Bridge to Fluent Fraction Division
278	Using Mathematical Learning Trajectories to Identify Opportunities for Productive Struggle

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.

ENGAGING & EMERGING TECHNOLOGIES & TOOLS **TECH**

Participants will learn or increase their knowledge of available technological resources and how to effectively use and create their own resources.

Strand Sessions

Session #	Session title
40	Handheld Technology + Hands-On Activities = CCSS Success!
73	Utilizing iBooks in the Standard and the Flipped Classroom
93	Using Appropriate Tools Strategically: Aligning Technology Choices with Mathematical Goals
118	Technology Tools for Supporting Classroom-Based Formative Assessment Techniques
147	Making Math Real for Kids with STEM-C Tech
153	Visualizing Theorems: The Use of Dynamic Technology in AP Calculus
191	Using Free and Exceptional NCTM Online Resources to Teach Probability
206	App-Smashing Addition: Encouraging Math Talk with iPad Apps
250	Using iPads for Flipping Methods Classes and More
273	3 Acts of Collaboration with Nearpod

COMMON CORE/CAREER READINESS STANDARDS AND ASSESSMENTS **CORE**

Participants will increase their knowledge of key advances in CCSSM content and assessments for their grade band.

Strand Sessions

Session #	Session title
80	Perfect Match: Teaching Framework + Eight Standards for Mathematical Practices
111	CCSS Coherence and Assessment: An Overview for Higher Ed
157	Common Core–Based Investigations in Geometry
163	Selecting and Using Tasks to Develop MP.4: Model with Mathematics
175	The Future of the Smarter Balanced Assessment Consortium
242	CCSS Statistics
249	Unpacking the “Model with Mathematics” Standard for Mathematical Practice
265	Engaging Tasks for Implementing the 8 Standards for Mathematical Practice



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General Information

Tips for a Rewarding Regional Conference & Exposition

- Access the conference app for conference alerts and up-to-the-minute information. Visit www.nctm.org/confapp.
- Access available speaker handouts at www.nctm.org/planNASH.
- Become familiar with the layout of the Music City Center by reviewing the floor plans on pages 74–77.
- 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 in the Music City Center. Friendly staff can answer your questions about Nashville. They will also assist you with directions and local information, from transportation and historical sites to shopping and entertainment.

Lost-and-Found

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

First-Aid Station

There will be a first-aid station at the Music City Center during the NCTM conference. For any medical emergency, call 911 without hesitation.


Your Opinion Counts

Thank you for attending the NCTM 2015 Regional Conference & Exposition in Nashville. 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 4:30 p.m. to 5:00 p.m. on Thursday. Check out the list of exhibits and a map of the Exhibit Hall on pages 78–85.

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 the Regional Conference's every aspect. The free app allows you to search sessions, speakers, and exhibits; view the Exhibit Hall floor plan; highlight your favorite presentations; 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**.

NCTM Central

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

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

- Whether you are a new or seasoned NCTM member, you can learn more about what your membership can do for you at **Member Services**. Staff 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? 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 Tennessee 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 Tennessee 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 Tennessee are not valid for this Regional Conference.*



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Get Them Here First: New Books Just Released

SAVE 25%! Conference attendees receive a **25% discount** off the NCTM list price on all purchases made in the Bookstore, including special Products!*

MATH IS ALL AROUND US

MATH IS ALL AROUND US

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

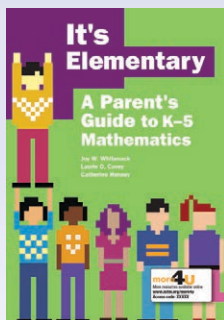
BY JOY W. WHITENACK, LAURIE O. CAVEY, AND CATHERINE HENNEY

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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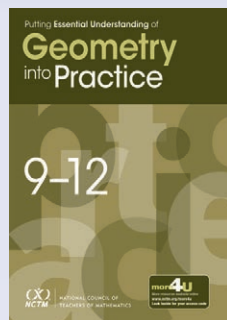


Putting Essential Understanding of Geometry into Practice in Grades 9-12

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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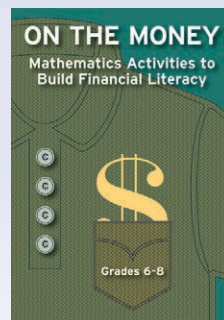


On the Money: Math Activities to Build Financial Literacy, Grades 6-8

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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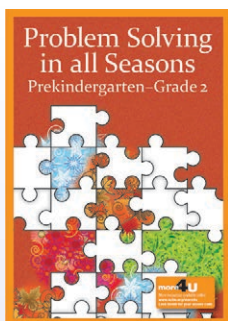


Problem Solving in All Seasons, Pre-K-Grade 2

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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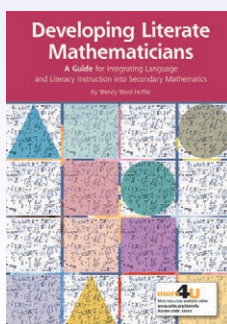


Developing Literate Mathematicians: A Guide for Integrating Language and Literacy Instruction into Secondary Mathematics

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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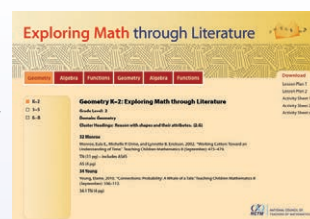


Exploring Math Through Literature, Pre-K-8 (online product)

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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All books available as eBook.

*This offer reflects an additional 5% savings off list price, in addition to your regular 20% member discount.

Visit the NCTM Bookstore in the Exhibit Hall to see these and other titles and products on display.

Bookstore and Member Showcase Hours:

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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Visit nctm.org/store for tables of content and sample pages.

For more information or to place an order, call (800) 235-7566 or visit nctm.org/store.



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HIGHLIGHTS

Opening Session: Game Changers: Rethinking the Way We Teach Math from the Math Twitter Blogosphere, 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

Game Changers: Rethinking the Way We Teach Math from the Math Twitter Blogosphere

General Interest Session

With the growth of the Web 2.0 tools and online communities like the Math Twitter Blogosphere (MtBoS), there is a tremendous opportunity for continuous improvement of teaching practices, sharing of lessons, and suggestions for improvement. This opening session features the perspectives of five such educators from the MtBoS community whose work using Twitter, blogs, and Web 2.0 tools is transforming mathematics teaching and changing the way students think and learn about mathematics. Come join this exciting mathematics community.

BROADWAY BALLROOM (OMNI NASHVILLE)



Graham Fletcher

@gfletchy

Griffin-Spalding County Schools, Griffin, Georgia

Graham Fletcher has worked in education for more than ten years as a classroom teacher and math specialist. He graduated from the University of Georgia where he earned his Ed.S. in mathematics education. Graham is a published author and creator of many tasks which are now included in the Georgia Department of Education's Instructional Frameworks. He blogs and freely shares his lessons at www.gfletchy.com. Through his site, Graham continues to be an advocate for best practice in elementary mathematics. Graham's passion for conceptual understanding through problem-based lessons has led him to present internationally and throughout the United States.

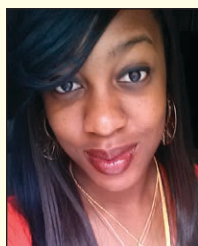


Robert B. Kaplinsky

@robertkaplinsky

Downey Unified School District, Downey, California

Robert Kaplinsky has worked in education for over ten years as a classroom teacher, district math teacher specialist, and University of California, Los Angeles (UCLA) instructor. He has presented and conducted professional development at many schools and universities across the United States. His work has been published by Education Week and the American Educational Research Association (AERA). You can find his website at robertkaplinsky.com or follow him on Twitter at @robertkaplinsky.



Laila Nur

@mslailanur

MfA, Los Angeles, California

Laila Nur is a third-year mathematics teacher at Manual Arts Senior High School and fourth-year Math for America fellow in Los Angeles, California. She believes that laughter and joking about mathematics is the key to helping students develop positive academic identities and gain confidence in mathematics. Laila shares her enthusiasm for mathematical humor by presenting at national and regional conferences. The most recent of these presentations was given at the debut of Shadow Con, a teacher-led mini conference. When Laila is not talking, teaching, or doing math, she enjoys making cupcakes, dancing, and spending time with her cat, Luvie.



Andrew Stadel
 @mr_stadel
 Tustin Unified School District, Tustin, California

Andrew Stadel explored middle school math with his students for the past ten years in Orange County, California, before recently supporting teachers in his district as a Math and Digital Learning Coach. He believes estimation is key to building number sense and being a better problem solver. On his widely acclaimed Estimation 180 website, Andrew shares estimation challenges each day of the school year with teachers and their students. Andrew also shares his passion and excitement for student thinking and mathematical exploration, presenting at national conferences and as a consultant at teacher trainings, helping teachers strengthen their instructional tool belts. When Andrew is not covering file cabinets with sticky notes, he enjoys spending time with his wife, building Legos with his son, and shaping Play-Doh with his daughter.



Cathy Yenca
 @mathycathy
 Middle School Mathematics Teacher, 1:1 iPad Classroom, Austin, Texas

Cathy Yenca, known online as “Mathy Cathy,” currently teaches in the Eanes Independent School District in Austin, Texas. Her middle school mathematics classroom is a place where a 1:1 iPad initiative has truly “up-leveled” learning, particularly through formative assessment tools that foster student metacognition in real time. Cathy holds a MS in Education in the area of Classroom Technology, is an Apple Distinguished Educator, and is a faithful blogger. She invites you to virtually visit her real-life 21st-century mathematics classroom at mathycathy.com/blog.

WEDNESDAY

Stop by NCTM Member Services!

INSPIRING TEACHERS. ENGAGING STUDENTS. BUILDING THE FUTURE.

Learn more about...

- **Mathematics tools and resources** to help make your job easier
- **Activities and lessons...** we'll show you how to gain access to 1,000s
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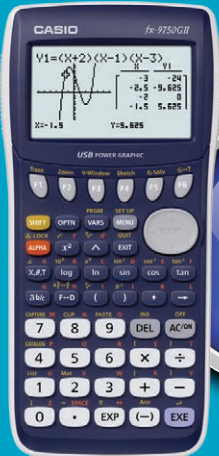
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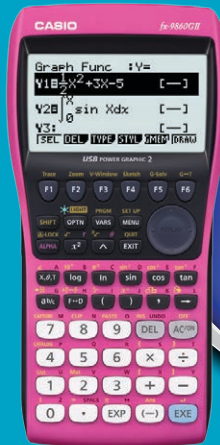
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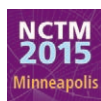
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CORE	Common Core/Career Readiness Standards and Assessment	80, 111
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PROF	Supporting the Teacher as a Professional	3, 23
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TECH	Engaging & Emerging Technologies and Tools	40, 73, 93, 118

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

7:00 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.

Jennifer M. Bay-Williams

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

Trena Wilkerson

Board of Directors, National Council of Teachers of Mathematics;
Baylor University, Waco, Texas

105 (MUSIC CITY CENTER)

8:00 A.M.–9:00 A.M.

3 **PROF** Be Your Own Professional Development

General Interest Session

How do we become better at teaching math? Conventional answers point to quality training and departmental collaboration, but not all teachers have access to these opportunities. What can we do to improve practice on our own initiative? Let's look at research and case studies in the search for promising paths towards better teaching.

Michael Pershan

St. Ann's School, New York City, New York

LEGENDS BALLROOM D (OMNI NASHVILLE)

4 Virtual Manipulatives and Proportional Reasoning

6–8 Session

Research has shown that proportional reasoning, an important topic in the middle school math curriculum, is difficult to develop. This session will share findings from recent research in which virtual manipulatives were utilized in a grade 6 classroom setting in order to assist students in developing certain proportional reasoning skills.

Stephen Blessing

Coffee County Schools, Manchester, Tennessee

101 E (MUSIC CITY CENTER)

5 Differentiation Adds Up in the Math Classroom

3–5 Session

Have your students think like mathematicians! Come hear a brief overview on differentiation. Add strategies to your math toolbox to help increase student engagement and address readiness levels. Discover ways to vary instruction to help your students make sense of math.

Pamela B. Gruzynski

Bloomington District 13, Illinois

104 A (MUSIC CITY CENTER)

6 Helping Students Visualize Mathematical Concepts in Three Dimensions

Higher Education Session

Many excellent students have trouble visualizing three-dimensional concepts. One reason for this difficulty is that three-dimensional models are drawn in two dimensions, resulting in models that are difficult for students to understand. Several three-dimensional representations of mathematical concepts will be presented.

Sharon L. Crumpton

Belmont University, Nashville, Tennessee

LEGENDS BALLROOM C (OMNI NASHVILLE)

7 **TASKS** Implementing High-Level Tasks: Using Student Work to Reflect on Instruction

General Interest Session

In this session, participants will analyze students' work to determine whether high-level mathematical tasks are implemented in ways that support students' critical thinking, problem solving, and reasoning. Participants will learn how to identify key features of high-level implementation using the Instructional Quality Assessment (IQA) rubrics.

Melissa Boston

Duquesne University, Pittsburgh, Pennsylvania

BROADWAY BALLROOM F (OMNI NASHVILLE)

THURSDAY

8 Insights from the MAA National Study of College Calculus

9–12 Session

This is a summary of recently published findings of 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

Chris Rasmussen

San Diego State University, California

BROADWAY BALLROOM E (OMNI NASHVILLE)

9 Making Math “Real” for Our Youngest Students

Pre-K–2 Session

In this presentation, we will discuss how to build real-world investigations for young children while also building their number sense and math skills. We will explore how to build off the students’ existing knowledge while integrating their interests. Participants will come away with a plan to implement authentic investigations into their practice.

Karlyn R. Adler

The School at Columbia University, New York, New York

104 B (MUSIC CITY CENTER)

10 EQUITY Number Necessities: Number Sense, Fluency, and CCSSM

3–5 Session

Number sense may be the ultimate goal for students as they learn mathematics at the elementary school level. Where is number sense in the Common Core? How can teachers help students develop number sense? And, what about fluency? What is fluency, and what’s important as we help students become fluent? Come find out!

Francis (Skip) Fennell

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

101 AB (MUSIC CITY CENTER)

11 Response to Intervention in Mathematics: Helping Struggling Learners to Be Successful!

3–5 Session

Come experience RTI in Mathematics, and help struggling learners meet the standards and achieve mathematical success through high-quality instruction using evidence-based instructional/intervention methods and practices. Resources, representations, and strategies will be offered to help students make sense of their mathematical world.

Gina Gresham

University of Central Florida, Orlando

101 C (MUSIC CITY CENTER)

12 Standing Tall: Facilitating Meaningful Classroom Discourse in Sixth Grade

6–8 Session

Our presentation will include a brief overview of the practice of facilitating meaningful classroom discourse (as stated in NCTM’s *Principles to Actions*), time to work on and make sense of a intensive teacher-developed math task, and classroom video of sixth-grade students working on the task.

Nicole A. Bannister

Clemson University, South Carolina

Jenny Seawright

Cherokee Trail Elementary School, Abbeville, South Carolina

103 (MUSIC CITY CENTER)

13 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 employers and those in upper education 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

104 CDE (MUSIC CITY 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

106 A (MUSIC CITY CENTER)

14.1 **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 the classroom. In this session, attendees will get up close and personal with our TenMarks content. You will learn about how TenMarks assignments can easily integrate with, complement, and enhance existing instructional practices.

TenMarks

TenMarks, an Amazon Company, Cambridge, Massachusetts

106 B (MUSIC CITY CENTER)

14.2 **ew**

The CPA Approach for Grades K–5—It Makes Number Sense!

General Interest Exhibitor Workshop

The research is clear: Strong number sense is built on mastery of place value and number facts and is key to success with higher-level mathematics. This session focuses on the importance of place value as a fundamental element of Singapore Math as well as on number bonds and part-whole thinking. You will learn how to use Math Buddies, a K–5 digital resource, to take your students through the concrete-pictorial-abstract approach to number sense.

Marshall Cavendish

Marshall Cavendish, Tarrytown, New York

106 C (MUSIC CITY CENTER)

8:00 A.M.–9:15 A.M.

15

Body-Scale Math: The Floor Is Not a Worksheet

6–8 Workshop

Too often students' bodies are used as objects to answer problems they already know, turning the floor into a giant worksheet. We'll share a framework for creating activities that use the body as a thinking tool to engage kids in problem solving they couldn't do from their seats, focusing on meaningful use of body-scale number lines.

Malke Rosenfeld

Math in Your Feet, Bloomington, Indiana

Max Ray-Riek

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

105 (MUSIC CITY CENTER)

16

Don't Be a Snob! Use Inclusive Geometry!

3–5 Workshop

Understanding the language of geometry and the hierarchy of shapes based on their properties is essential. Bring excitement and deep conceptual understanding into your classroom by building, drawing, and analyzing 2-D shapes. Come share fun and ensure mathematical success for all!

Marrie S. Lasater

Math Consultant with MC2; Middle Tennessee State University, Murfreesboro

BROADWAY BALLROOM HJ (OMNI NASHVILLE)

17

Engage, Manipulate, Build, Reflect, Apply—and Then Own Fractions

3–5 Workshop

Change the mindset from “remember how” to “understand why.” This session will model a conceptual procedure that stimulates learning through approaches adaptable to the regular classroom and intervention. We will model the fraction operations with multiple entry points and seamless integration to support both content and instruction.

Rudy V. Neufeld

Thames Valley Schools, London, Canada

Crystal Martin

School District of Philadelphia, Pennsylvania

LEGENDS BALLROOM EF (OMNI NASHVILLE)

18 Hands-On Activities for Algebra 1

9–12 Workshop

Come and learn some hands-on activities that can be used for algebra 1 classes. There will be investigations, puzzles, experiments, walk-around-the-room activities, and some Algebra Aerobics. Participants will receive a plethora of activities to make math more than just a worksheet!

Gregory S. Fisher

Mount Tabor High School, Winston-Salem, North Carolina

[BROADWAY BALLROOM AB \(OMNI NASHVILLE\)](#)

19 **TASKS** Motivating Our Students with Real-World Problem-Based Lessons

6–8 Workshop

When our students are trying to find answers to problems they care about, they become far more motivated to learn. We will explore several such problems with a focus on classroom implementation and links to the Common Core mathematical practices. Participants will leave with access to more than 100 free problems available on the Internet.

Robert B. Kaplinsky

Downey Unified School District, California

[BROADWAY BALLROOM CD \(OMNI NASHVILLE\)](#)

20 Moving Students Forward: Formative Assessment in K–2

Pre-K–2 Workshop

Formative assessment is a powerful tool for teachers to help build student understanding and confidence. This workshop focuses on easy-to-use techniques for bringing formative assessment into your classroom. We include ideas for incorporating hands-on learning, and strategies for providing feedback especially suited for young learners.

Suzanne Belahmira

ETA hand2mind, Vernon Hills, Illinois

Sara Delano Moore

ETA hand2mind, Vernon Hills, Illinois

[LEGENDS BALLROOM AB \(OMNI NASHVILLE\)](#)

21 Patty Paper Discoveries: Deriving Area Formulas

6–8 Workshop

Students need experiences with guided discovery lessons to develop their understanding of how/why the area formulas work. We will use patty paper and wiki stix explorations to derive the area formulas for a parallelogram, triangle, trapezoid, and circle.

Holly P. Anthony

Tennessee Tech University, Cookeville

[BROADWAY BALLROOM K \(OMNI NASHVILLE\)](#)

22 Place-Value Connections: Building Relationships between 100 and 1000

Pre-K–2 Workshop

Young children often are slow to move from a linear concept of number to the squares and cubes of the base-ten blocks. Counting bead chains of 100 and 1000, creating paper-models, and relating the models to the base-ten blocks can provide a bridge to connect linear thinking with hundred squares and thousand cubes.

Joyce H. Swan

University of Tennessee at Martin

[BROADWAY BALLROOM G \(OMNI NASHVILLE\)](#)

23 **PROF** Powerful, Active, and Engaged Mathematics Professional Learning!

Preservice and In-Service Workshop

Are you a mathematics leader looking for techniques to actively engage your preservice and in-service participants in mathematical thinking, reasoning, and reflecting? This session will provide specific strategies that can be applied to a variety of mathematics topics to enrich and magnetize your professional development for long-term impact!

Beth McCord Kobett

Stevenson University, Maryland

[LEGENDS BALLROOM G \(OMNI NASHVILLE\)](#)

8:00 A.M.–9:15 A.M.

24 Ridiculous Rulers and Other Zany Measurement Ideas

Pre-K–2 Workshop

Over the past eight years our research team has designed and tested hundreds of tasks with students in K–grade 5. In this workshop we will share several tasks along with samples of student work. Each sample task has been mapped to CCSSM, providing a resource for teachers working to implement the Common Core into their classrooms.

Jeffrey E. Barrett
Illinois State University, Normal

Diana A. Behnke
Retired, Unit 5 Schools, Normal, Illinois

Craig J. Cullen
Illinois State University, Normal

102 (MUSIC CITY CENTER)

25 Investigating Models of Exponential and Power Data Using Logarithms

9–12 Workshop

This session will investigate how real-world data that models exponential curves and power law curves can be transformed using logarithms to linearize the data. The properties of logarithms help explain how the transformed data guides the statistician in a mathematical sense.

Sheila J. Horstman
Clarksville Montgomery County Public Schools, Tennessee

101 D (MUSIC CITY CENTER)

9:30 A.M.–10:30 A.M.

26 Accurate? Effective? Efficient? Evaluating the Big Messy Math Problem

Pre-K–2 Session

Math is all about getting the answers, right? But what about the process? The Standards for Mathematical Practice promote deep mathematical understanding. But how do we assess that? How do we evaluate? Big Messy Problems are one way to address the SMPs. And have we got the evaluation system for you!

Nick Harris
Bourbon County Schools, Paris, Kentucky

Bethany Neel
Bourbon County Schools, Paris, Kentucky

103 (MUSIC CITY CENTER)

27 Algebra in Elementary School?

Pre-K–2 Session

Have you ever given a student a problem like $1 + _ = 4$ and received a response of 5? Many students' experiences with the equal sign in the early years don't show a true conceptual understanding of its meaning. In this session, you will view videos of what students' misconceptions are and then learn how to teach early algebraic thinking to mastery.

Andrea R. Munoz
Casa Grande Elementary School District, Arizona

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THURSDAY

28

Data, Data Everywhere: I Don't Know What to Think!

6–8 Session

Let's take a deeper look at the data. What can we learn from it? What conclusions can be made based on the data? In this session, we will use data from random samples to draw inferences about a population. Box plots, dot plots, and scatterplots will be investigated. Take away activities to engage your students in meaningful discussions about data.

Alice H. Carson

Knox County Schools, Knoxville, Tennessee

101 E (MUSIC CITY CENTER)

29

Get Your Model On: Mathematical Modeling in the Elementary Classroom

3–5 Session

Is it a noun or a verb? The term model is frequently misinterpreted as hands-on, but manipulatives in isolation do not satisfy the expectation of SMP #4. In this session, participants will explore the progression of mathematical modeling, what it means, and how it can be achieved through purposeful task design before students get to sixth grade.

Graham J. Fletcher

Griffin-Spalding Schools, Georgia

Michael J. Wiernicki

Walnut Creek Elementary School, McDonough, Georgia

BROADWAY BALLROOM F (OMNI NASHVILLE)

30 **TEACH**

Shifting Our Mindsets from Remembering How to Understanding Why

General Interest Session

This fast-paced, example-laden presentation will take a close look as the chasm between traditional teaching based on rules and remembering how on the one hand, and teaching concepts and focusing on understanding why on the other.

Steven Leinwand

American Institutes for Research, Washington, D.C.

LEGENDS BALLROOM D (OMNI NASHVILLE)

31

Supporting Students in Modeling Proportional Reasoning

6–8 Session

This presentation will provide multiple opportunities for attendees to engage in solving proportional reasoning problems. The focus will be on the use of double number lines and tape or strip diagrams to help students build deep understandings of proportions and how these models address both the NCTM and CCSS content and process standards.

Amber G. Candela

University of Missouri–St. Louis

Denise A. Spangler

University of Georgia, Athens

104 CDE (MUSIC CITY CENTER)

32

Using EQuIP to Evaluate High-Quality Materials

General Interest Session

Anyone can make a claim that a set of instructional materials are high quality and aligned to CCSSM. In this session, participants will learn how the EQuIP rubric can help to verify those claims. We will explore the EQuIP rubric, supporting materials, and exemplar lessons.

Ted E. Coe

Achieve, Washington, D.C.

104 B (MUSIC CITY CENTER)

33

Using Low-Threshold, High-Ceiling Tasks to Help Students Redefine Mathematical Identities

9–12 Session

“I’m not a math person” is a phrase I hear from many students. By the time students enter high school, their perceptions of math are well established, as are their mathematical identities. Using high cognitive demand tasks with easy and multiple entries, teachers can engage students to redefine their mathematical identity as capable and competent.

Mark Franzak

New Mexico State University, Las Cruces

101 AB (MUSIC CITY CENTER)



34 EQUITY**What Do Students Say about Equity in Math Education?**

General Interest Session

In this session, participants will explore strategies for empowering student voices as a catalyst for continuous improvement for a school or district mathematics program. Participants will hear how students describe their experiences in and around the mathematics classroom and regarding issues of equity and cultural proficiency.

Bill Barnes

Howard County Public Schools, Ellicott City, Maryland

BROADWAY BALLROOM E (OMNI NASHVILLE)

35**You Better Work! How to Be a Super Model-ing Teacher**

9–12 Session

Math modeling is more than word problems. Get students to productively argue about math situations. Participate in problem-solving tasks that require mathematical modeling, sense making, and the construction of viable arguments. Learn teacher moves, strategies, and what mathematical modeling is and is not. Get ready to work that classroom!

Brian Shay

San Dieguito Union High School District, San Diego, California

104 A (MUSIC CITY CENTER)

36**Curbing the Compulsion to Calculate: Transitioning from Arithmetic to Algebra**

6–8 Session

As students transition from arithmetic to algebra, it is often difficult for them to understand why we want them to write an equation to use in solving a problem. This session will highlight the challenges of the shift, and attendees will engage in activities they can use with students.

Belinda J. Thompson

University of California, Los Angeles, Los Angeles, California

101 C (MUSIC CITY CENTER)

37 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

106 C (MUSIC CITY CENTER)

38 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 8 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

106 B (MUSIC CITY CENTER)

39 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

106 A (MUSIC CITY CENTER)

40 **TECH**

Handheld Technology + Hands-On Activities = CCSS Success!

9–12 Workshop

Handheld 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

[BROADWAY BALLROOM HJ \(OMNI NASHVILLE\)](#)

41

Hands-On Trigonometry

9–12 Workshop

Participants in this workshop will engage in activities that help students to develop conceptual understandings of trigonometric relationships. We will fold a paper plate to help students understand the relationships in a unit circle, use Twizzlers to convert from degree to radian measure, and much more.

Elizabeth D. Petty

Martin Luther King, Jr. Magnet School, Metropolitan Nashville Public Schools, Tennessee

[102 \(MUSIC CITY CENTER\)](#)

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

[BROADWAY BALLROOM K \(OMNI NASHVILLE\)](#)

43

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. 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

[101 D \(MUSIC CITY CENTER\)](#)

44

Small-Group Math Stations: Fraction Action for All

3–5 Workshop

Experience a differentiated math station structure that allows for independent learning and provides the teacher time to work with students in a small-group setting. Participants will experience fractions activities from CCSSM, but the structure will work with all concepts. The focus of the activities is to develop conceptual understanding.

Renee’ Smith

ESSDACK, Hutchinson, Kansas

Tammy Fellers

ESSDACK, Hutchinson, Kansas

[LEGENDS BALLROOM AB \(OMNI NASHVILLE\)](#)

45

Solve It! Problem-Solving Tasks for the Middle Grades

6–8 Workshop

This presentation is designed to engage participants in the discussion of five to six recently published Solve It! tasks. In small groups, participants will discuss the content of the tasks, the potential uses of the task, and the pedagogical decisions related to those uses of the tasks. A discussion relating their thoughts to our findings will follow.

JoAnn Cady

University of Tennessee, Knoxville

Geri A. Landry

University of Tennessee, Knoxville

Rebecca Layton

Knox County Schools, Knoxville, Tennessee

[BROADWAY BALLROOM AB \(OMNI NASHVILLE\)](#)



9:45 A.M.–11:00 A.M.

46

Strategies for Supporting Algebraic Thinking with English Language Learners

6–8 Workshop

Using a series of rich algebraic thinking tasks, we will explore ways to build in language support and use so that all students are able to experience the joy and challenge of generalizations, representations, and simplifications.

Jennifer M. Bay-Williams
University of Louisville, Kentucky

Rose Glasser
Jefferson County Public Schools, Louisville, Kentucky

LEGENDS BALLROOM EF (OMNI NASHVILLE)

47 **EQUITY**

Use Problem Solving to Understand Ratios and Proportional Reasoning

6–8 Workshop

We want ALL students to develop mathematical proficiency in proportional reasoning. In order for this to occur, we as teachers need to address the language needs of students, particularly ELLs, and address our own understanding of proportional reasoning in order to design effective teaching practices. Be prepared to do some mathematics!

Susie W. Hakansson
TODOS: Mathematics for ALL, Venice, California

LEGENDS BALLROOM G (OMNI NASHVILLE)

48

Deepening the Connections between Measurement and Number

Pre-K–2 Workshop

Come engage in activities to connect essential understanding within measurement and number. Activities will assist in integrating conceptual understandings between measurement attributes, tools, estimating, counting, comparing, and operations. Explicit connections among quantity, representation, and mathematical language will be discussed.

Marti Kuntz
Educational Resources Group, Charleston, South Carolina

BROADWAY BALLROOM CD (OMNI NASHVILLE)

49

Fact Fluency Games for Building Competency with the Common Core

Pre-K–2 Workshop

Do your students struggle with fact fluency and are you looking for engaging and effective activities to help them gain confidence and competence with CCSSM? Come prepared to play games that incorporate cards and dice as they integrate practice with strategies that help with operational fluency. Student samples and game boards provided. Applicable for regular and RTI instruction.

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

105 (MUSIC CITY CENTER)

50

Math Links: Connecting Math and Literature

3–5 Workshop

This workshop will relate basic concepts in mathematics to children's literature, writing, and the other language arts. Children's books with math themes will be shared and followed by hands-on games, with writing activities that reinforce and teach significant skills in problem solving, number, and geometry.

John Hinton
Retired, Long Island University (C.W. Post), Brookville, New York

BROADWAY BALLROOM G (OMNI NASHVILLE)

11:00 A.M.–12:00 P.M.

51

Adventures in Flipping a Math Class

9–12 Session

This session will focus on ways I have successfully used a flipped teaching model in my statistics and calculus classes. During the past two years, 100 percent of my statistics students passed the AP exam. I will share all I know about creating both flipped videos and classroom activities designed to optimize the effectiveness of the videos.

Joel Evans
Hatboro Horsham High School, Pennsylvania

LEGENDS BALLROOM C (OMNI NASHVILLE)

52

Bridging the Gap between Elementary and Middle School Mathematics

6–8 Session

When reading the Common Core standards from K to 8, it's easy to miss an important transition that occurs. From working with place value, unit fractions, and arithmetic in K–5, students are expected to reason fluidly with ratios, proportions, scale factors, and the like in grade 8. But how do we make this transition happen smoothly?

Ben M. McCarty

University of Memphis, Tennessee

101 E (MUSIC CITY CENTER)

53

Developing Multiplication Fact Fluency in the 21st Century

3–5 Session

Discussion of best practices for developing, and assessing, multiplication fact fluency. Experience firsthand the strategies for introducing the facts, expanding conceptual knowledge, and facilitating connections, and the methods for building fact fluency. Participants will be provided with instructional tools and materials to be used in their classroom.

Lisa A. Lothspeich

Trussville City Schools, Alabama

Jana Walls

Trussville City Schools, Alabama

104 B (MUSIC CITY CENTER)

54

Diagnostic Interviews: An Assessment for Targeting Interventions for Struggling Students.

3–5 Session

We will develop your understanding and use of diagnostic interviews to assess mathematics learning for at-risk students within a response to intervention model. We will share examples of diagnostic interviews linked to the Common Core State Standards as well as corresponding student responses.

Amy Lingo

University of Louisville, Kentucky

104 CDE (MUSIC CITY CENTER)

55

Effects of Context on Student Strategies for Solving Proportion Problems

Research Session

This study looked at the strategies and success rates of students in grades 6 through 8 while solving proportion problems in different contexts.

Jami Garner

University of Tennessee, Knoxville

JoAnn Cady

University of Tennessee, Knoxville

Keilah Kane

University of Tennessee, Knoxville

104 A (MUSIC CITY CENTER)

56

Girl Power: Prevent Gender Inequity in Your Math Class

General Interest Session

Research tell us girls are less likely than boys to consider themselves capable in math. Studies also link a girl's confidence to her performance. How does this impact our students? Learn about stereotype threat, mind-set, grit, and resilience. Leave with simple strategies you can immediately adopt to encourage female students to excel in math.

Christy W. Gillespie

Pennsylvania State University, University Park

BROADWAY BALLROOM F (OMNI NASHVILLE)

57

"I'm Not Really a Math Person": Coaching Anxious Elementary Teachers

Preservice and Inservice Session

Many K–5 teachers admit they don't like math. Research shows that teachers' negative attitudes about mathematics impact both students' achievement and beliefs. We'll focus on powerful coaching strategies for these colleagues to help them (1) transform their personal relationships with math and (2) develop into positive, skillful math teachers.

Tracy Johnston Zager

Stenhouse Publishers, Portland, Maine

101 C (MUSIC CITY CENTER)

11:00 A.M.–12:00 P.M.

58 **TASKS**

**Keeping It Real:
Authentic Real-World Math Lessons**

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

[BROADWAY BALLROOM E \(OMNI NASHVILLE\)](#)

59

**Learn about the Standards for
Mathematical Practice Using
Student Dialogues**

6–8 Session

Explore the Standards for Mathematical Practice using student dialogues that show the practices in action. See how mathematical practices and content are intertwined in student thinking. You will 1) explore a mathematics task and share strategies, 2) read a student dialogue, and 3) discuss evidence of mathematical practices in that dialogue.

Johannah Nikula

Education Development Center, Waltham, Massachusetts

Victor Mateas

Education Development Center, Waltham, Massachusetts

June Mark

Education Development Center, Waltham, Massachusetts

[103 \(MUSIC CITY CENTER\)](#)

60

**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. Connecting procedures to underlying concepts is essential for building fluency. 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

[LEGENDS BALLROOM D \(OMNI NASHVILLE\)](#)

61

Wild & Wacky Workstations

Pre-K–2 Session

Teachers will learn how to incorporate standards-based workstations using everyday household objects involving place value, number operations, facts, and measurement that up student engagement while incorporating higher-level thinking skills, problem solving, student accountability, and fun.

Alison M. Lentz

ESC Region 11, Fort Worth, Texas

Jennifer L. Jones

Bastrop Independent School District, Texas

[101 AB \(MUSIC CITY CENTER\)](#)

62 **ew**

**Prepare for New Assessments with
the Personal Math Trainer**

General Interest Exhibitor Workshop

HMH presents the PMT, powered by Knewton—the premier personalized learning system for K–12 students. PMT provides individualized practice, assessment, and adaptive intervention. Ensure your students' success with this cutting-edge digital resource that gives you real-time insight into each student's needs, challenges, and learning preferences.

Houghton Mifflin Harcourt

Houghton Mifflin Harcourt, Boston, Massachusetts

[106 A \(MUSIC CITY CENTER\)](#)

Hear what's new from Exhibitors—attend an **Exhibitor Workshop**. Look for the **ew** symbol throughout the program book.

THURSDAY

11:00 A.M.–12:00 P.M.

63 **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

[106 C \(MUSIC CITY CENTER\)](#)

64 **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 Teaching Practices in every lesson to develop mathematical understanding in all students.

Pearson

Pearson, Boston, Massachusetts

[106 B \(MUSIC CITY CENTER\)](#)

11:30 A.M.–12:00 P.M.

65

Implementing an After-School Math Club for Elementary Students

Pre-K–2 Burst

The primary focus of the presentation will be on how to organize, plan, and implement an after-school Math Club for elementary students. Math Club involves hands-on learning with the integration of children's literature. Detailed information, materials, and data will be shared with attendees.

Beth A. Moore

Franklin College, Indiana

[102 \(MUSIC CITY CENTER\)](#)

66

Let's Give Them Math to Talk About!

Pre-K–2 Burst

Linda Wallace, a Kim Sutton Associate, will share engaging information about how to get students to speak the language of mathematics! Participants will be amazed at how the choice of activity can determine the vocabulary that students learn! A powerful handout will be included to show how to incorporate math language more effectively.

Linda Wallace

Cookeville School District, Tennessee

[BROADWAY BALLROOM CD \(OMNI NASHVILLE\)](#)

67

Motivating and Modeling Student Life in Math

6–8 Burst

Motivating math students to love learning mathematics from the story of my life, real-world math, and through the eyes of the student. I did not enjoy first grade through twelfth grade of school, and now I am a successful math teacher with very low failure rates. How? I use the lives of my students to teach math that they can relate to.

David C. Curlette

Gwinnett County Public Schools, Duluth, Georgia

[BROADWAY BALLROOM AB \(OMNI NASHVILLE\)](#)

68

NCTM's Mathematics Education Trust Grants and Scholarships

General Interest Burst

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

Fern A. Tribbey

Du Page Regional Office of Education, Wheaton, Illinois

[LEGENDS BALLROOM G \(OMNI NASHVILLE\)](#)

THURSDAY

69**Putting the Pieces Together: Analyzing Key Features of Piecewise Functions**

9–12 Burst

Do your students fall to pieces at the thought of piecewise-defined functions? Come and explore activities developed to lead students to a deeper understanding of domain, range, and other key features of functions.

Lorie C. McFee

North Buncombe High School, Weaverville, North Carolina

101 D (MUSIC CITY CENTER)

70**Socially Oriented Emporium Model's Impact on Students' Conceptions of Mathematics**

Higher Education Burst

In this session we will describe the key characteristics of an implementation of the emporium model for developmental mathematics courses that is informed by social theories of learning. We will discuss the impact it has had on students' conceptions of the field of mathematics, and how we are modifying the course based on this evidence presented.

Joshua M. Goss

University of New Haven, West Haven, Connecticut

Yevgeniya Rivers

University of New Haven, West Haven, Connecticut

BROADWAY BALLROOM K (OMNI NASHVILLE)

71**Using Comics for Assessment**

General Interest Burst

This session will describe a summative assessment in which middle school students create a comic strip. A rubric was used to evaluate the students' depth of mathematical understanding displayed in the comic. The presenters will share the assignment, rubric, student work samples, and the effect of cartoons on students' attitude toward mathematics.

Hoyun Cho

Capital University, Columbus, Ohio

BROADWAY BALLROOM HJ (OMNI NASHVILLE)

72**Using Pictures to Support Students' Understanding of Multiplication**

3–5 Burst

We share our research describing students' abilities to develop meaning for vocabulary in geometry and in multiplication through the use of photographs. Photographs were used to connect students' understanding of the world to mathematics vocabulary they used and developed contextually through classroom communication.

Sherri A. Farmer

Purdue University, West Lafayette, Indiana

Signe Kastberg

Purdue University, West Lafayette, Indiana

105 (MUSIC CITY CENTER)

73**TECH****Utilizing iBooks in the Standard and the Flipped Classroom**

9–12 Burst

Ever wish your course textbook explained things the way you wanted them explained? Wish your students could get real-time feedback while doing homework problems? In this workshop we will cover how to utilize iBooks as a replacement/supplement for a traditional classroom textbook and as a resource for the flipped classroom.

Alexander T. Burt

Friends Academy, Locust Valley, USA

BROADWAY BALLROOM G (OMNI NASHVILLE)

74**Ethnomathematics: Students in the Maldives Creating Word Problems**

Research Burst

The presenter will showcase ethnomathematics word problems created by students in the Republic of the Maldives. The aim of the research was to explore students' ability to create thought-provoking word problems without any instruction. Word problems were centered on addition, subtraction, division, and multiplication.

Jason D. Johnson

Zayed University, Dubai, United Arab Emirates

LEGENDS BALLROOM EF (OMNI NASHVILLE)

11:30 A.M.–12:00 P.M.

75

Supporting Early Childhood Preservice Teachers in Understanding the Mathematical Practices

Preservice and In-Service Burst

Within a mathematics course for early childhood preservice teachers (PSTs) I explored ways to support PSTs' understanding of the mathematical practices. Using course tasks to unpack the practices, observation tools, videotaped teaching segments and field-based reflections, PSTs extended their understanding of the mathematical practices.

Jennifer Ward

University of South Florida, Tampa

[LEGENDS BALLROOM AB \(OMNI NASHVILLE\)](#)

12:30 P.M.–1:00 P.M.

76

Become a Better Teacher, 140 Characters at a Time

General Interest Burst

Becoming a connected educator is the best and easiest way to immediately improve your teaching. Luckily for us, this can now be done from anywhere with nothing more than your phone. Come learn about the MathTwitterBlogosphere (MTBoS) and get a step-by-step guide on getting connected to a network of amazing teachers from around the world.

John Mahlstedt

Livermore Valley Charter School, California

[BROADWAY BALLROOM G \(OMNI NASHVILLE\)](#)

77

BLT Sandwiches and BLT Math (Bringing Life to Math)

6–8 Burst

How do you connect mathematical problems to the real-world? From one realistic scenario (such as making sandwiches), you can design problems that challenge students to think creatively and reason within multiple CCSS domains, such as Expressions and Equations, Geometry, Functions, and Ratios and Proportional Relationships.

Caroline Maher-Boulis

Lee University, Cleveland, Tennessee

Lauren Jeneva Moseley

Lee University, Cleveland, Tennessee

[102 \(MUSIC CITY CENTER\)](#)

78

Implementing Reform-Oriented Statistics in the Middle Grades: Final Results

Research Burst

This presentation will demonstrate current results from a dissertation study that will examine a sixth-grade teacher's implementation of a reform-oriented unit in statistics. The purpose of this case study is to identify what the teacher deems as necessary for implementation fidelity for reform-oriented statistics.

Natasha E. Gerstenschlager

Middle Tennessee State University, Murfreesboro

[LEGENDS BALLROOM AB \(OMNI NASHVILLE\)](#)

79

Managing Math Time and Finding Success with Small Groups

Pre-K–2 Burst

How can you maximize the learning in your math block? In this burst, you will learn about scheduling, grouping, activities, and remediation and enrichment in a dynamic math setting.

Leeann Kirby-Odell

Mount Airy City Schools, North Carolina

Elizabeth Dawson

Mount Airy City Schools, North Carolina

[105 \(MUSIC CITY CENTER\)](#)

80 **CORE**

Perfect Match: Teaching Framework + Eight Standards for Mathematical Practices

Preservice and In-Service Burst

This session will focus on how to address domain 3 in Charlotte Danielson's Framework for professional practice by implementing the eight Standards for Mathematical Practices in daily math instruction.

Krista L. Althaus

Eastern Kentucky University, Richmond

[BROADWAY BALLROOM AB \(OMNI NASHVILLE\)](#)

THURSDAY

BOOTH
#200

FORMAL STUDY PROVES CURRICULUM EFFECTIVENESS



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

TEACHERS USING
ORIGO STEPPING STONES:

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

60% OF STUDENTS
MET OR EXCEEDED
THEIR HYBRID **GROWTH**
TARGETS BY **1.5 RIT POINTS**

80% OF FIRST
GRADE STUDENTS
EXCEEDED THEIR
GROWTH TARGETS



Read the full reports at:
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ORIGO's new grant program offering \$100,000 to schools in need. Stop by booth **#200** to pick up an application today.

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http://bit.ly/ORIGO_Grant



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EDUCATION

81

Effects of Flipped Classroom Model on Students' Attitudes 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, when 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

[BROADWAY BALLROOM K \(OMNI NASHVILLE\)](#)

82

Reaching beyond the Classroom to Promote Mathematics Understanding

3–5 Burst

The primary focus of the presentation will be on how to organize, plan, and implement an after-school Math Club for elementary students. Math Club involves hands-on learning with the integration of children's literature. Detailed information, materials, and data will be shared with attendees.

Beth A. Moore

Franklin College, Indiana

[101 D \(MUSIC CITY CENTER\)](#)

83

Recruiting High-Quality Mathematics Teachers in Rural Settings

Higher Education Burst

Attracting high-performing students into secondary mathematics education programs in rural settings is challenging. In an attempt to meet this challenge, a cohort of outstanding students interested in math education was created. This presentation will describe the design and successes in recruiting and preparing them to teach math rural settings.

Dana Pomykal Franz

Mississippi State University

Jessica Ivy

Mississippi State University

[BROADWAY BALLROOM HJ \(OMNI NASHVILLE\)](#)

84

Revolutionize Your Teaching with Interactive Student Notebooks

6–8 Burst

Upon seeing my daughter's ISN for a science class, I wondered, "Why don't we do this in math?" After a summer of research and planning, the ISN has completely revolutionized the way I teach, and student understanding has shot through the roof. This presentation is for teachers who are new to the idea of implementing ISN's.

Chae D. Coan

Barton Junior High School, El Dorado, Arkansas

[LEGENDS BALLROOM G \(OMNI NASHVILLE\)](#)

85

The Sky's the Limit! How High Can You Throw?

9–12 Burst

Students will use a quadratic function to calculate how high they can toss a bean bag. Using the height from which the bean bag is released, the time it takes for it to hit the ground, and the basic height function for a projectile, students will calculate the initial velocity, the height function for the data, and the maximum height.

Angela R. Hollier

Vermilion Parish School, Abbeville, Louisiana

[BROADWAY BALLROOM CD \(OMNI NASHVILLE\)](#)

86

With Great Power, Comes Great Responsibility—Be a Teacher Superhero!

General Interest Burst

This burst will feature the "Top 10 Things Teachers May Not Have Learned in College." The importance of the profession will be demonstrated through student videos, humor, personal confessions, and treasured memories. All teachers will leave motivated and encouraged to return to their classroom and students!

Joanna Stevens

Lincoln County High School, Stanford, Kentucky

Kevin Bandura

Lincoln County High School, Stanford, Kentucky

[LEGENDS BALLROOM EF \(OMNI NASHVILLE\)](#)

87**Examining Computational Error Patterns of Teacher Candidates**

Higher Education Session

Teacher candidates should be made more aware of student computational errors, their own errors, and the misconceptions that cause them. They also need to gain experience in examining computational errors and helping to create a remediation plan to correct the errors. Results of a proficiency check completed by teacher candidates will be shared.

Tamela Randolph

Southeast Missouri State University, Cape Girardeau

Candide Walton

Southeast Missouri State University, Cape Girardeau

101 E (MUSIC CITY CENTER)

88**Flip This: Enhance Student Understanding in a Blended Classroom**

9–12 Session

Creating a blended, or flipped classroom, presents many unique opportunities and challenges. Participants in this session will have the ability to (1) participate in a “flipped” lesson, (2) learn about technology that allows for student accountability in a flipped or blended classroom, and (3) learn about techniques for managing student mastery.

Diedre L. Downing

New York City Department of Education/NYC iSchool, New York

103 (MUSIC CITY CENTER)

89**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

104 A (MUSIC CITY CENTER)

90 **TEACH****Mathematical Practices: Getting Our Students to Think Outside the Box!**

9–12 Session

Why do we learn math? How do we get students to think about mathematics from a more sophisticated perspective? How do we get students to develop a desire to problem-solve? In this session, we will look at how to effectively implement the mathematical practices with a concentration on making sense of problems and persevering in solving them.

Elisabeth Jaffe

Baruch College Campus High School, New York, New York

104 B (MUSIC CITY CENTER)

91**Real-World Investigations That Engage Students in the Mathematical Practices**

3–5 Session

How can we teach students to make sense of problems and to persevere when the problem is challenging? Learn how a three-tiered approach moves students from focuses on “right and wrong” answers to engaging in deep, critical, and divergent thinking. Integrate technology, make the Standards for Mathematical Practice come alive, and come away with free resources.

Arjan Khalsa

Conceptua Math, Petaluma, California

101 AB (MUSIC CITY CENTER)

92**Representing Mathematical Concepts on a Number Line**

Pre-K–2 Session

This session will illustrate the historical role of the number line, as well as connections to CCSSM, in advancing students’ strategies, representations, and mathematical language. Activities will use the number line to develop computational and counting fluency in the early grades, linking representations to strategies.

Ann Assad

Austin Peay State University, Clarksville, Tennessee

Jennifer Yantz

Austin Peay State University, Clarksville, Tennessee

104 CDE (MUSIC CITY CENTER)

93 **TECH****Using Appropriate Tools Strategically:
Aligning Technology Choices with
Mathematical Goals**

General Interest Session

What math apps should I use? Which online tools are best for math teachers? How can I use iPads more in my math class? With the overwhelming volume of digital resources available, choosing among them can be challenging. Join us to discuss recommendations for choosing and using digital tools while keeping mathematical goals first and foremost.

Amanda Thomas

Penn State Harrisburg, Middletown, Pennsylvania

BROADWAY BALLROOM E (OMNI NASHVILLE)

94**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 C (MUSIC CITY CENTER)

95 **TEACH****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 element 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 LarsonPresident-Elect, National Council of Teachers of Mathematics;
Lincoln Public Schools, Nebraska

LEGENDS BALLROOM D (OMNI NASHVILLE)

96**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 the papers) and demonstrate how such media can lead to deeper discourse, motivation, and mathematical understanding.

Eric Milou

Rowan University, Glassboro, New Jersey

BROADWAY BALLROOM F (OMNI NASHVILLE)

97**Equity and Project-Based Learning:
Are They a Perfect Fit?**

Preservice and Inservice Session

A methodology for gaining awareness of equity issues impacting mathematics learning of diverse students will be presented. Preservice teachers experienced project-based learning, and they researched and designed interdisciplinary units that include social justice, service learning, and teaching strategies supporting ELLs and other special students.

Sylvia R. Taube

Sam Houston State University; TODOS: Mathematics for All, Texas

LEGENDS BALLROOM C (OMNI NASHVILLE)

98 **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

106 B (MUSIC CITY CENTER)

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

99**Calendar Time: Discoveries in Number Sense through the CRA Model**

Pre-K–2 Workshop

Make calendar time fun and engaging through student-lead hands-on activities. Learn and practice an assortment of strategies that help students explore number-sense concepts concretely, representationally, and abstractly. You will leave with materials needed to implement this calendar activity in your class.

Christina Smith

Port Salerno Elementary School, Stuart, Florida

Julia G. Garcia

Port Salerno Elementary School, Stuart, Florida

Rachael Long

Port Salerno Elementary School, Stuart, Florida

BROADWAY BALLROOM K (OMNI NASHVILLE)

100**Creating a Playful Atmosphere by Utilizing the SMPs Effectively**

Pre-K–2 Workshop

A child's innate sense to learn is through the act of play. Why not use the Standards for Mathematical Practice to exploit, utilize, and facilitate intentional play through valuable mathematic instruction? In this workshop, you will learn developmentally appropriate ways to employ the SMPs, and discover how to ignite the passion for learning!

Jessica L. Bobo

ORIGO Education, St. Charles, Missouri

BROADWAY BALLROOM AB (OMNI NASHVILLE)

101**Employing Effective Questioning Strategies and Mathematical Discourse to Increase Achievement**

3–5 Workshop

The 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

BROADWAY BALLROOM CD (OMNI NASHVILLE)

102**Introducing Probability with Pictures and Models—Everybody Wins!**

6–8 Workshop

Whether you're teaching probability for the first time or are looking for new ideas, come and join us! We'll examine some "behind the scenes" instructors' notes to help strengthen our own content knowledge and explore tasks that use visual representations and discussion prompts designed to help students make sense of foundational probability concepts.

Jennifer "Filly" Fillingim

Madison County School District, Mississippi

LEGENDS BALLROOM G (OMNI NASHVILLE)

103**Manipulatives for CORE Engagement: Pattern Blocks, Cubes, Fraction Bars, Scales**

Preservice and In-Service Workshop

"Manipulative linked activities," opportunities for audience participation, discussion and reflection involving activities used in mathematics content courses for preservice elementary education teachers will be included. Activities involve the Common Core standards for Numbers and Operations (in Base 10 and Fractions), Number System, Geometry, and Statistics.

Carvel L. LaCurts

Salisbury University, Maryland

BROADWAY BALLROOM G (OMNI NASHVILLE)

104 **TASKS****Model with Mathematics Using Problem-Solving Tasks**

6–8 Workshop

This workshop will focus on problem-solving tasks that require mathematical modeling, sense making, and the construction of viable arguments. Participants will explore tasks connected to the Common Core, learn instructional strategies, and define what mathematical modeling is and is not. Free online resources.

Andrew Stadel

Tustin Unified School District, California

105 (MUSIC CITY CENTER)

1:30 P.M.—2:45 P.M.

105

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, Kentucky

101 D (MUSIC CITY CENTER)

106

Teaching the Distributive Property to Struggling Learners Using iPad Apps

3–5 Workshop

CCSSM emphasizes using the distributive property to teach multiplication, but this is tricky content for kids with special needs. See how grades 3–5 students with special needs use free iPad apps to demonstrate their understanding of multiplication properties. Learn to teach five different mini-lessons to help draw out students' thinking. BYO iPad.

Dana L. Pagar

Teachley, New York, New York

102 (MUSIC CITY CENTER)

107

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 practices will be processed throughout. Topics include similarity, triangle heights, transformations, polygons, area, and more.

Christine Mikles

CPM Educational Program, Sacramento, California

LEGENDS BALLROOM AB (OMNI NASHVILLE)

108

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

LEGENDS BALLROOM EF (OMNI NASHVILLE)

109

Are We There Yet? Increasing Rigor in the Mathematics Classroom

6–8 Workshop

Discover how students can construct a stronger understanding of mathematics through challenging questions and tasks that require them to apply Common Core Practice Standards. Transform your classroom to a rigorous learning environment where students interpret, analyze, think, and write using the Depth of Knowledge model (Webb 1997; 2005)

Kimberly Gail Williams

University of Tennessee at Martin

BROADWAY BALLROOM HJ (OMNI NASHVILLE)

2:00 P.M.—3:00 P.M.

110

Building Concepts: Ratios, Proportions, and Algebra

6–8 Session

CCSSM describes a ratio as associating two or more quantities. What about fractions and percents? How does this perspective relate to ratios in geometry and algebra? Interactive dynamic technology can support this shift in thinking about the fundamental ideas involved in proportional reasoning and help students make the connection to algebra.

Gail Burrill

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

101 AB (MUSIC CITY CENTER)

THURSDAY

NCTM Proudly Presents

AROUND US | MATH IS ALL AROUND US | MATH IS ALL AROUND US

Principles to Actions: Ensuring Mathematical Success for All

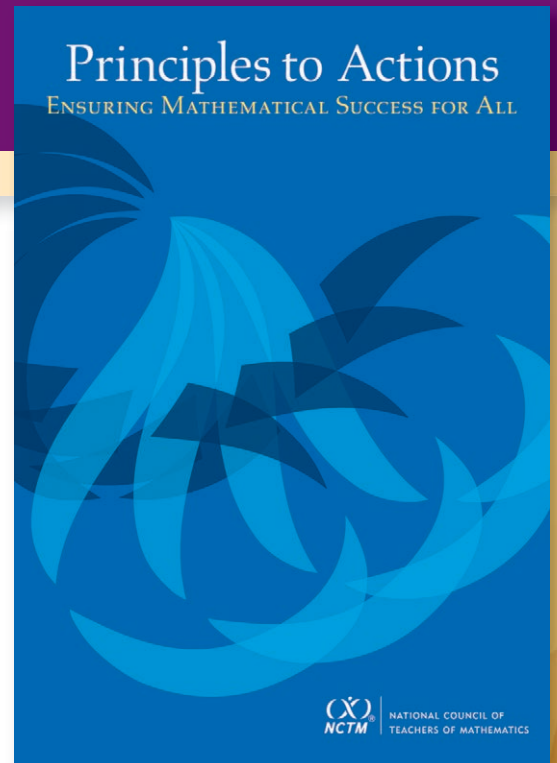
What it will take to turn the opportunity of the Common Core State Standards for Mathematics into reality in every classroom, school, and district.

Continuing its tradition of mathematics education leadership, NCTM has undertaken a major initiative to define and describe the principles and actions, including specific teaching practices, that are essential for a high-quality mathematics education for all students.

This landmark new title offers guidance to teachers, mathematics coaches, administrators, parents, and policymakers:

- Provides a research-based description of eight essential Mathematics Teaching Practices
- Describes the conditions, structures, and policies that must support the Teaching Practices
- Builds on NCTM's *Principles and Standards for School Mathematics* and supports implementation of the Common Core State Standards for Mathematics to attain much higher levels of mathematics achievement for all students
- Identifies obstacles, unproductive and productive beliefs, and key actions that must be understood, acknowledged, and addressed by all stakeholders
- Encourages teachers of mathematics to engage students in mathematical thinking, reasoning, and sense making to significantly strengthen teaching and learning

www.nctm.org/PrinciplestoActions



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List Price: \$28.95 | Member Price: \$23.16

Also available as an  eBook

List Price: \$4.99 | Member Price: \$3.99

INSIDE

Progress and Challenge
Effective Teaching and Learning
Essential Elements
Access and Equity
Curriculum
Tools and Technology
Assessment
Professionalism

Taking Action

References

Go to link at left to access full Table of Contents, Preface, and an Excerpt.

Visit www.nctm.org/catalog for tables of content and sample pages.

For more information or to place an order, please call (800) 235-7566 or visit www.nctm.org/catalog.



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

111 **CORE**

**CCSS Coherence and Assessment:
An Overview for Higher Ed**

Higher Education Session

There are many ways that CCSS-based K–12 reform may inform or impact higher education. In this session we explore two of those ways: the emphasis on coherence to develop ways of thinking and the various corresponding shifts in assessment.

Ted E. Coe
Achieve, Washington, D.C.

101 C (MUSIC CITY CENTER)

112
**Effective Mathematics Teaching
Practices to Support English Language
Learners**

6–8 Session

Learn about the specific demands of teaching mathematics for English language learners, especially related to modeling and communication math practices. Support students to make assumptions and reflect on their solutions by means of technology, comparisons of word and modeling problems, and well-planned interrelated social and analytic scaffolding.

José Francisco Sala García
Balearic Education Council, Ibiza, Spain

104 A (MUSIC CITY CENTER)

113
How Children Quantify Area

Research Session

This presentation will focus on how children quantify area when asked to compare two rectangles having different dimensions. Fourth, sixth, and eighth graders were interviewed to find out how they quantify areas. It was found that even eighth graders did not use the formula and approached the questions at cognitively much lower levels.

Jim Wilder
St. Clair County Schools, Ashville, Alabama

104 B (MUSIC CITY CENTER)

114
**Implementing EngageNY: Pitfalls and
Celebrations**

General Interest Session

EngageNY has caught on like wildfire. Many teachers have attempted to implement the program without enough training and with little understanding of the material. Come hear from one of the authors of EngageNY and an Arizona administrator who have worked together to create positive results.

Tricia Salerno
SMARTTraining, LLC, Scottsdale, Arizona

BROADWAY BALLROOM F (OMNI NASHVILLE)

115
**Number Sense in Early Elementary
Math**

Pre-K–2 Session

During this session we will explore how to build strong number sense in young mathematicians. Specific strategies will include Number Talks, Nimble with Numbers games, part-part-whole model, mental math, choral counting, and many other awesome strategies that can be easily implemented in your classroom tomorrow.

Amanda Patterson
KIPP Austin Public Schools, Texas

103 (MUSIC CITY CENTER)

116
**Quality Questioning and Academic
Conversations to Promote
Mathematics Learning**

3–5 Session

Inquiry drives learning thus questioning is the vehicle for academic success. This session will focus on how to frame questions to increase student engagement, strengthen student thinking, provide formative feedback, promote “response-ability,” and nurture a culture for mathematical thinking and inquiry.

Marilyn D. Cannon
Raytown School District, Missouri

LEGENDS BALLROOM C (OMNI NASHVILLE)

117**Teaching Interrelationship of Measurement and Data**

Pre-K–2 Session

This presentation focuses on how can we integrate literature and measurement in K–2 classrooms. Using literature to teach measurement can help children connect geometric concepts to develop understanding of common units of measurement, and to comprehend abstract interrelationships of measurement and data.

Rupam Saran

City University of New York, New York

101 E (MUSIC CITY CENTER)

118**Technology Tools for Supporting Classroom-Based Formative Assessment Techniques**

General Interest Session

Engaging & Emerging Technologies & Tools

Classroom-based formative assessment (CBFA) implemented effectively can be a powerful way to improve teaching and learning. The strategic use of innovative technology tools can sharpen these formative assessment techniques. Come learn more and leave with ideas and tools to enhance your use of CBFAs.

Jon Wray

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

LEGENDS BALLROOM D (OMNI NASHVILLE)

119**The Power of Learning Communities in High School Mathematics**

9–12 Session

How can we make a difference in student learning and student performance? Professional learning communities within your school buildings—that's how.

Cyndy M. Howes

Ravenwood High School, Brentwood, Tennessee

BROADWAY BALLROOM E (OMNI NASHVILLE)

120**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, St. Louis, Missouri

Dan Sinclair

Mastery Educational Services, Fallbrook, California

104 CDE (MUSIC CITY CENTER)

121**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 through 8.

Texas Instruments

Texas Instruments, Dallas, Texas

106 C (MUSIC CITY CENTER)

122**ew****Math That Makes Cents**

General Interest Exhibitor Workshop

This workshop introduces new, free lessons for math teachers in grades 3–8. These lessons are aligned to the Common Core math standards and are in a financial literacy context. You can teach the math your students need to know *and* introduce some real-world financial education too. Quick, in-and-out lessons are compatible with a variety of delivery systems.

Economics Center, University of Cincinnati

Economics Center, University of Cincinnati, Ohio

106 B (MUSIC CITY CENTER)

2:00 P.M.—3:00 P.M.

123 **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

106 A (MUSIC CITY CENTER)

3:15 P.M.—4:30 P.M.

124

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

LEGENDS BALLROOM G (OMNI NASHVILLE)

125

Fraction (or Fractured?) Understanding

3–5 Workshop

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

Debi DePaul

Origo Education, Inc., St. Charles, Missouri

105 (MUSIC CITY CENTER)

126

Going 1 to 1: Mathematics for K–2 Digital Classrooms

Pre-K–2 Workshop

Discover what it means to implement an elementary mathematics curriculum in a fully digital classroom. Explore technology that supports instruction and learning through digital tools—both for the teacher and the student. BYOD: Participants are encouraged to bring your own device. Laptops/tablets will not be provided for this session.

Beth Minor

McGraw-Hill Education, New York, New York

BROADWAY BALLROOM HJ (OMNI NASHVILLE)

127

Making Middle School Math Come Alive with Games and Activities

6–8 Workshop

Participants will be actively engaged in games and activities developed for middle school math topics. Some topics included are operations with integers, probability, graphing, and measures of central tendency. Learn to justify your answers with a scavenger hunt. Join me for engaging math lessons.

Sharon Rendon

CPM Educational Program/Rapid City Area Schools, South Dakota

101 D (MUSIC CITY CENTER)

128

Mathematics Vocabulary: A Tool for Deepening Conceptual Understanding

6–8 Workshop

Mathematics vocabulary can be an empowering tool for helping students explore and deepen their understanding of concepts. During this hands-on, interactive session, participants will engage in multiple activities designed to reinforce student understanding of math vocabulary. Attendees will also receive middle school-friendly classroom resources.

Martha Y. Parrott

Northeastern State University, Broken Arrow, Oklahoma

LEGENDS BALLROOM AB (OMNI NASHVILLE)

THURSDAY

3:15 P.M.–4:30 P.M.

129

Reflective Practices: How to Make Your Vision a Reality

9–12 Workshop

How do teacher leaders support the vision for teaching and learning? Experience a coaching model for secondary teachers based on NCTM's *Principles to Actions* that supports the growth of teachers and students. Analyze student work, protocols, and reflective process to become a reflective learner and be the change that will meet your vision.

Mona Toncheff

NCSM Regional Director Western Region 1; Phoenix Union High School District, Arizona

Kris Cunningham

Phoenix Union High School District, Arizona

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130

Slices of Calculus

9–12 Workshop

Build some simple and sturdy models that illustrate how to generate and calculate volumes of known cross sections. These solids are less obvious for students to visualize than volumes of revolution. Use manipulatives your students create themselves to explore how the solids are created and then derive volume equations for various cross sections.

Nina Chung Otterson

The Hotchkiss School, Lakeville, Connecticut

[BROADWAY BALLROOM K \(OMNI NASHVILLE\)](#)

131

Domino Games: Connecting the Dots for Students

Pre-K–2 Workshop

Come prepared to play games that teach the following Common Core standards: number sense, patterning, place value, basic operations, and graphing. Games are easily differentiated to meet the needs of all students. Game boards, student samples, and assessment ideas will be provided. Great for regular, RTI, and after-school programs. All games will be tied to CCSSM for reference.

Jane Felling

Box Cars and One-Eyed Jacks, Edmonton, Canada

[102 \(MUSIC CITY CENTER\)](#)

132

Engaging Parents by Hosting a Family Math Games Night

3–5 Workshop

Engaging parents is critical to the success of students, particularly at Title I schools. This workshop will focus on planning a family math night. Ideas for collaborating with PTA and staff will be shared. Workshop participants will get to play games that use cards and dice so that they will have a full outline for delivering a successful FMN.

Allison Riddle

Davis School District, Salt Lake City, Utah

[BROADWAY BALLROOM AB \(OMNI NASHVILLE\)](#)

133

3 Act Math: A How-To

9–12 Workshop

3 Act Math is an innovative, inquiry-based lesson format designed to tackle the challenge of modeling with mathematics. In this session, I will conduct a 3 Act Math task in order to provide tools for the participants to implement these lessons. The session will also describe why these tasks are important by detailing effects on student mind-set.

Dane Ehlert

Mesquite Independent School District, Texas

[LEGENDS BALLROOM EF \(OMNI NASHVILLE\)](#)

3:30 P.M.–4:30 P.M.

134

Fostering Growth Mind-Set through Productive Struggle in Conceptual Understanding

General Interest Session

We, as teachers, tend to be nurturers. For this reason, we may resort to giving answers, or giving away answers all too soon. When students experience dissonance with problem situations and work together with others who are grappling with the same mathematical misconceptions, they learn to persevere, become problem solvers, and become owners of their own learning.

Jenny Ray

Kentucky Department of Education/Northern Kentucky Cooperative for Educational Services, Cold Spring

[BROADWAY BALLROOM E \(OMNI NASHVILLE\)](#)

135 **EQUITY****Mathematics Worksheets Don't Grow Dendrites: 20 Strategies That Engage Brains**

General Interest Session

M-A-T-H is known to be the shortened form of the word Mathematics. However, it is also a mnemonic for Math Ain't That Hard? This acrostic rings true when brain-compatible strategies like music, drawing, role play, and dance are used to teach math. This fun-filled session ensures that brains retain math concepts not only for tests, but for life.

Marcia L. Tate

Developing Minds, Inc., Conyers, Georgia

101 AB (MUSIC CITY CENTER)

136**Polynomial Long Division Made Easy**

9–12 Session

Participants use the tabular model to multiply polynomial expressions. This work is extended to factoring as students complete the square and factor quadratics. This foundational work is then reversed as students divide polynomials using the galley method while connecting it to traditional polynomial long division.

Pam Goodner

Eureka Math, Washington, D.C.

103 (MUSIC CITY CENTER)

137**Students' Conversations about Mathematics in Urban Classrooms**

9–12 Session

Classroom discussions aid students in achieving conceptual understanding. We used the LiveScribe® Pen in an urban mathematics classroom to document students' conversations while solving problems in a small group setting. We will share problems used to engage students in discussions about mathematics, and associated student discussions.

Gorjana Popovic

Illinois Institute of Technology, Chicago

Susie Morrissey

Illinois Institute of Technology, Chicago

Lamont Holifield

Urban Prep Charter Academy for Young Men, Chicago, Illinois

101 C (MUSIC CITY CENTER)

138**Supporting Classroom Discourse with the Flipped Classroom**

9–12 Session

Can the flipped classroom foster student communication and mathematical discourse? Come and see how we plan flipped instruction to enhance classroom discussions within a community of learners. We will use specific examples drawn from precalculus to illustrate principles of flipped instruction that can be applied in any mathematics classroom.

Jeremy F. Strayer

Middle Tennessee State University, Murfreesboro

James B. Hart

Middle Tennessee State University, Murfreesboro

Sarah K. Bleiler

Middle Tennessee State University, Murfreesboro

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3:30 P.M.–4:30 P.M.

139

Writing and Adapting Performance Tasks for All Students

3–5 Session

How do you ensure your that students have baseline understandings to show what they know on a performance task? Can you modify a task to stretch your accelerated students? We will explore ways to rework an existing performance task to show what all of your students can do or to help you stretch the effectiveness of tasks that you write yourself.

Jack Beers

Triumph Learning, New York, New York

104 B (MUSIC CITY CENTER)

140

Kinesthetic Strategies for Integrating Math and ELA

Pre-K–2 Session

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

Suzy Koontz

National Math Foundation, Ithaca, New York

104 CDE (MUSIC CITY CENTER)

141

Building Number Sense and Internalizing Skills through Written Fluency

3–5 Session

Learn methods for scripting and delivering intelligently designed math drills that internalize concepts through patterned, simple to complex progressions called “Sprints.”

Bill R. Davidson

The Davidson Group, Los Angeles, California

104 A (MUSIC CITY CENTER)

142 **ew**

Amazing Math Games for Fact Fluency: Grades K–5

Pre-K–2 Exhibitor Workshop

Come and experience the highly motivating and fun games for math fact fluency grades K-5 from Kim Sutton of Creative Mathematics. You will experience simple tools that are ready to use for practicing computational strategies every day of the school year. You will leave with a tool kit and handout that will inspire all students to become fluent with basic facts!

Creative Mathematics

Creative Mathematics, Arcata, California

106 A (MUSIC CITY CENTER)



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THURSDAY

CORE Common Core/Career Readiness Standards and Assessment

EQUITY Equity: Ensuring Success for All

ew Exhibitor Workshop

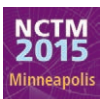
PROF Supporting the Teacher as a Professional

TASKS Teaching with High Quality Tasks

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TASKS	Teaching with High Quality Tasks	158, 231, 277, 279
TEACH	Effective Teaching	151, 229, 233, 278
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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.

143

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.

Trena Wilkerson

Board of Directors, National Council of Teachers of Mathematics; Baylor University, Waco, Texas

Jennifer M. Bay-Williams

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

105 (MUSIC CITY CENTER)

8:00 A.M.–9:00 A.M.

144

Eliciting Mathematics Misconceptions: Validated Fraction and Decimal Formative Assessment Resources

General Interest Session

Participants will (1) explore validated diagnostic assessments and support materials designed to help elicit commonly held misconceptions related to grades 4–6 Common Core rational number concepts, and (2) learn about the open source online environment developed to administer assessments and produce targeted reports on students' misconceptions.

Cheryl Tobey

Education Development Center, Inc., Waltham, Massachusetts

BROADWAY BALLROOM F (OMNI NASHVILLE)

145

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

101 AB (MUSIC CITY CENTER)

146

Leveraging Mindset for Student Success in the Mathematics Classroom

General Interest Session

A growth mindset is supportive of productive struggle and perseverance in learning mathematics. In contrast, a fixed mindset is often characterized by students who give up easily and believe mathematics is a natural talent. In this session, we will share strategies for encouraging a growth mindset in students in a mathematical context.

Kristin S. Hartland

Middle Tennessee State University, Murfreesboro

Alyson E. Lischka

Middle Tennessee State University, Murfreesboro

James C. Willingham

Middle Tennessee State University, Murfreesboro

LEGENDS BALLROOM C (OMNI NASHVILLE)

147 **TECH**

Making Math Real for Kids with STEM-C Tech

6–8 Session

As technology becomes more integrated with our daily lives, how well are we teaching students to harness the combined power of math and technology to create and solve problems? This presentation highlights affordable technology math teachers can use to engage learners in challenging, tech-based projects, with an emphasis on computational thinking.

Kim C. Huett

University of West Georgia, Carrollton

104 B (MUSIC CITY CENTER)

148

Math in Practice

Pre-K–2 Session

Teachers in the primary grades are often unsure about what the Standards for Mathematical Practice should look like in the early childhood classroom. Learn how a first-grade teacher uses Counting Collections as vehicle to engage her students in the mathematical practice standards.

Jennifer S. Towles

University of Montevallo/AMSTI, Pelham, Alabama

104 A (MUSIC CITY CENTER)

FRIDAY

149

No More Borrowing . . . Ever . . . Really!

3–5 Session

Computational strategies to subtract whole numbers, fractions, and decimals should be simple, flexible, efficient, and make sense. Novel ideas of shifting, skipping, and changing are used to avoid common errors in borrowing. These motivational strategies will have kids begging for more subtraction problems. Learn them today and teach them tomorrow!

George D. Poole

East Tennessee State University, Johnson City

101 C (MUSIC CITY CENTER)

150

Number Gym Early Intervention Project

Pre-K–2 Session

Learn how a physical education teacher and a math tiered teacher are working together to design and deliver an early intervention program involving movement-based activities and games to develop number sense and early numeracy skills. The process used to identify students and collect data, and many of the games and activities will be shared.

Dan Caffrey

Bedford Central School District, Mount Kisco, New York

Patrick J. Aris

Bedford Central School District, Mount Kisco, New York

101 E (MUSIC CITY CENTER)

151 **TEACH**

Plan a Killer Lesson Today

9–12 Session

The eight Mathematics Teaching Practices outlined in *Principles to Actions* describe high-yield features of an incredible math lesson. But what do these lessons look like in practice? How do you turn your ho-hum or downright yawner of a lesson into an engaging experience that students remember? We'll see examples and guidelines that can help resurrect any lesson.

Kate Nowak

Charlottesville City Schools, Virginia

BROADWAY BALLROOM E (OMNI NASHVILLE)

152 **PROF**

Tweet, Connect, Repeat—Discovering Unlimited Resources in Limited Time

General Interest Session

Innovative and engaging lessons are constantly evolving on Twitter and math teacher blogs. Connecting with these educators can revitalize your love of teaching mathematics. Discover how to connect with like-minded math teachers around the world and find your own dynamic professional development through social media.

Julie Reulbach

Cannon School, Concord, North Carolina

LEGENDS BALLROOM D (OMNI NASHVILLE)

153 **TECH**

Visualizing Theorems: The Use of Dynamic Technology in AP Calculus

9–12 Session

Using animations and manual manipulation, participants will gain a stronger visual understanding of AP Calculus concepts, such as a secant line approaching a tangent line, the relationship between a function and its derivatives, and landmark theorems.

Mike J. Reiners

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

104 CDE (MUSIC CITY CENTER)

154 **PROF**

The Number Line Activity: Empowering Mathematical Thinking

6–8 Session

Students can develop incredible fluency with mental mathematics using this easy-to-implement strategy. Adaptations make the lesson a perfect fit for arithmetic through algebra. A ready-for-Monday handout will be available.

Brad Fulton

Enterprise Elementary School District, Redding, California

103 (MUSIC CITY CENTER)

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2016 NCTM Annual Meeting & Exposition in
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8:00 A.M.–9:00 A.M.

155 **ew**

Interactive Mathematics Program: A Curriculum for Implementing the Eight Mathematics Teaching Practices from NCTM's *Principles to Actions*

9–12 Exhibitor Workshop

The session will address how IMP provides conceptual understanding through a problem-based, student-centered curriculum. Specifically, it will focus on the eight Mathematics Teaching Practices from NCTM's *Principles to Actions*. The session will also present school data supporting the effectiveness of the program and IMP Year 4 student work and feedback.

It's About Time

It's About Time, Mount Kisco, New York

106 C (MUSIC CITY CENTER)

156 **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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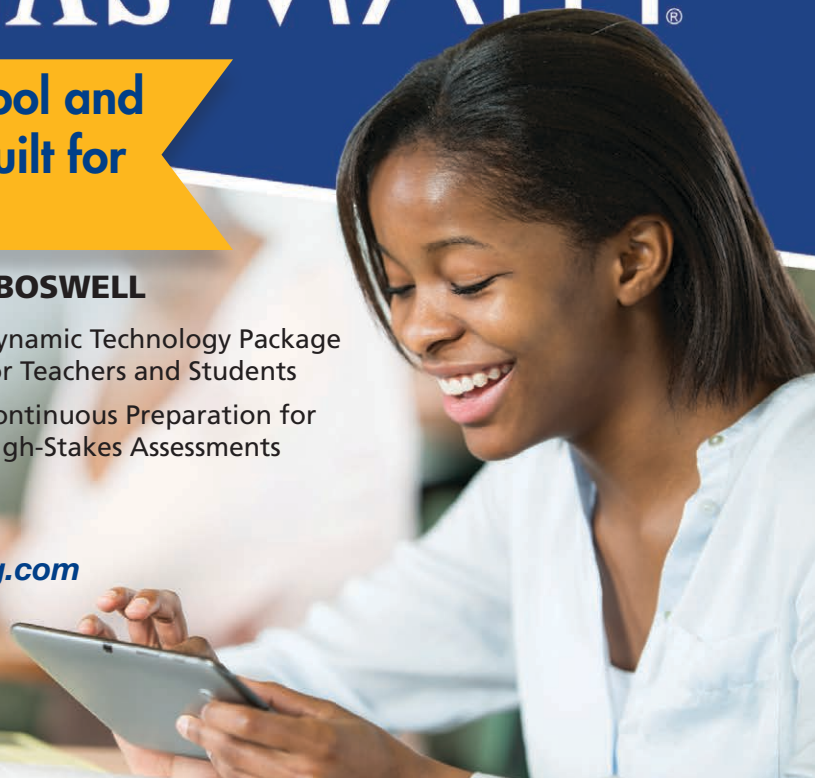
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FRIDAY

CORE Common Core/Career Readiness Standards and Assessment

EQUITY Equity: Ensuring Success for All

ew Exhibitor Workshop

PROF Supporting the Teacher as a Professional

TASKS Teaching with High Quality Tasks

8:00 A.M.–9:15 A.M.

157 **CORE**

Common Core–Based Investigations in Geometry

6–8 Workshop

Participants will explore hands-on activities designed to investigate CCSSM and the mathematical practices related to geometry. See how these explorations and the use of handheld technology make the mathematical practices come alive in the classroom, and engage your students in tasks rich in problem solving.

Fred Decovsky

Teachers Teaching with Technology, Millburn, New Jersey

LEGENDS BALLROOM EF (OMNI NASHVILLE)

158 **TASKS**

Engaging Students in Critical Thinking through Rich Tasks

6–8 Workshop

Participants will learn how to effectively implement rich, real-world tasks in order to increase students' critical thinking, conceptual understanding, and ability to communicate their reasoning.

Brian Marks

Newton Public Schools, Massachusetts

Leslie Lewis

Newton Public Schools, Massachusetts

101 D (MUSIC CITY CENTER)

159

Improving Metric Sense Using Personal Benchmarks

3–5 Workshop

We will use everyday objects and classroom manipulatives such as base-ten blocks to give meaning to metric measurement units of length, area, and volume. These techniques can help students with estimation, deciding if an answer is reasonable, and completing unit conversions.

Audrey N. Bullock

Austin Peay State University, Clarksville, Tennessee

LEGENDS BALLROOM AB (OMNI NASHVILLE)

160

Linking Geometry and Algebra with Engaging, Unusual Problems

9–12 Workshop

Participants will solve rarely seen, challenging, and engaging geometry problems. Solutions make use of algebra and usually lead to interesting functional relationships. Some of the results will be very surprising. We'll share student work and discuss how this mathematics supports the Common Core Standards for Mathematical Practice.

James R. Matthews

Siena College, Loudonville, New York

102 (MUSIC CITY CENTER)

161

Making Proof Count: Empowering Proof Education through Communal Criteria

Preservice and In-Service Workshop

Participants will evaluate five sample arguments for the Sticky Gum Problem (SGP), a task appropriate for sixth-grade through college-level learners focused on reasoning and proof. Participants' evaluations of the SGP will develop communal criteria for what counts as proof. We will discuss how to facilitate similar experiences with secondary students.

Sean P. Yee

University of South Carolina, Columbia

Justin D. Boyle

University of Alabama, Tuscaloosa

Sarah K. Bleiler

Middle Tennessee State University, Murfreesboro

BROADWAY BALLROOM G (OMNI NASHVILLE)

162

Problem Solving and Engineering Design: STEM Highlights This Connection

Pre-K–2 Workshop

The engineering design and problem-solving processes have much in common. Learn how engineering design challenges build problem-solving skills for young children through rich tasks that integrate all the STEM disciplines. Collaboration, strategic thinking, and persistence through multiple attempts are keys to success.

Sara Delano Moore

ETA hand2mind, Vernon Hills, Illinois

BROADWAY BALLROOM K (OMNI NASHVILLE)



8:00 A.M.–9:15 A.M.

163 **CORE**

Selecting and Using Tasks to Develop MP.4: Model with Mathematics

9–12 Workshop

What considerations should we make when selecting modeling tasks for our students? While working tasks designed to develop student proficiency in MP.4, we will investigate several important characteristics of modeling tasks. Additional topics for discussion include classroom environment, potential pitfalls, and available resources.

Ashli J. Black

Illustrative Mathematics, Tucson, Arizona

[BROADWAY BALLROOM HJ \(OMNI NASHVILLE\)](#)

164

Teaching and Assessing Addition Fact Fluency

Pre-K–2 Workshop

What does it really mean to be fluent with addition facts? Come explore how we can use strategies, games, and activities in meaningful ways to develop a trajectory in K–2 for helping all students become fluent with addition facts, and consider ways to authentically assess fact fluency.

Jennifer M. Bay-Williams

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

Amy Stokes

University of Louisville, Kentucky

[BROADWAY BALLROOM CD \(OMNI NASHVILLE\)](#)

165

The Fluency Games: Lifelong Strategies for Math Survival

Pre-K–2 Workshop

Our students don't know their math facts! This statement is heard in every school. Students need opportunities to build number sense and practice strategies that will ensure mathematical success. In this session, participants will explore games and activities that help students develop mental math along with ways to assess fact fluency.

Cindy Cliche

McFadden School of Excellence, Murfreesboro, Tennessee

[105 \(MUSIC CITY CENTER\)](#)

166

Wearing Math Bifocals: Seeing Mathematical Writing as Product and Process

6–8 Workshop

A focus on “getting kids ready” for high-stakes tests has reduced mathematical writing to “demonstrating understanding.” In this workshop, by engaging in writing to learn mathematics and discussing how to scaffold students’ mathematical writing, we will refocus and look at writing as a way for students to negotiate mathematical meaning.

Jill A. Perry

Rowan University, Glassboro, New Jersey

[LEGENDS BALLROOM G \(OMNI NASHVILLE\)](#)

167

Using Hands-On STEAM Projects to Differentiate in Math

3–5 Workshop

Come and learn hands-on STEAM projects that you can use to engage and differentiate learning in the classroom. We will discuss how these projects worked in our classroom, as well as ways you can easily utilize and modify them for your own classroom needs.

Nicole M. Sullivan

The Harley School, Rochester, New York

Christina L. Kerr

The Harley School, Rochester, New York

[BROADWAY BALLROOM AB \(OMNI NASHVILLE\)](#)

9:30 A.M.–10:30 A.M.

168

Essential Math Skills: Pre-K to Grade 3

Pre-K–2 Session

Some math skills deserve more than coverage. They are fundamental to a child's ability to understand and learn math, and they deserve the time and instruction needed to develop deep understanding. These crucial skills are the core of the core, and they must be developed to competency to allow students to become successful math learners for life.

Bob Sornson

Early Learning Foundation, Brighton, Michigan

[LEGENDS BALLROOM C \(OMNI NASHVILLE\)](#)



169

“I Fall to Pieces”—Remaining Rational While Working with Fraction Models

3–5 Session

Fractions are a major component in CCSSM in grades 3–5, and we have seen increased emphasis in fraction models, including number lines, area models, and bar models. We will use these models as strategies for developing number sense, and we will see how they are effective steps toward achieving our goal of efficient computation.

Jennifer G. Axley

Blount County Schools, Maryville, Tennessee

BROADWAY BALLROOM F (OMNI NASHVILLE)

170

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

103 (MUSIC CITY CENTER)

171

Performance Assessments—Authentic, Meaningful, and FUN!

9–12 Session

Performance assessments do not have to be limited to paper and pencil. Teachers can create problems ranging from algebra 1 to calculus that make math come alive for students and allow them to demonstrate their content knowledge as well as the application of the Standards for Mathematical Practice in authentic, meaningful, and *fun* situations.

Brett Doudican

Dayton Early College Academy, Ohio

101 C (MUSIC CITY CENTER)

172

Ratchet Up the Rigor: Tasks for Algebra I and II

9–12 Session

Teachers will see how incorporating worthwhile tasks in algebra will allow students to demonstrate true understanding of key concepts. Sample units and tasks will be provided for algebra I and algebra II.

Carol McCance

Brainerd High School, Chattanooga, Tennessee

Stacey Bradley

Brainerd High School, Chattanooga, Tennessee

101 AB (MUSIC CITY CENTER)

173

Ready Set Action: Formative Assessment at Work!!

General Interest Session

This highly motivational session will examine the two research-affirmed and critical elements of effective formative assessment: feedback and action. We will consider three types of research-affirmed formative assessment and learning for students: in-class (via tasks), out of class (via homework), and end of unit (via tests).

Timothy D. Kanold

Loyola University, Chicago, Illinois

BROADWAY BALLROOM E (OMNI NASHVILLE)

174

Research in Action: Making Classroom Discourse More Productive and Powerful

6–8 Session

Research shows that teachers dedicated to the Standards for Mathematical Practice, especially “Construct viable arguments and critique the reasoning of others”, struggle to change classroom discourse. University researchers and teacher-researchers share ideas from classroom discourse literature and discuss findings from ongoing action research projects.

Beth Herbel-Eisenmann

Michigan State University, East Lansing

Jillian M. Cavanna

Michigan State University, East Lansing

Laurie Busby

MacDonald Middle School, East Lansing, Michigan

104 A (MUSIC CITY CENTER)



175 **CORE****The Future of the Smarter Balanced Assessment Consortium**

General Interest Session

Over the course of five years, Smarter Balanced states collaborated to build a foundation for Common Core–aligned mathematics assessment. This presentation highlights the key milestones across the five years and describes how research and stakeholder input will guide the future work of the consortium.

Judy Hickman

Smarter Balanced Assessment Consortium, Olympia, Washington

[LEGENDS BALLROOM D \(OMNI NASHVILLE\)](#)**176** **PROF****The Math Department I've Always Wanted: Twitter as My PLC**

General Interest Session

Reflection and collaboration are the lifeblood of teacher growth. The tyranny of the urgent and our tendency toward “island” classrooms threaten these vital habits. Using my own journey as a lens, we’ll explore an online community of inspiring and supportive educators. Find the math department you’ve always wanted in this vibrant, connected PLC.

Michael J. Fenton

Fresno Christian Schools, California

[104 B \(MUSIC CITY CENTER\)](#)**177****Transitioning to Proof: Activities That Promote Learning from One Another**

Higher Education Session

How do students learn what counts as proof? In this session we share sample student work and video from an inquiry-based transition to proof course. Our purpose is to describe two instructional activities that students reported as most meaningful for helping them learn what counts as proof: a “peer critiquing” activity and a “group proof” activity.

Sarah K. Bleiler

Middle Tennessee State University, Murfreesboro

Jeffrey D. Pair

Middle Tennessee State University, Murfreesboro

[101 E \(MUSIC CITY CENTER\)](#)**178****Statistical Significance: What Is It?**

6–8 Session

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

[104 CDE \(MUSIC CITY CENTER\)](#)**179** **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

[106 B \(MUSIC CITY CENTER\)](#)**180** **ew****Make Learning Math Meaningful for All Students**

9–12 Exhibitor Workshop

Do “Alice in Wonderland” and “High Dive” sound like math units? Learn how to use real-life situations to make mathematics relevant and compelling. Mathematical concepts in each unit of Interactive Mathematics Program® 2015/Meaningful Math grow out of what is needed to solve a central problem. Come to this session to hear a teacher’s first-year journey on transitioning from teaching a traditional algorithm to teaching mathematics through real-life situations.

It’s About Time

It’s About Time, Mount Kisco, New York

[106 C \(MUSIC CITY CENTER\)](#)

181

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

[LEGENDS BALLROOM EF \(OMNI NASHVILLE\)](#)

182

Cracking the Code of Mathematics Learning Disabilities

3–5 Workshop

Sometimes it is difficult to determine if a student struggling to learn mathematics has a mathematics learning disability or if he or she is low achieving for other reasons. This workshop will help teachers learn to crack the code and read the clues to provide support for struggling learners in the general education classroom.

Catherine DiDio Beals

Northwest Nazarene University, Nampa, Idaho

[102 \(MUSIC CITY CENTER\)](#)

183

Do You See What I Say? Graphic Organizers in Mathematics

9–12 Workshop

Participants will participate in creating and sharing graphic organizers with math concepts as well as learning the research behind why teaching math with graphic organizers can be particularly important when teaching lower-achieving students.

Renee Stubbs

Newberry College, South Carolina

[BROADWAY BALLROOM AB \(OMNI NASHVILLE\)](#)

184

Fluency through Flexibility

Pre-K–2 Workshop

When we say a child is “fluent” with their facts, we are only assessing if they are accurate and efficient. There is a missing and even more important component to building fluency—flexibility. Learn to build fluency by increasing students’ flexibility with numbers, and leave with ideas for centers using ten-frames, rekenreks, and subitizing cards.

Christina Tondevold

Mathematically Minded, LLC, Orofino, Idaho

[101 D \(MUSIC CITY CENTER\)](#)

185

Mathematical Circuit Training—Engage Every Student!

9–12 Workshop

Engage all students for the entire class! Do you worry about the difficulty of the new Common Core assessments? Learn how to write a mathematical circuit! The presenter will discuss the process and motivation for crafting a circuit. Attendees will work circuits based on Common Core assessment items and will collaboratively write circuits.

Virginia Cornelius

Lafayette High School, Oxford, Mississippi

[105 \(MUSIC CITY CENTER\)](#)

186

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

[LEGENDS BALLROOM G \(OMNI NASHVILLE\)](#)



187**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

[BROADWAY BALLROOM K \(OMNI NASHVILLE\)](#)**188****Transforming Geometry and Building Spatial Reasoning via Modular Origami**

6–8 Workshop

Come build face, edge, and skeletal models to see how unit origami can engage a wide range of students in deep 2- and 3-D geometric concepts including isometries (translations, rotations, reflections), symmetry, chirality, and duality. Folding becomes vocabulary review. Assembling takes visualization and reasoning. And resulting models invite further study.

Peg Cagle

Board of Directors, National Council of Teachers of Mathematics; Vanderbilt University, Nashville, Tennessee

[BROADWAY BALLROOM HJ \(OMNI NASHVILLE\)](#)**189** **PROF****Using a Three-Lens Approach in Mathematics Professional Development**

3–5 Workshop

The three-lens approach to professional development in mathematics is designed to build teachers' mathematical content and pedagogical knowledge through collaborative engagement in three distinct learning activities: work on mathematical tasks; analysis of student thinking through written cases; and examination of teacher moves in classroom video.

Michael Flynn

Mount Holyoke College, South Hadley, Massachusetts

[BROADWAY BALLROOM CD \(OMNI NASHVILLE\)](#)**190****What's My Move: A Kinesthetic Multisensory Approach to Graphing**

9–12 Workshop

Graphs are one mathematical representation that often challenges secondary students. This session will explore how kinesthetic learning occurs by direct experience, and how understanding develops as a result of what was done rather than what was said or read in the secondary mathematics classroom.

Tammy L. Jones

Texas & Jones Consulting, Nashville, Tennessee

Leslie A. Texas

Texas & Jones Consulting, Nashville, Tennessee

[BROADWAY BALLROOM G \(OMNI NASHVILLE\)](#)**191** **TECH****Using Free and Exceptional NCTM Online Resources to Teach Probability**

6–8 Workshop

Use logic, simulation, and mathematical probabilities to reason and defend a choice in game play! Take on the role of a student to use tested and proven NCTM resources to link simulation to experimental vs. theoretical probability. Questions for students, pedagogical recommendations, and accompanying resources will be provided.

Ann Kong

National Council of Teachers of Mathematics, Reston, Virginia

[LEGENDS BALLROOM AB \(OMNI NASHVILLE\)](#)**192****Adapting Problems to Meet the Rigor of CCSSM**

6–8 Session

To meet the rigor of CCSSM, classroom instruction should build conceptual understanding, increase procedural skill and fluency, and provide application of skills in real-world situations. This session will use Bloom's Taxonomy and Webb's Depth of Knowledge to adapt existing math problems to a higher levels of rigor and complexity.

Emily Freeland

Mountain Brook City Schools, Mountain Brook, Alabama

Chris Weber

The Leadership and Learning Center, Englewood, Colorado

[104 B \(MUSIC CITY CENTER\)](#)

193

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.

Jennifer M. Bay-Williams

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

Trena Wilkerson

Board of Directors, National Council of Teachers of Mathematics; Baylor University, Waco, Texas

Diane J. Briars

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

LEGENDS BALLROOM D (OMNI NASHVILLE)

194

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

Preservice and Inservice 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.

Jamalee Stone

Black Hills State University, Spearfish, South Dakota

Zachary Zenk

Black Hills State University, Spearfish, South Dakota

104 A (MUSIC CITY CENTER)

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

195

Formative Assessment—Why Bother?

3–5 Session

In this training session, we will give teachers background on how formative assessment can be used to increase student learning and close achievement gaps. We will provide active, hands-on strategies for teachers to use in their classrooms so that students become active participants in improving their own achievement through formative assessment.

Laura C. Whitworth

Klein ISD, Spring, Texas

Terry Wright Wright

Klein ISD, Spring, Texas

101 E (MUSIC CITY CENTER)

196

More Than Numbers: "Learning by Doing" with Mobile Devices

3–5 Session

Experiential learning moments have a key role in establishing basic mathematical concepts, but they are not easy to orchestrate. Mobile devices may bring an abundance of virtual manipulatives to the classroom. How can teachers use such tools to stage effective learning experiences?

Guy Vardi

Slate Science, New York, New York

103 (MUSIC CITY CENTER)

197

Ten Strategies to Make Formative Assessment Part of Your Classroom

9–12 Session

Monitoring what students are thinking when they are engaged in mathematical tasks can be a platform for shaping instruction as described in *Principles to Actions*. How can we provide opportunities for students to share their ideas and use what we learn to help them better understanding the mathematics? And how can interactive dynamic technology help?

Gail Burrill

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

BROADWAY BALLROOM E (OMNI NASHVILLE)

198**The One Talking Is the One Learning**

6–8 Session

Are you doing all the talking in your class? Are your students encouraging each other? Are they excited about practice? If not, or if you want to increase student engagement, this session is for you! We will focus on multiple cooperative learning structures and activities that will encourage every student to participate frequently and equally.

Suzanne Bishop Culbreth

Mountain Brook Junior High School, Birmingham, Alabama

Emily Freeland

Mountain Brook City Schools, Alabama

104 CDE (MUSIC CITY CENTER)

199**Think, Sketch, Print—3D Printing in Algebra and Geometry**

9–12 Session

Capture the excitement of algebra and geometry and make connections by using 3D printing in the classroom. Engage students in problem-based challenges that develop an in-depth understanding of algebraic and geometric relationships while building STEM interest. Project ideas and software options will be presented.

Tiffany C. Sakaguchi

Cave Spring Middle School, Roanoke, Virginia

Jennifer Sprouse

Cave Spring Middle School, Roanoke, Virginia

LEGENDS BALLROOM C (OMNI NASHVILLE)

200**Young Learners REALLY Can Become Mathematically Powerful!**

Pre-K–2 Session

Measurement, geometry, number, and data concepts can all be included in so many activities that the young learner finds interesting and motivating. Attendees will participate in numerous hands-on and cognitively challenging tasks that enable the prekindergarten through second-grade student to make sense of important foundational concepts and skills.

Honi J. Bamberger

Towson University, Baltimore, Maryland

101 AB (MUSIC CITY CENTER)

201**Differentiating Math in a World of College and Career Readiness**

General Interest Session

Differentiation of math instruction is essential to help to prepare all students for college and career. However, educators need time, tools, and resources to differentiate effectively. The Quantile Framework for Math offers free resources aligned to math standards in all fifty states, and a free program to reinforce math skills and concepts at home.

Jane Scott

MetaMetrics, Durham, North Carolina

BROADWAY BALLROOM F (OMNI NASHVILLE)

202**Teachers' Perceptions of the Characteristics of Highly Effective Coaches**

General Interest Session

To develop a more robust understanding of K–12 educators' perceptions of the positive and negative attributes of coaches, this study uses a grounded theory approach to analyze survey data completed by 163 K–12 educators after participating in an intensive three-month online professional learning community (PLC) project.

Liza M. Cope

Delta State University, Cleveland, Mississippi

101 C (MUSIC CITY CENTER)

203**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

106 C (MUSIC CITY CENTER)

11:00 A.M.–12:00 P.M.

204 **ew**

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

General Interest 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

106 B (MUSIC CITY CENTER)

205 **ew**

HMH Player—Making 1:1 Learning a Reality

General Interest Exhibitor Workshop

Designed for digital natives, the HMH Player app connects K–12 students to interactive lessons, adaptive assessments, and a variety of tools. With the ability to customize and present dynamic lessons, HMH Player empowers teachers to make best practices even better. Get students engaged and keep them engaged with tech designed for their lifestyle!

Houghton Mifflin Harcourt

Houghton Mifflin Harcourt, Boston, Massachusetts

106 A (MUSIC CITY CENTER)

11:30 A.M.–12:00 P.M.

206 **TECH**

App-Smashing Addition: Encouraging Math Talk with iPad Apps

Pre-K–2 Burst

Learn how K–2 students “smash” together QR codes with free iPad apps (Teachley: Addimal Adventure and Educations) in their study of addition strategies. Watch examples of students who use the iPad to find and watch mini-lessons, practice using addition strategies, take screenshots of their gameplay, and explain their math thinking via screencasts.

Dana L. Pagar

Teachley, New York, New York

102 (MUSIC CITY CENTER)

207

Digital Metaphors Provide Insight into Students' Self-Determination for College Success

Higher Education Burst

Digital Metaphors use images and words in response to a given statement. This presentation shares lessons learned from examining student Digital Metaphors about self-determination for college success for students who start college underprepared in the mathematics required for their selected major (those with Math ACT scores of 19–23).

Ameneh M. Kassae

Middle Tennessee State University, Murfreesboro

Ginger H. Rowell

Middle Tennessee State University, Murfreesboro

BROADWAY BALLROOM CD (OMNI NASHVILLE)

208

Discussing Common Core Math with Parents

General Interest Burst

Getting parents involved in supporting their children's mathematical learning and 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

LEGENDS BALLROOM G (OMNI NASHVILLE)

209

Effects of a Summer Bridge Program on College Algebra Pass Rate

Higher Education Burst

This presentation focuses on an online, summer bridge program piloted in 2014. The primary goal of the program was to increase the pass rate of college algebra. It was also designed to help students learn skills like time management, resource usage, study, and technological skills that will benefit them in their college careers.

Jodi L. Frost

Indiana State University, Terre Haute

Eric Graves

Indiana State University, Terre Haute

Ellie Pounds

Indiana State University, Terre Haute

BROADWAY BALLROOM K (OMNI NASHVILLE)



210**Examining Students' Perceptions of Parental Involvement in High School Math**

Research Burst

This case study examined high school students' mathematical achievement and perception about parental involvement in a fourth-year math course. Thematic analysis revealed that parental involvement helped improve students' math performance and allowed students to have a positive outlook in involving their parents in their math education.

Sarah D. Johnson

Bethune-Cookman University, Daytona Beach, Florida

LEGENDS BALLROOM EF (OMNI NASHVILLE)

211**Exponential and Sine Curves for Preservice Elementary Teachers?**

Preservice and In-Service Burst

In this presentation, we reflect on our experiences, as instructor and student, to illustrate how preservice teachers interested in becoming elementary math specialists can begin to develop the appropriate content knowledge through their teacher preparation program.

Ryan D. Fox

Belmont University, Nashville, Tennessee

Nicole Bamford

Penn State-Abington, Abington, Pennsylvania

LEGENDS BALLROOM AB (OMNI NASHVILLE)

212**Teaching Math? Teaching English? Teaching Both**

General Interest Burst

How can we teach math when our English language learners are still trying to communicate in a new language? Come learn teaching strategies and easy-to-implement classroom activities that benefit not only high-needs students, but all students. Everyone will be reading, writing, speaking, listening, and doing math at the same time, in no time.

Heather Kohn

Marlborough Public Schools, Massachusetts

BROADWAY BALLROOM HJ (OMNI NASHVILLE)

213**Why Failing in Math Is the Best Practice for Success**

9–12 Burst

In this burst, participants will learn the answer to the age-old question, “When will I ever use this again?” Failure is the mother of success, and I will discuss how math is the perfect platform to teach this greatest lesson of all. When math becomes more about life than about the numbers on the board or in the text book, it takes on a whole new meaning.

Roger Osorio

EDgage, New York, New York

BROADWAY BALLROOM G (OMNI NASHVILLE)

214**Open-Ended Problems: A Springboard for Quality Questioning**

3–5 Burst

The presentation focuses on the use of teacher questioning in combination with open-ended problems and their impact on student mathematical communication. Findings from an action research project are shared, which analyzed a Title I elementary school's implementation of a problem-solving plan and its affect on student mathematical communication.

Cinthia Rodriguez

Northside ISD, San Antonio, Texas

105 (MUSIC CITY CENTER)

215**I Love Math Day!!!**

6–8 Burst

How can we build persistent and creative mathematics community? Every year since 2006, one middle school in New Jersey has celebrated “I Love Math Day” on February 14. In this session, you will learn what you need to start building positive math community and how you can prepare activities.

Hoyun Cho

Capital University, Columbus, Ohio

Gary Lawrence

Mustard Seed School, Hoboken, New Jersey

BROADWAY BALLROOM AB (OMNI NASHVILLE)

11:30 A.M.–12:00 P.M.

216

A New Line Leader: Transformation Form of Linear Equations

9–12 Burst

When we ask our students for the equation of a line, we always hear $y = mx + b$. Come learn about the transformation form of a linear equation and how it is connected to graphical transformations, arithmetic sequences, and Euler's method. This will help your students to understand families of functions and how they are connected throughout the curriculum.

Josh Berberian

The Shipley School, Bryn Mawr, Pennsylvania

101 D (MUSIC CITY CENTER)

12:30 P.M.–1:00 P.M.

217

20 Minutes of Math Play a Day

Pre-K–2 Burst

Why don't we as a society promote twenty minutes of math play each day, the same way we promote reading? Imagine if children could authentically develop number sense from an early age by counting or playing with numbers *daily*. Learn about the benefits of math play for K–2 students, and leave with ideas for making this home-to-school connection.

Jen Smith

Hortonville Area School District, Wisconsin

105 (MUSIC CITY CENTER)

218

Beyond "Why?": Asking Better Questions to Promote Understanding

6–8 Burst

Experience a math problem as a student, look at student work, and notice questions that could be used to further student understanding. Explore how a different question—which may be more than adding "and why?"—could lead to deeper conceptual comprehension. You will leave with questions that can be put into practice the next school day.

Jaime Bonato

San Juan Unified School District, Carmichael, California

102 (MUSIC CITY CENTER)

219

Calculus Cartooning: Drawing the Big Idea

9–12 Burst

Students think visually. Their thoughts come in pictures, not just words. Cartooning can be helpful for communication with students and for students' conceptual understanding. Come, see, and discuss examples, and try drawing your own calculus cartoon.

Lauren Jeneva Moseley

Lee University, Cleveland, Tennessee

BROADWAY BALLROOM CD (OMNI NASHVILLE)

220

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, Charlotte, North Carolina

BROADWAY BALLROOM HJ (OMNI NASHVILLE)

221

Plan a Successful ESOL Family Math Night!

General Interest Burst

Want to reach out to families of English language learners? Why not plan and host a family math night! Carroll County Schools, Georgia, recently hosted the second annual ESOL Parent's Math Night. Instructional coaches, ESOL teachers, administrators, parents, and students participated in five hands-on learning sessions focused on circles and spheres.

Susan Parker Robinson

Carroll County Schools, Carrollton, Georgia

Stacey Wright

Carroll County Schools, Carrollton, Georgia

Pam Johnson

Carroll County Schools, Carrollton, Georgia

BROADWAY BALLROOM G (OMNI NASHVILLE)



12:30 P.M.–1:00 P.M.

222

Solving Word Problems: From Research to the Classroom

3–5 Burst

In this session, learn how after researching different student errors, misconceptions, and strategies for learning, a strategy that helps students solve word problems was selected. A graphic organizer was developed and used in a PD to train teachers. Teachers would train students using the graphic organizers and analyze data of the change in students' performance.

Jad F. Salameh

Jefferson County Public Schools, Louisville, Kentucky

101 D (MUSIC CITY CENTER)

223

The Math of Khan: Am I Doing It Right?

General Interest Burst

Many K–12 mathematics teachers use Khan Academy (KA) and other web-based tutorial programs to supplement classroom instruction. This presentation provides an overview of the tenets of Sal Khan (the executive director and founder of Khan Academy) for using his popular program effectively.

Lori A. Cargile

University of Cincinnati, Ohio

LEGENDS BALLROOM EF (OMNI NASHVILLE)

224

Using Content Mapping to Provide Direction in Professional Development

Preservice and In-Service Burst

Are you a coach, administrator, or teacher educator looking for a way to begin or enhance professional development? Content mapping is a strategy that encourages teachers to create a physical map of a math concept. This strategy has been shown to foster math-focused conversations, deepen teachers' mathematical knowledge, and improve instruction.

Amy L. Nebesniak

University of Nebraska at Kearney

BROADWAY BALLROOM AB (OMNI NASHVILLE)

225

What Can We Learn from Research on Problem Posing?

Research Burst

This session focuses on research on problem posing in mathematics education. A summary of results from research on the role of problem posing in mathematics learning will be presented. The session will provide examples of productive problem posing and offer three instructional recommendations that can improve student learning.

Volkan Sevim

Virginia Commonwealth University, Richmond

LEGENDS BALLROOM AB (OMNI NASHVILLE)

226

NBPTS Certification: Teacher Motivation, Benefits, and Burdens

Research Burst

The National Board for Professional Teaching Standards process is one option that teachers have to choose from when seeking professional development. In this study, twelve teachers' motivations to complete the process were studied, as were the benefits gained from completing the requirements, and burdens faced during the process.

Lisa R. Krause

Champaign School District/Franklin Middle School, Illinois

BROADWAY BALLROOM K (OMNI NASHVILLE)

227

Literacy in the Math Classroom

6–8 Burst

Prealgebra teacher Joel Bezaire teaches a novel in his math classroom at the University School of Nashville. Hear about how this literature study helps students with their mathematical understanding, how he formats a mathematically based literature study, and book suggestions for a range of different types of math classes and age levels.

Joel E. Bezaire

University School of Nashville, Tennessee

LEGENDS BALLROOM G (OMNI NASHVILLE)

Join us in 2016:

Phoenix, AZ • October 26–28

Philadelphia, PA • October 31–November 2

228

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

[BROADWAY BALLROOM E \(OMNI NASHVILLE\)](#)

229 **TEACH**

Empowering Students with Rich Online Algebra Activities

9–12 Session

Instead of the computer programming 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 that that put students' ideas together with networked devices.

Christopher Danielson

Normandale Community College, Bloomington, Minnesota

[103 \(MUSIC CITY CENTER\)](#)

230

"It's All in the Bucket" and Reinforcing CCSS

9–12 Session

This session will focus on quick and practical activities that promote mastery of the Common Core content standards and Standards for Mathematical Practice. Formative assessment strategies will be explored that allow for student understanding and participants will be provided with classroom-ready, hands-on materials and lessons.

Mary Elaine Vaughan

Oak Ridge City Schools, Tennessee

Christina Henry

Oak Ridge City Schools, Tennessee

[101 E \(MUSIC CITY CENTER\)](#)

231 **TASKS**

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

[BROADWAY BALLROOM F \(OMNI NASHVILLE\)](#)

232

Posing Problems That Promote Perseverance

General Interest Session

Encouraging students to persevere in their problem-solving efforts can be challenging for teachers. This session will present classroom strategies that promote perseverance and strengthen students' problem-solving skills. A collection of problems that will test each participant's own perseverance level will be included.

Thomas Evitts

Shippensburg University, Shippensburg, Pennsylvania

[LEGENDS BALLROOM D \(OMNI NASHVILLE\)](#)

233 **TEACH**

Students' Informal Methods as a Bridge to Fluent Fraction Division

3–5 Session

NCTM's *Principles to Actions* encourages teachers to facilitate meaningful mathematical discourse and to build procedural fluency from conceptual understanding. Teachers are asked to scaffold students' learning of procedures from their informal methods for solving problems, through facilitated discussion. See how this works for fraction division.

Max Ray-Riek

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

[104 A \(MUSIC CITY CENTER\)](#)



234**Talk It Out! Mathematically Productive Discussions in the Primary Classroom**

Pre-K–2 Session

My students are talking—now what? We will explore teaching practices that enable primary students to participate in productive mathematics discussions while encouraging students to build collective understanding of content.

Jennifer R. Meadows

Tennessee Technological University, Cookeville

Jane Baker

Tennessee Technological University, Cookeville

101 C (MUSIC CITY CENTER)

235**Teaching Statistical Inference Using Randomization Techniques? One Teacher's Journey**

9–12 Session

The Common Core State Standards call for students to use simulations to understand the random processes underlying statistical inference. Are teachers prepared to guide students' learning in this way? This presentation tells one teacher's story as she developed her technological pedagogical content knowledge to help her students learn.

Jeremy F. Strayer

Middle Tennessee State University, Murfreesboro

Amber L. Matuszewski

Rutherford County Schools, Murfreesboro, Tennessee

LEGENDS BALLROOM C (OMNI NASHVILLE)

236**Ten Is My Friend: Master Anchor Number 10**

Pre-K–2 Session

We live in a base-ten world, yet most often we don't focus on guiding our students to mastery of this most important number. Join me while I take you on a journey of teaching students that ten is their friend, and learn how building this foundation can lead to math exploration, discovery, and deep mathematical thinking.

Rachel A. McCoy

Casa Grande Elementary School District, Arizona

104 CDE (MUSIC CITY CENTER)

237**Using Lesson Study with Preservice Secondary Mathematics Teachers**

Higher Education Session

This presentation will look at the practical use of the Japanese Lesson Study process as it pertains to a secondary mathematics methods course. This process includes a partnership created with a local high school where the preservice mathematics teachers practice-teach lessons in our class before teaching them at the high school.

Jim Mostofo

Grand Canyon University, Phoenix, Arizona

104 B (MUSIC CITY CENTER)

238**Walk the Number Line for Research-Based Results**

3–5 Session

This session will focus on how to use a number line to solve problems involving rounding, making change, elapsed time, fractions, decimals, simplifying fractions, and factoring. The latest research will be presented to transition grade 3–5 students from the basic number line to an empty number line.

Kim Sutton

Consultant, Arcata, California

101 AB (MUSIC CITY CENTER)

239 **ew****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

106 B (MUSIC CITY CENTER)

12:30 P.M.–1:30 P.M.

240 **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 workplaces, visual models, and putting the mathematical practices into action.

Math Learning Center

Math Learning Center, Salem, Oregon

106 A (MUSIC CITY CENTER)

1:30 P.M.–2:45 P.M.

241

A Princess, a Wizard, and a Dragon Walk into School . . .

Pre-K–2 Workshop

Why do students *love* story time, but hate story problems?? Join us as we explore ways to meet the Common Core K–2 addition and subtraction problem situations in a fun, meaningful, playful way. (Did we say play?? Don't tell!) Through the use of props and creative thinking, you can teach your students to love story problems, too!

Shelley S. Dickson

Counting Spots, Lexington, Kentucky

LEGENDS BALLROOM AB (OMNI NASHVILLE)

242 **CORE**

CCSS Statistics

6–8 Workshop

Let's be honest: statistics has a terrible reputation (even among many math teachers). If you have questions/concerns about the statistics and probability domain of CCSS, then this is the place for you. "Bootcamp" is a hands-on experience to show you how exciting the statistics content standards can be from the eyes of a middle school student.

Shauna Hedgepeth

Lamar County School District, Purvis, Mississippi

BROADWAY BALLROOM AB (OMNI NASHVILLE)

243

Delving Deeper into the Derivative—the Central Concept of Calculus

9–12 Workshop

Test the limits of your calculus knowledge! Participants will explore multiple representations of the derivative and build connections between their own understandings of the concept and practical contexts. The concept will be developed with a simple ticker-tape task in which participants consider how to determine the speed of a falling object.

Jeffrey D. Pair

Middle Tennessee State University, Murfreesboro

James C. Willingham

Middle Tennessee State University, Murfreesboro

Matthew Duncan

Middle Tennessee State University, Murfreesboro

102 (MUSIC CITY CENTER)

244

Do the Math: Crafting Meaningful Tasks

9–12 Workshop

Creating tasks that are meaningful to our students is somewhat of an overwhelming task in itself. How do we spark student interest? Come experience meaningful tasks all about money: Can you really make money just wearing a shirt? As we do the math, we will collaborate with others to learn simple steps to craft your own meaningful tasks.

Jennifer North Morris

Math Coach/Specialist, Tucson, Arizona

Ismael Zamora

Hinsdale South High School, Darien, Illinois

BROADWAY BALLROOM CD (OMNI NASHVILLE)

245

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

BROADWAY BALLROOM HJ (OMNI NASHVILLE)

FRIDAY

246**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 in achieving this goal.

Calvin James Irons

Mathematics Education Consultant, Brisbane, Australia

105 (MUSIC CITY CENTER)

247**Real Problem-Solving Adventures!**

6–8 Workshop

When is solving a problem really problem solving? How can we engage in teaching practices as described in *Principles to Actions* that support and advocate for problem solving so students succeed as true problem solvers? We will explore these questions as we engage in rich mathematical problems for our classrooms. Let's problem-solve problem solving

Trena Wilkerson

Baylor University, Waco, Texas

Rachelle Rogers

Baylor University, Waco, Texas

Keith Kerschen

Baylor University, Waco, Texas

101 D (MUSIC CITY CENTER)

248**Seeing Is Succeeding: Developing Addition and Subtraction Fact Fluency**

Pre-K–2 Workshop

Fluency is more than memorization of isolated facts. Students need to see connections between facts. They need visual models to help form a “mind picture” that connects to a thinking strategy. This session will demonstrate and utilize powerful visual aids and games that help students master the basic facts—with understanding!

Peter Michael Stowasser

ORIGO Education, Brisbane, Australia

BROADWAY BALLROOM K (OMNI NASHVILLE)

249 **CORE****Unpacking the “Model with Mathematics” Standard for Mathematical Practice**

6–8 Workshop

What exactly is modeling with mathematics and how can we implement it in our classrooms? We will unpack and simplify CCSSM Standard for Mathematical Practice #4, “Model with mathematics.” To do this, we break the standard into three key decision-making processes and illustrate each process through the exploration of a middle grades modeling task.

Wesley A. Baxter

Middle Tennessee State University, Murfreesboro

D. Christopher Stephens

Middle Tennessee State University, Murfreesboro

Sarah K. Bleiler

Middle Tennessee State University, Murfreesboro

BROADWAY BALLROOM G (OMNI NASHVILLE)

250 **TECH****Using iPads for Flipping Methods Classes and More**

Preservice and In-Service Workshop

Work in small cooperative groups to design learning modules using iPads for preservice methods classes or in-service professional development workshops. Common Core mathematical practices will serve as a focus for each module. Modules designed by preservice teachers with Knowmia, Educreations, ShowMe, Toontastic, and ScreenChomp will be shared.

Leslie A. Suters

Tennessee Technological University, Cookeville

LEGENDS BALLROOM G (OMNI NASHVILLE)

251**Modeling Fractions with Pattern Blocks**

3–5 Workshop

Pattern blocks will be used to develop a firm foundation of fraction concepts and to understand why algorithms work. Topics will include renaming pieces when changing the referent unit, equivalent fractions, partitioning, and fraction operations. It is an interactive session with real-world applications and hands-on tasks.

Jennifer M. Partin

Grundy County Board of Education, Altamont, Tennessee

Kayla Rymer

Grundy County Board of Education, Altamont, Tennessee

LEGENDS BALLROOM EF (OMNI NASHVILLE)

252

Desmos and Modeling: A Mathematical Match Made in Heaven

9–12 Session

Join us for a hands-on exploration of how to use Desmos—the free online graphing calculator with power and beauty to spare—to model and solve engaging problems arising in mathematics and the world around us. We'll discuss modeling best practices and tackle rich tasks in multiple domains. (Bring a laptop or tablet for maximum graphing joy.)

Michael J. Fenton

Fresno Christian Schools, California

BROADWAY BALLROOM E (OMNI NASHVILLE)

253

Impact of Task Design on Students' Attitudes about Mathematics

General Interest Session

Using the results of a study in which a set of mathematical tasks were redesigned to be more rigorous and then implemented in an undergraduate math course, this session will share the redesigned tasks, discuss their salient features, and describe how attention to task design and rigor can contribute to students' improved attitudes about math.

Ziv Feldman

Boston University, Massachusetts

Lauren Jeneva Moseley

Lee University, Cleveland, Tennessee

BROADWAY BALLROOM F (OMNI NASHVILLE)

254 **EQUITY**

Intervention and Assessment Strategies for Grades 2–5 Students Who Struggle

3–5 Session

With the focus on multi-tiered 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

University of Louisville, Kentucky

Amy Lingo

University of Louisville, Kentucky

104 CDE (MUSIC CITY CENTER)

255

Let's Talk Math! Promoting Number Sense with Academically Productive Talk

General Interest Session

Come learn how to create a classroom that focuses on academically productive talk. Learn how these rich conversations aid students' conceptual understanding and number sense development. Create a classroom that values discussion by using effective questioning techniques to promote number sense.

Susan Loveless

Rutherford County Schools, Murfreesboro, Tennessee

101 E (MUSIC CITY CENTER)

256

Nurturing Computational Fluency & 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 develop efficient, accurate, and flexible thinking strategies that promote conceptual understanding and procedural fluency.

Pia M. Hansen

Math Learning Center, Salem, Oregon

103 (MUSIC CITY CENTER)

257

Open a World of Possible: Right Books, Right Time

Pre-K–2 Session

The right book at the right time can spark children's interest and help them to understand more. Books can give students numerous chances to connect their thinking and reasoning while building understanding. Come read, play, learn, and walk away with ways to engage your students!

Jan Scott

Scholastic, Inc., New York, New York

104 B (MUSIC CITY CENTER)

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



2:00 P.M.—3:00 P.M.

258

Raising Mathematics Performance Levels of Underachieving Incoming College Freshman

Higher Education Session

Many freshman are admitted to college performing below required levels in mathematics. They require remediation to allow them entrance into college courses. Through the effective use of CCSS, integration of technology, and best practices, gains have been achieved in raising performance. This session will address necessary qualities for success.

Joan J. Vas

Kean University, Union, New Jersey

Mary J. Mitchell

Kean University, Union, New Jersey

104 A (MUSIC CITY CENTER)

259

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 (MUSIC CITY CENTER)

260

Using Children's Literature and Interactive Activities = Successful Mathematics Students

3–5 Session

Literature provides enriching opportunities to inspire children's investigation into mathematics. A collection of exemplary interactive activities from in-service teachers with student examples incorporating captivating children's books will be shared. These activities can be immediately implemented to support children in the mastery of math concepts.

Amy Adkins

University of Nevada, Las Vegas

LEGENDS BALLROOM C (OMNI NASHVILLE)

261

Using Illuminations in the Middle School Classroom

6–8 Session

Participants will learn ways to use NCTM Illuminations website to introduce and reinforce mathematical concepts in the middle school classroom.

Lea L. Keith

Robertson County Board of Education, Springfield, Tennessee

Heather Y. Gay

Robertson County Board of Education, Springfield, Tennessee

101 C (MUSIC CITY CENTER)

262

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

LEGENDS BALLROOM D (OMNI NASHVILLE)

3:15 P.M.—4:30 P.M.

263

3D Printing Your Middle Grades Geometry Curriculum

6–8 Workshop

3D printers are affordable, powerful teaching tools that can be used to teach difficult concepts such as cross sections, volume, and 3D solids in a creative and engaging environment. In our workshop we will share our experience teaching geometry concepts to middle school students, share lessons plans, and actually design and print 3D objects.

Jill A. Cochran

Berry College, Mount Berry, Georgia

Zane R. Cochran

Georgia Tech, Atlanta

Mandi Dean

Berry College, Mount Berry, Georgia

BROADWAY BALLROOM CD (OMNI NASHVILLE)

FRIDAY

3:15 P.M.–4:30 P.M.

264 Dilating Triangles

6–8 Workshop

Using rulers and protractors, we will analyze scale factors when dilating shapes. Participants will double and triple various triangles. Our discussion and activity will focus on the mathematics of similar figures including angle measures, scale factors, and algebraic rules that can be used to predict how the figures are affected.

Ryan Andrew Nivens

East Tennessee State University, Johnson City, Tennessee

Emily Combs

Clinton Public Schools, Clinton, Missouri

102 (MUSIC CITY CENTER)

265 **CORE** Engaging Tasks for Implementing the 8 Standards for Mathematical Practice

9–12 Workshop

Participants will use visual clues of the Standards for Mathematical Practice and then explore algebra and geometry tasks and formative assessment lessons that help to implement these standards. Study team and teaching strategies will be shared and modeled to help teachers get students to persevere through challenges and increase mathematical discourse.

Erin Murphy Schneider

Atherton High School, Jefferson County Public Schools, Louisville, Kentucky

LEGENDS BALLROOM EF (OMNI NASHVILLE)

266 Guided Math in the Real World

Pre-K–2 Workshop

Are you starting to think guided math works in theory but not in an actual classroom? Then this workshop is for you! Led by a classroom teacher who uses guided math in a typical classroom with real children every day, you will get tips, tricks, games, activities, and an opportunity to brainstorm solutions to problems in your own classroom.

Melora Pruneau

School District of Ladue, St. Louis, Missouri

BROADWAY BALLROOM AB (OMNI NASHVILLE)

267 Mastering Measurement Skills, Fractions, Scale Drawing, Perimeter, Area, and More! Easily!

3–5 Workshop

Learn exciting, innovative, research-based methods and activities to teach measurement, fractions, scale-drawing, perimeter, area, etc. Hands-on activities provide practical application leading to student/teacher success, ease, and enjoyment. Hand-outs/materials provided. Come! Have fun! We will all measure up!

Donna L. Monck

Rock Christian Academy, Easton, Pennsylvania

101 D (MUSIC CITY CENTER)

268 Rich Tasks That Provide Active Engagement, Promote Deep Understanding, and Integrate 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 content standards and practices and still teach the ideas and make connections?” Incorporate the “5 Practices for Orchestrating Productive Math Discussions.” Obtain all materials employed in the session.

Tom Reardon

Youngstown State University, Ohio

LEGENDS BALLROOM AB (OMNI NASHVILLE)

269 Show, Tell, Prove

3–5 Workshop

Do your students struggle when asked to “show their work,” “explain their thinking,” or “prove their answer is correct”? Come learn how to SHOW-TELL-PROVE in math. We’ll explore how to easily integrate the Standards for Mathematical Practice into your daily math framework instruction so kids develop deep conceptual understanding that sticks.

Malinda Apanay

Growing Strong Teachers, Inc., Johns Creek, Georgia

Autumn Vavoso

Growing Strong Teachers, Inc., Johns Creek, Georgia

BROADWAY BALLROOM HJ (OMNI NASHVILLE)



3:15 P.M.–4:30 P.M.

270

Using Boxes and Platonic Solids in Geometry Classes

9–12 Workshop

More than one hundred geometric terms and concepts will be discussed with the aid of models of the Platonic Solids and boxes of various shapes. Participants will create their own models using a variety of paper folding techniques. All activities can be completed in grades 4–12.

Carroll G. Wells

Lipscomb University, Nashville, Tennessee

LEGENDS BALLROOM G (OMNI NASHVILLE)

271

Using Pattern Blocks to Shape Fraction Knowledge

3–5 Workshop

Learn how to use pattern blocks to help students develop conceptual understanding of equivalent fractions, comparing fractions, and operations with fractions. We will explore how to use these hands-on (or virtual) manipulatives and pictures to explain those elusive “fraction rules.” This session is sure to have you rethinking fractions.

Amy L. Nebesniak

University of Nebraska at Kearney

BROADWAY BALLROOM K (OMNI NASHVILLE)

272

What’s Black, White, and Ten All Over?

Pre-K–2 Workshop

This hands-on session will unravel the power of ten-frames as a teaching tool while bringing the mathematical practices to life. A variety of activities will be explored including starting steps, games, and even open-ended problems. Video clips and student work will give you glimpse of how this could look in the classroom.

Lisa K. Rogers

Math Solutions, Sausalito, California

105 (MUSIC CITY CENTER)

3:30 P.M.–4:30 P.M.

273 **TECH**

3 Acts of Collaboration with Nearpod

General Interest Session

Nearpod is a powerful tool to enable teachers to see and share student responses, even handwritten, digitally and instantly within a class. I’ll show you how I use Nearpod to help students collaborate on 3 Act Math problems and become engaged in mathematics. I will then demonstrate how Nearpod can be used to improve pedagogy locally and globally.

Cory D. Henwood

Los Banos Unified School District, California

BROADWAY BALLROOM E (OMNI NASHVILLE)

274

Building Confident Problem Solvers

3–5 Session

Participants will be introduced to a paradigm that has proven to build confident problem solvers with even the most challenging problems. We will look at some complex problems and tasks involving fractions and explore different strategies students could use to solve these through multiple representations.

John Staley

Baltimore County Public Schools, Towson, Maryland

Nicole M. Beck

National Training Network, Greensboro, North Carolina

101 E (MUSIC CITY CENTER)

275

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

101 C (MUSIC CITY CENTER)

FRIDAY

276

Extracting the Good Out of Bad Mathematics Questions

General Interest Session

Assessment is an important component of effective teaching to ensure mathematical success for all. From an experienced item writer, participants will learn strategies to write or choose test items to successfully assess student understanding of CCSSM. Checklists and look-for documents for reviewing items and tests will be shared.

Gurkan Kose

North Jersey Arts and Science Charter Schools, Elmwood Park, New Jersey

101 AB (MUSIC CITY CENTER)

277 TASKS

Fumbling toward Inquiry: Starting Strong in Problem-Based Learning

9–12 Session

Experiencing initial success in an inquiry-driven classroom is critical for teacher and student alike. In this session, we'll examine tasks and protocols that help establish a culture of collaboration and mathematical discourse, something essential in a problem-based classroom.

Geoff M. Krall

New Tech Network, Napa, California

104 A (MUSIC CITY CENTER)

278 TEACH

Using Mathematical Learning Trajectories to Identify Opportunities for Productive Struggle

Pre-K–2 Session

We will consider how we can use mathematical learning trajectories to support learners by using their current ways of reasoning to identify opportunities for productive struggle as they engage in learning mathematics. The primary mathematical focus will be on number and operations across pre-K–grade 2.

LouAnn Lovin

James Madison University, Harrisonburg, Virginia

104 CDE (MUSIC CITY CENTER)

279 TASKS

Why Rich Tasks Are Better Than Poor Tasks

6–8 Session

What is a rich task, where can I get one, and how can it help me benefit my students in the era of the Common Core? In addressing these questions, we'll survey some resources that are treasure troves of engaging math problems, and we will see how rich tasks are crucial for bringing to life the Standards for Mathematical Practice.

Dave I. Kennedy

Shippensburg University, Pennsylvania

103 (MUSIC CITY CENTER)

280

Written Conversation and Question Posing in a Blended Geometry Classroom

9–12 Session

Understanding of concepts can be enhanced with explorations written in GeoGebra. Students involve themselves in conversation over a Google Doc about the concept being explored, with the guidance of a problem set that includes essential questions. Then, students detect the validity of their responses by posing questions that urge reevaluation.

Eileen B. Mooney

Miss Porter's School, Farmington, Connecticut

104 B (MUSIC CITY CENTER)

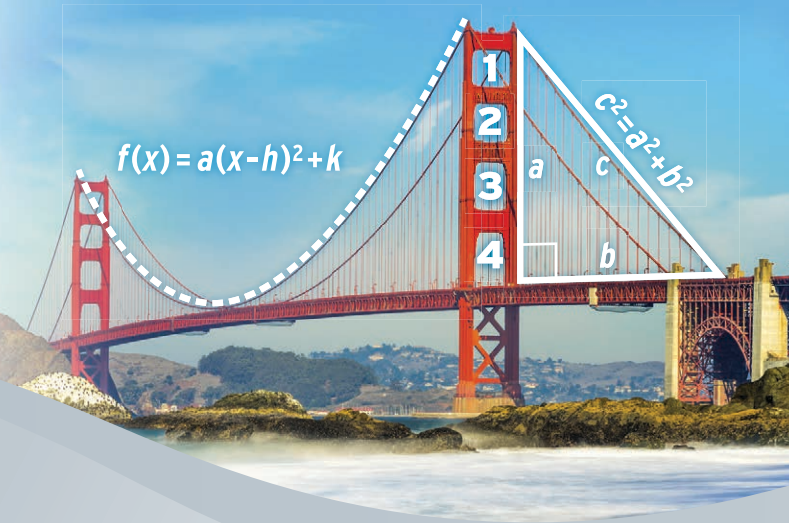
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FRIDAY



2016 NCTM ANNUAL MEETING & EXPOSITION

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Nashville, Tennessee. November 18–20, 2015

A handwritten signature in blue ink that reads "Diane J. Briars". The signature is written in a cursive style and is positioned above a thin horizontal line.

Diane J. Briars
President, NCTM



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Date	Session #	Session Title	Presenter Name(s)	Start/End Time	PD Time Earned
TOTAL Professional Development Hours Accrued:					

I certify that the above-named educator accrued the indicated number of professional development hours.

Robert M. Doucette
Executive Director, NCTM

Diane J. Briars
President, NCTM

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The Middle Tennessee Math Teachers (MT)² is a very active organization. The 170-member group holds a workshop once a year at varying locations across the area. (MT)² also offers summer workshops free of charge to interested counties and awards grants to teachers and scholarships to preservice teachers each year.

The Tennessee Mathematics Teachers Association, with approximately 900 members from seven affiliates, works to encourage the study and improve the teaching of mathematics throughout Tennessee. Each year, it holds a statewide math contest for high school students. Its members are very excited that NCTM and its conference attendees are here this year in the great state of Tennessee.



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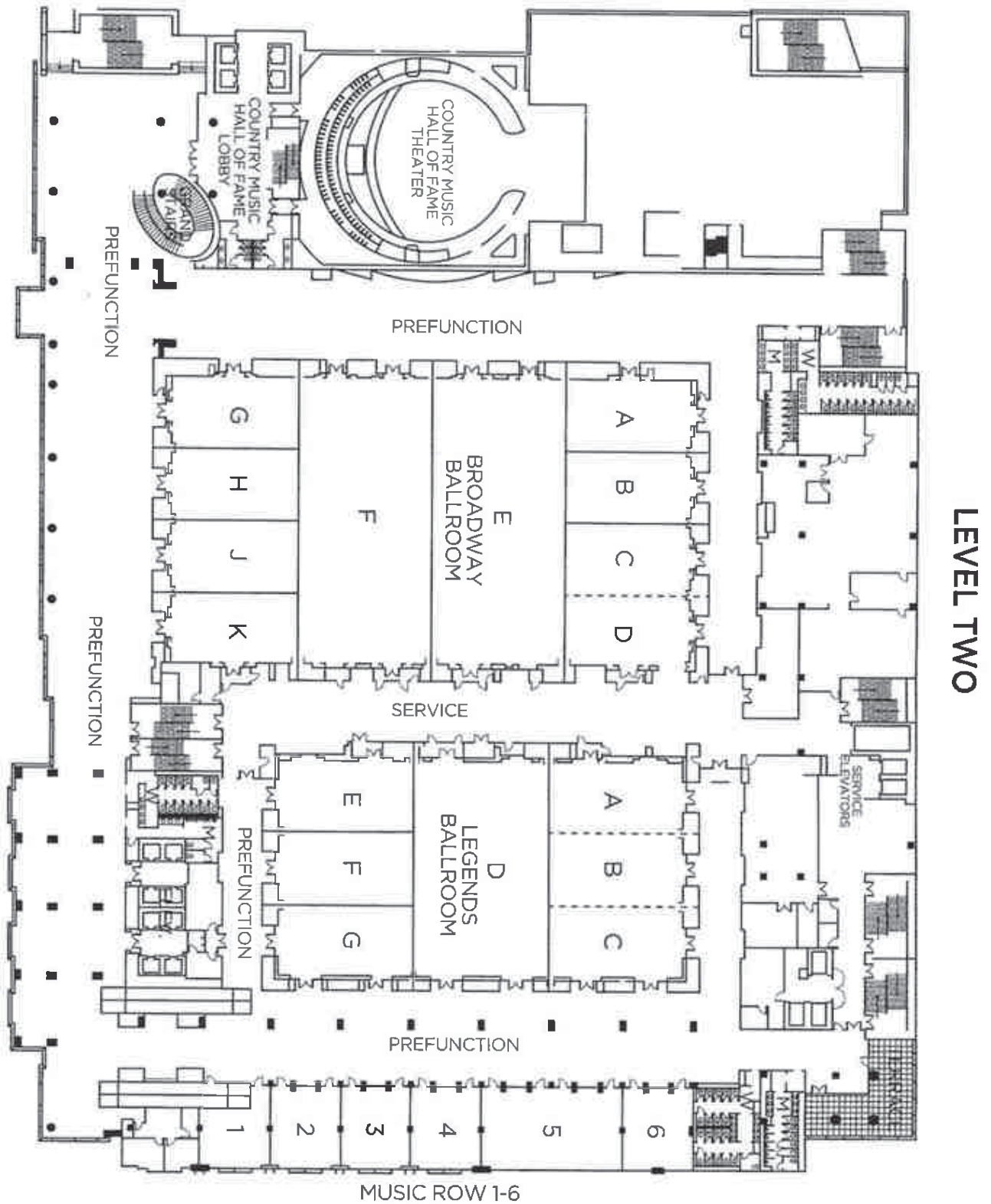
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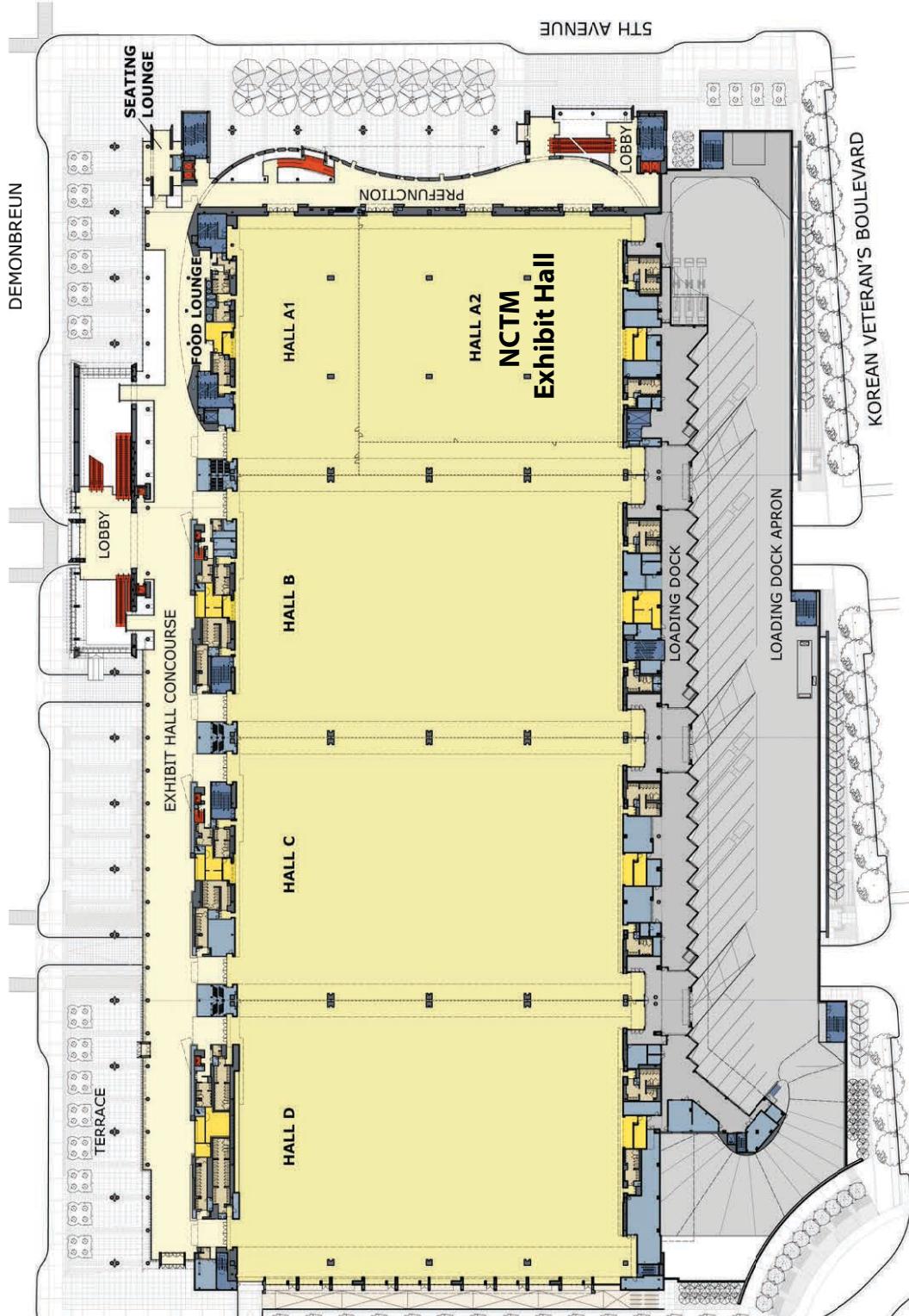


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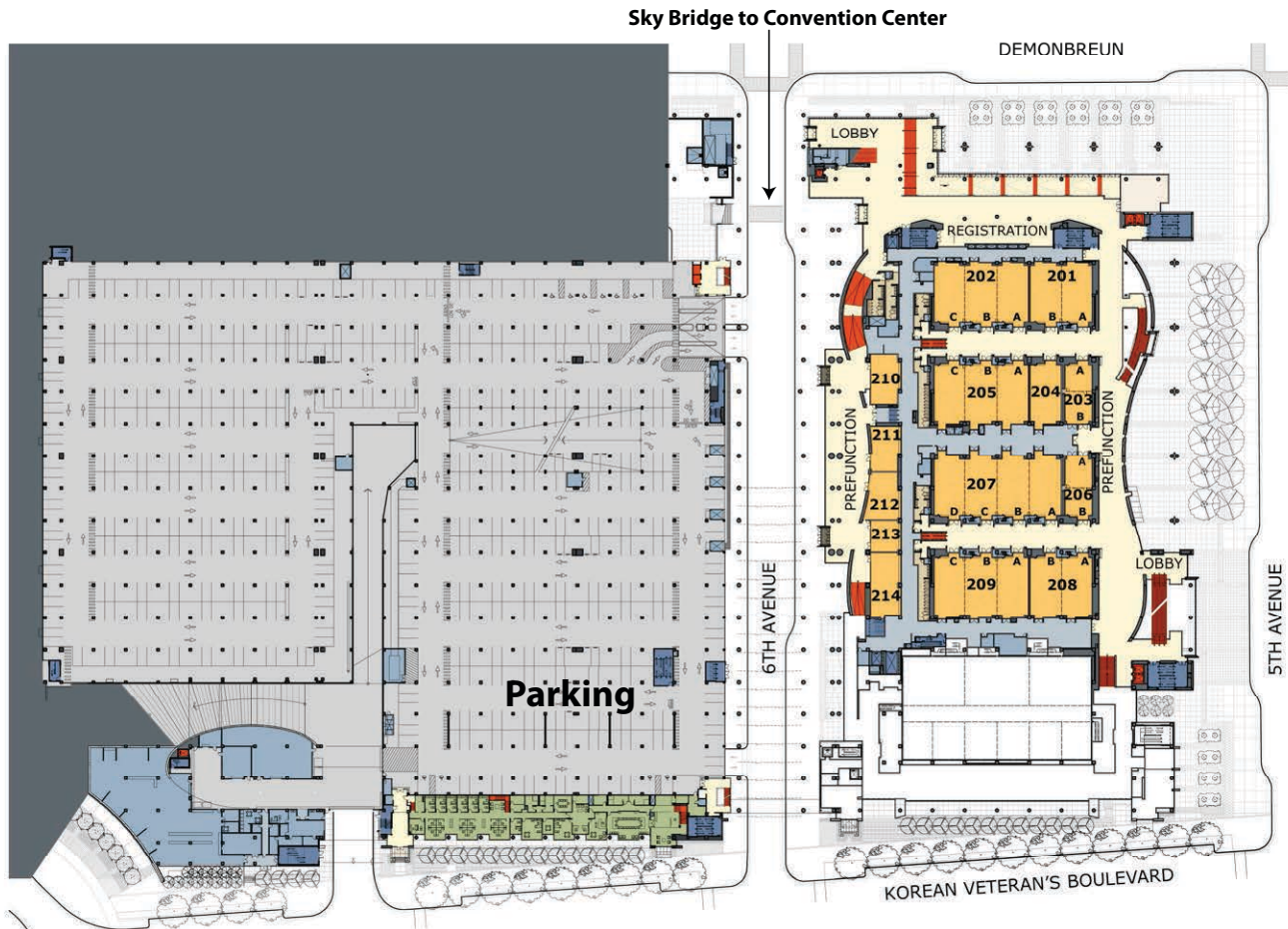


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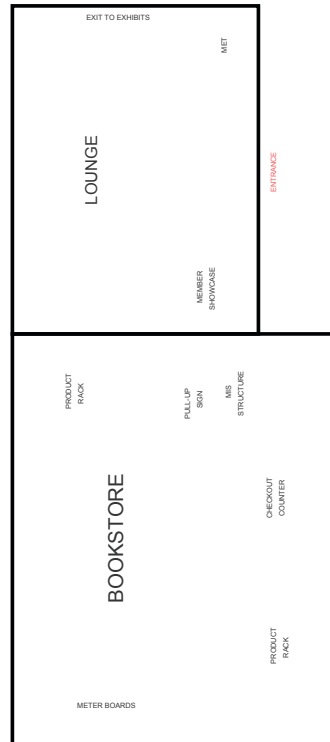
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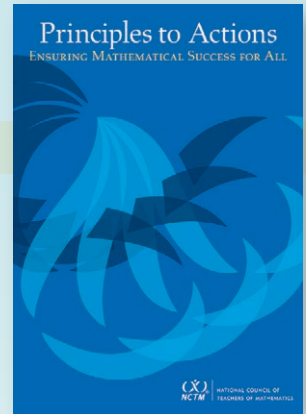
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Marshall Cavendish Education is a global provider of holistic education curricula that help teachers become facilitators and students to be critical thinkers. The company's products are published in 11 languages, in more than 50 countries, and are used by K–grade 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.

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Booth 608

Minneapolis, MN
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www.movingwithmath.com

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Booth 211

Alexandria, VA
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www.mathcounts.org

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www.moems.org

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N

NASA

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www.nasa.gov/sls

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Booth 103

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www.mathedleadership.org

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www.neufeldlearning.com

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R

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TODOS Mathematics for ALL

Booth 102

Tempe, AZ
www.todos-math.org

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Booth 102

Wynnewood, PA
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Booth 213

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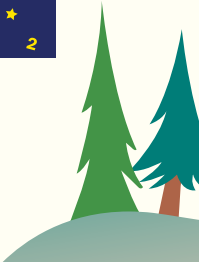
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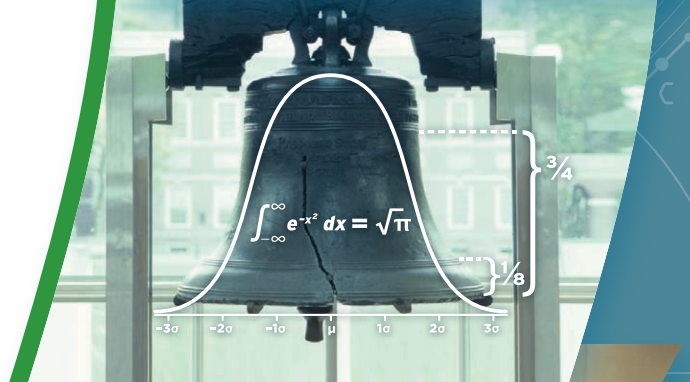
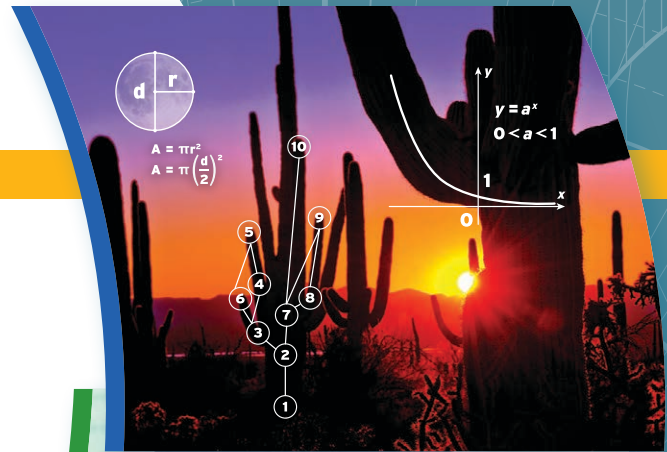
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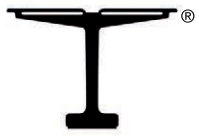


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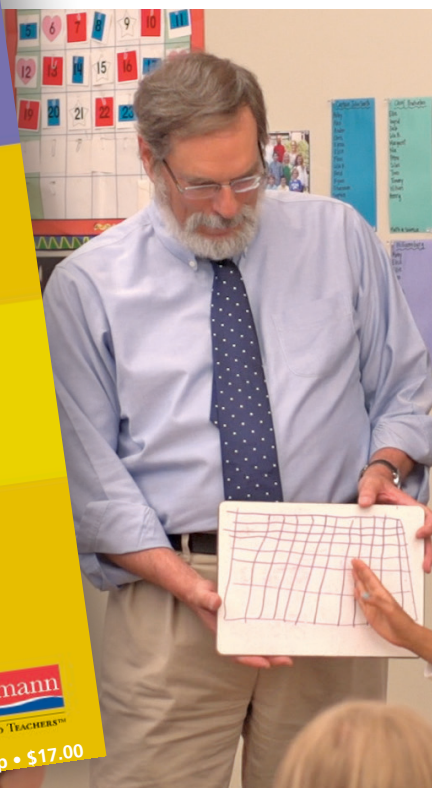
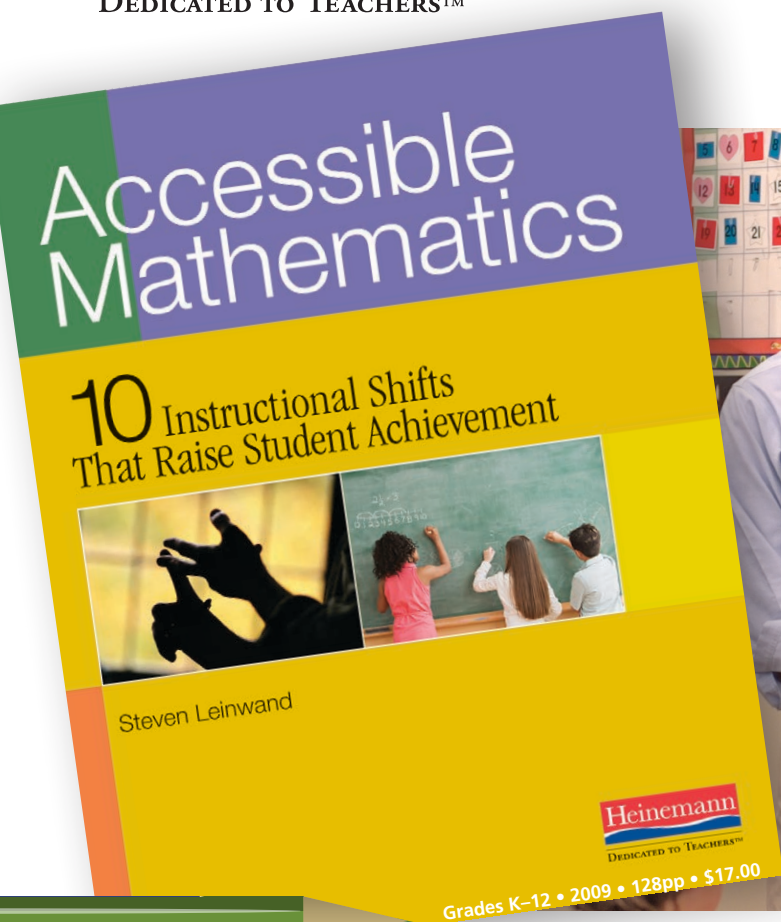
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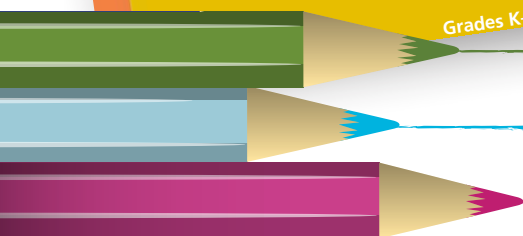
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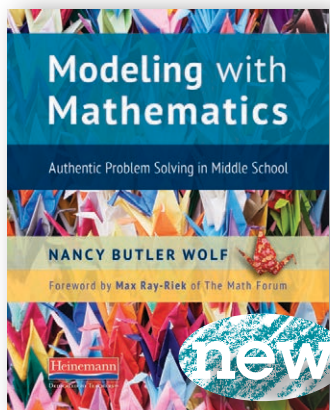
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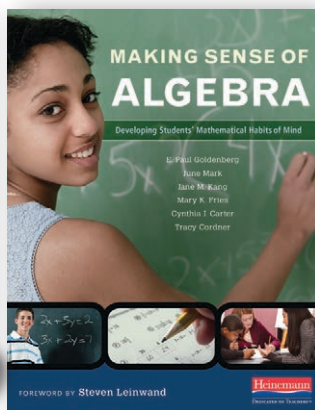
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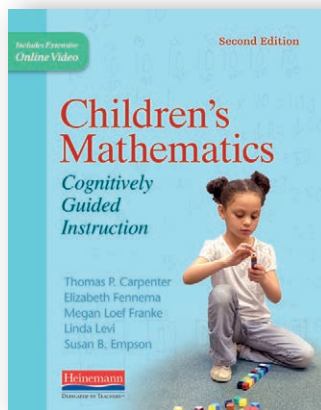
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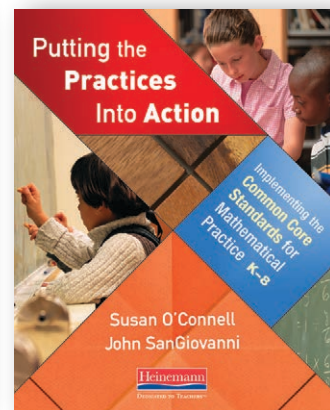
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