

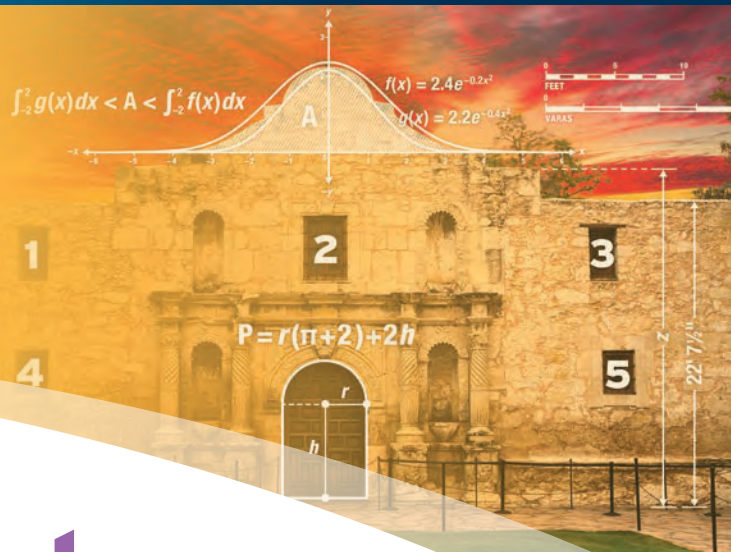


NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENT

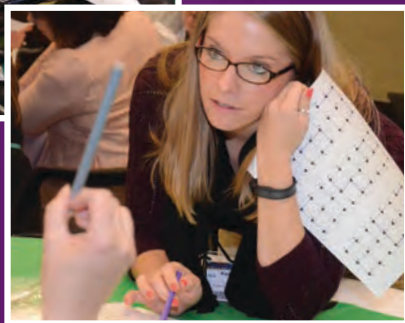
NCTM ANNUAL MEETING & EXPOSITION

April 5-8 | San Antonio



Program Book

See Valuable
COUPONS
beginning on
page 237



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NCTM ANNUAL MEETING & EXPOSITION 2017

April 5-8 | San Antonio

HOST

Alamo District Council of Teachers of Mathematics
Texas Council of Teachers of Mathematics

MEETING FACILITY

All Annual Meeting presentations will be held at the Henry B. Gonzalez Convention Center and the Grand Hyatt San Antonio. See pages 199–205 for floor plans.

REGISTRATION

| | |
|-----------|-----------------------|
| Wednesday | 8:00 a.m. – 7:00 p.m. |
| Thursday | 7:00 a.m. – 5:00 p.m. |
| Friday | 7:00 a.m. – 5:00 p.m. |
| Saturday | 7:00 a.m. – Noon |

EXHIBITS

| | |
|----------|-----------------------|
| Thursday | 8:00 a.m. – 5:00 p.m. |
| Friday | 8:00 a.m. – 5:00 p.m. |
| Saturday | 8:00 a.m. – Noon |

NCTM CENTRAL

| | |
|-----------|------------------------|
| Wednesday | 10:00 a.m. – 7:00 p.m. |
| Thursday | 8:00 a.m. – 5:00 p.m. |
| Friday | 8:00 a.m. – 5:00 p.m. |
| Saturday | 8:00 a.m. – Noon |

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www.nctm.org/annual2017

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E-mail nctm@nctm.org; Web www.nctm.org

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Welcome to San Antonio!

Welcome to the NCTM 2017 Annual Meeting & Exposition! You're a part of the world's largest annual meeting for mathematics education, which brings together classroom teachers; school, district, and state mathematics education leaders; administrators; mathematics teacher educators; mathematicians; and researchers from around the world. You'll see and hear new ideas and approaches that you can take away to do your part to provide more and better mathematics for each and every student. We hope you'll connect with friends and colleagues—both new and familiar—to share ideas and information. The variety of our sessions, workshops, bursts, and networking opportunities will spark your imagination and send you back home energized to put what you've learned into practice. Our goal is for you to have the best professional learning experience possible and for you to leave San Antonio with new ideas, tools, and materials to share with your students and colleagues alike.

If this is your first NCTM Annual Meeting, you're in for a professional treat. To make the most of the conference, be sure to attend one of the Annual Meeting Overview & Orientation sessions to familiarize yourself with everything that's available to you. Even veterans of NCTM conferences may want to attend the orientation to learn about what's new at this year's conference. And whether you're a first-timer or long-timer, I want to call your attention to ShadowCon at 5:00 p.m. on Thursday, April 6. Because of its growing popularity and an overwhelming demand, over the past three years we've made it part of the NCTM Annual Meeting experience.

A conference this size depends on the work of hundreds of volunteers—many of them at the local level. We want to thank all of them. To support our theme of Creating Communities

and Cultivating Change, the Program Committee has been working for two years to put together a diverse program with presentations covering a wide range of topics. With hundreds of sessions to choose from, note especially the focus strands and the equity strand in the program. Preservice teachers and those in their first few years in the classroom will want to check out the special New Teacher strand with sessions designed to especially support those who are early in their careers. And the conference doesn't end when you leave. Once again this year we're offering an extended meeting experience, so after you leave San Antonio go to NCTM.org to find out how you can get more out of the conference. While you're here, be sure to take advantage of the Exhibit Hall, which gives you access to dozens of vendors who are willing and eager to talk to you about what they have to offer.

Finally, when the conference day is over, join your colleagues and experience one of America's great cities, which just happens to be right in the heart of Texas. Visit the World Heritage Designation site of the San Antonio Missions. Walk to the Alamo, the Briscoe Western Art Museum, the Institute of Texan Cultures, or the San Fernando Cathedral. Steps from the convention center, the River Walk offers many options for food and fun with longtime favorites Casa Rio, La Gloria, and Rio Rio Cantina. The Texas wildflowers, in full bloom at this time, enrich a beautiful drive along the countryside on to other excursions such as to the Natural Bridge Caverns or the old John T. Floore Country Store Honky Tonk. Join the millions of other people who make San Antonio their destination for its rich culture and its love for enjoying life with family and friends.

Wherever you go and whatever you do, enjoy your time in San Antonio.



Matt Larson
*President, National Council
of Teachers of Mathematics
Lincoln Public Schools,
Nebraska*



Sarah B. Bush
*Program Committee Chair
Bellarmine University,
Kentucky*



Linda Gann
*Host Affiliate Liaison
Alamo District Council of
Teachers of Mathematics and
Texas Council of Teachers of
Mathematics*

The NCTM 2017 Annual Meeting & Exposition officially begins with the Opening Session, starting at 5:30 p.m. on Wednesday, April 5, in the Stars at Night Ballroom at the Henry B. Gonzalez Convention Center. Presentations on Thursday, Friday, and Saturday begin at 8:00 a.m. each day and are scheduled concurrently throughout the day at both the Henry B. Gonzalez Convention Center and the Grand Hyatt hotel.

We have made every attempt to offer adequate seating for participants at the Annual Meeting & Exposition. The room capacity for each presentation is listed on all meeting room signs. For your safety and because of fire regulations, only those with seats will be allowed in meeting rooms.

Please remember:

- All meeting rooms will be cleared between presentations.
- All seats are available on a first-come, first-served basis.
- Reserving spaces in line or saving seats is not permitted.
- In compliance with fire codes, sitting on the floor or standing is not permitted.
- As a courtesy to the speakers and your colleagues, please silence your cell phone during all presentations.

Annual Meeting Overview & Orientation

Whether you're new to NCTM or a seasoned veteran, there is something new at the conference for everyone! Hosted by members of the Board of Directors, this session will show you how to maximize your overall conference experience. Learn all the new, innovative aspects this year's meeting is showcasing or discover something you've missed in the past. Find out how to navigate presentations, learn how to use the conference app, and network with other attendees.

Wednesday

Presentation #1

4:00 p.m.–4:30 p.m.

Room 221 (Henry B. Gonzalez Convention Center)

Thursday

Presentation #3

7:15 a.m.–7:45 a.m.

Room 221 (Henry B. Gonzalez Convention Center)


Types of Presentations

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

Sessions (60 minutes) allow speakers to convey information about multiple topics or broad ideas in lecture format. Rooms are set in either theater or classroom style.

Workshops (75 minutes) allow speakers to engage participants in an interactive environment. Rooms are set with round tables for hands-on activities.

Bursts (30 minutes) allow speakers to quickly convey information on a specific topic or idea. Rooms are set with round tables.

Exhibitor Workshops (60 minutes) are set theater style. Exhibitors showcase their products and services. Look for the symbol  indicating exhibitor workshops in the program book.

Reflection Coves

Highlighted and invited speakers will be assigned coves on the second and third floors of the Henry B. Gonzalez Convention Center to continue the conversation from their sessions in an informal setting. You must be present at their sessions to receive information about the locations for these speakers. When you review presentation titles and descriptions, be on the lookout for presentations tagged **REFLECTION COVE**. Take this opportunity to continue the discussion with these highlighted speakers or join a K–5, 6–8, or 9–12 Math Teacher's Circles cove.

Cove Times

| | | |
|------------|---|------------|
| 9:30 a.m. | – | 10:30 a.m. |
| 11:00 a.m. | – | 12:00 p.m. |
| 12:30 p.m. | – | 1:30 p.m. |
| 2:00 p.m. | – | 3:00 p.m. |

Grade Bands

To help you find appropriate presentations to attend, each presentation lists the presentation's target grade band audience:

- **Pre-K–Grade 2**
- **Grades 3–5**
- **Grades 6–8**
- **Grades 8–10**
- **Grades 10–12**
- **Higher Education**—university- and college-level issues (including both two-year and four-year institutions)
- **Coaches/Leaders/Teacher Educators**
- **General Interest**—Issues of interest to multiple grades and audiences
- **Research**

FOCUS STRANDS

ACCESS AND EQUITY: TEACHING MATHEMATICS WITH AN EQUITY STANCE

Sessions will focus on instructional practices and strategies that meet the needs of all students, including Response to Intervention (RTI)/Multi-Tiered Systems of Supports (MTSS), Universal Design for Learning (UDL), culturally responsive pedagogy (CRP), social justice, inclusion, and differentiation. Sessions may also address practices and strategies that target English language learners (ELL), students who are gifted, students with special needs, students who struggle in the regular classroom, and diverse populations such as students from various cultural, racial, and socioeconomic backgrounds.

ASSESSMENT: A TOOL FOR PURPOSEFUL PLANNING AND INSTRUCTION

Proposals in this strand will provide examples of varying types of assessments that offer teachers important information in the planning of future learning experiences. Those assessments can provide evidence of proficiency, include a variety of strategies and data sources, and inform feedback for students, instructional decisions, and program improvement.

BUILDING CONCEPTUAL AND PROCEDURAL UNDERSTANDING

When students possess conceptual understanding of mathematical concepts, they recognize connectedness among mathematical ideas, are fluent in multiple forms of representations, and can communicate and justify the strategies they employ in problem-solving situations. Sessions in this strand will highlight mathematical ideas that enable students to choose flexibly among methods and strategies.

PROFESSIONALISM: LEARNING TOGETHER AS TEACHERS

This strand focuses on teachers learning through collaborative networks. Sessions will showcase ways in which teachers can build these learning experiences and find opportunities to expand their network. Examples such as mentoring, lesson studies, book studies, collaborative planning, coaching, and social media represent various collaborative learning experiences, whether face-to-face or virtual.

TEACHING, LEARNING, & CURRICULUM: BEST PRACTICES FOR ENGAGING STUDENTS IN PRODUCTIVE STRUGGLE

Sessions in this strand focus on best practices for engaging each and every student in productive struggle by highlighting students' meaningful learning experiences that promote sense making and perseverance through challenging and engaging mathematics. Sessions include, but are not limited to, designing and implementing high cognitive demand tasks, developing learning progressions/trajectories, and leveraging student work to orchestrate productive mathematical talk (purposeful discourse).

THE "M" IN STEM/STEAM

Presentations in this strand will highlight the mathematical focus of integrated STEM/STEAM inquiry-based instruction. Attendees will find sessions that allow participants to explore mathematics in an integrated, interactive, and hands-on way that has direct connections to the latest developments in engineering, computer science, physical science, design and aesthetics, architecture, and more.

TOOLS AND TECHNOLOGY: USING TECHNOLOGY TO EFFECTIVELY TEACH AND LEARN MATHEMATICS

In these sessions, presenters will address the purposeful implementation of technology, using technology to help students communicate their mathematical thinking, or using technology to visualize and understand mathematical ideas. When possible, sessions should prepare teachers to successfully resolve situations when technology implementation doesn't go as planned.

EQUITY STRAND

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

MATHEMATICAL ASSOCIATION PRESIDENTS' SERIES

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

NCTM COMMITTEE STRAND

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

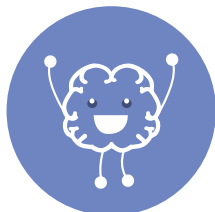
NEW TEACHER STRAND

This strand offers sessions and workshops targeting the questions and concerns of new teachers and those training to become teachers. Presentations are grade-band specific and include topics from management and motivation, to engaging struggling students, to a celebration of those beginning their teaching careers. The strand targets early-career teachers and those working on certification; all are welcome.

Start early with the New Teacher Workshop & Kickoff (presentation #41) on Thursday at 8:00 a.m. and finish with the New Teacher Celebration (presentation #542) on Friday at 3:15 p.m. for more fun. Visit **www.nctm.org/newteacher** for more information.



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COUNTS

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Learn more about how your students can reach math proficiency: play games, meet authors, and win prizes along the way.

Booth #1024

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HIGHLIGHTS

The Research Conference is free on Wednesday to Annual Meeting registrants.

Opening Session, 2

GET SOCIAL

Stay informed and get connected with attendees by using #NCTMannual on social media.



Conference App
www.nctm.org/confapp



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 @NCTM



Instagram
 @NCTM.math



Facebook
www.facebook.com/TeachersofMathematics

REGISTRATION HOURS

8:00 a.m.–7:00 p.m.

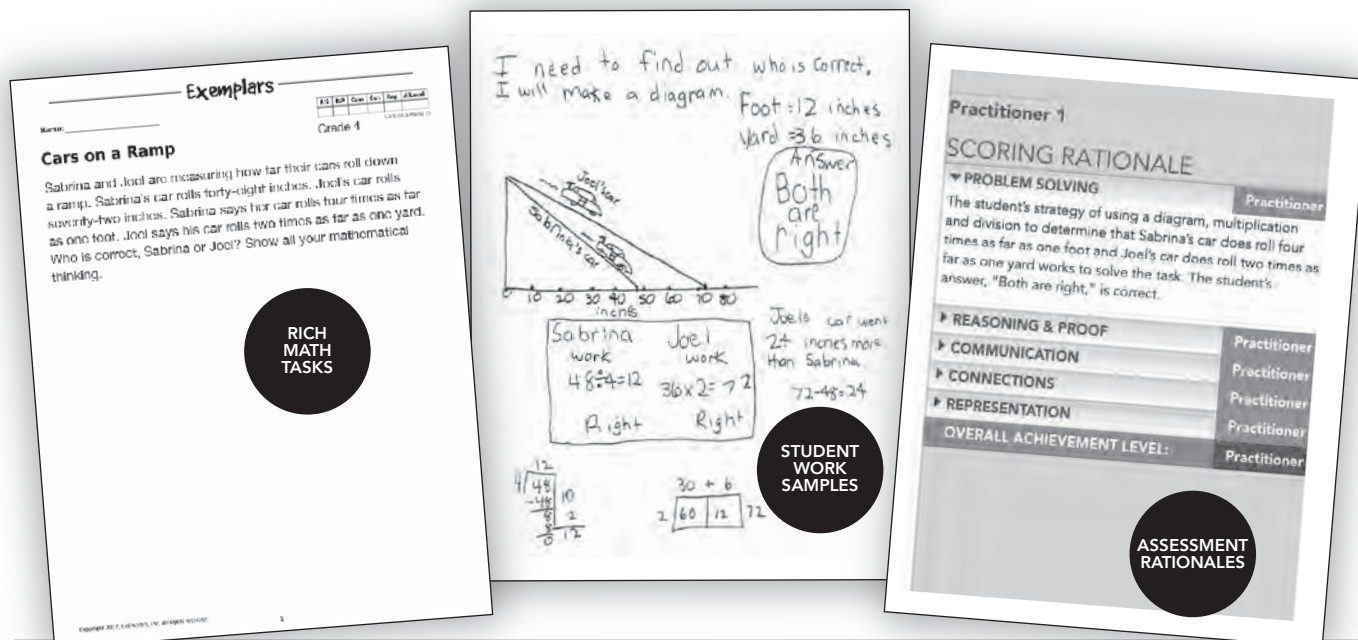
NCTM CENTRAL HOURS

10:00 a.m.–7:00 p.m.

FIRE CODES

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

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1

Annual Meeting Overview & Orientation**General Interest Session**

Whether you are new to NCTM or a seasoned veteran, there is something new at the conference for everyone! Hosted by members of the Board of Directors, this session will show you how to maximize your overall conference experience. Learn all the new, innovative aspects this year's meeting is showcasing or discover something you've missed in the past. Find out how to navigate presentations, learn to use the Conference App, and take the opportunity to network with other attendees.

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

Henry B. Gonzalez Convention Center, 221

2

How Not to Be Wrong: The Power of Mathematical Thinking**General Interest Session**

The math we learn in school can seem like a dull set of rules, laid down by the ancients and not to be questioned. In this talk, Jordan Ellenberg shows us how wrong this view is: Math touches everything we do, allowing us to see the hidden structures beneath the messy and chaotic surface of our daily lives. It's a science of not being wrong, worked out through centuries of hard work and argument. Drawing from history as well as the latest theoretical developments, Ellenberg demonstrates that profound mathematical ideas are present whenever we reason, from the commonplace to the cosmic. He also shows how you can use this knowledge in your own life, whether you're a business looking to discover the power of big data, a corporate audience out to improve logic and understanding within your organization, or a college crowd with an appetite for the latest research by one of America's rising scholarly stars.

Jordan Ellenberg is a professor of mathematics at the University of Wisconsin–Madison and the author of two books: *How Not to Be Wrong: The Power of Mathematical Thinking*, and *The Grasshopper King*, which was a finalist for the New York Public Library Young Lions Fiction Award. His work has appeared in the *New York Times*, the *Wall Street Journal*, the *Washington Post*, *Wired*, *The Believer*, and the *Boston Globe*, and he is the author of the “Do the Math” column in *Slate*. In 2013 he was named one of the inaugural class of Fellows of the American Mathematical Society.

The 2017 NCTM Lifetime Achievement Awards will be presented to Margaret J. (Peg) Kenney, posthumously, and J. Michael Shaughnessy at the Opening Keynote.

Jordan Ellenberg
University of Wisconsin–Madison

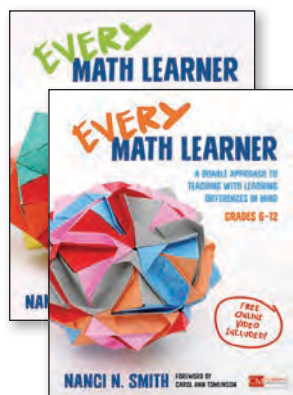
Henry B. Gonzalez Convention Center, Stars at Night Ballroom

Join us at the **Lifetime Achievement Award Celebración Reception** (ticketed event) hosted by the Mathematics Education Trust (MET) on Wednesday evening after the Opening Session. Toast the 2017 awardees, enjoy light refreshments, and engage in lively conversations. Attendees will be entered in a drawing to win a bundle of MET products (valued at \$195)!



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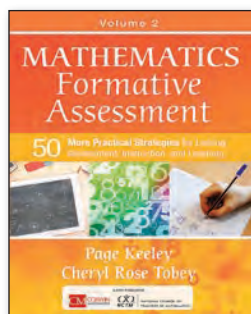
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Francis (Skip) Fennell,
Beth McCord Kobett,
and Jonathan A. Wray

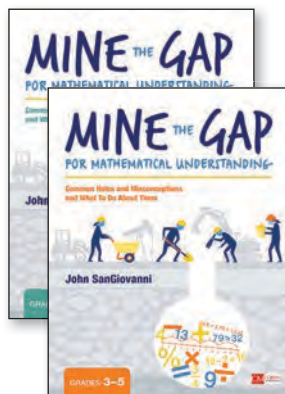
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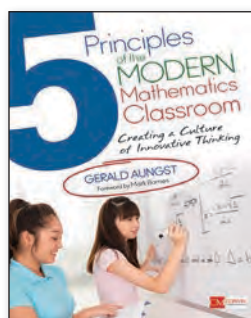


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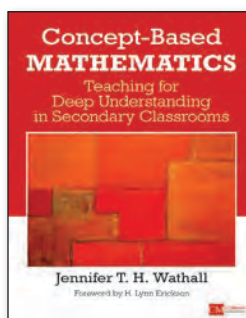
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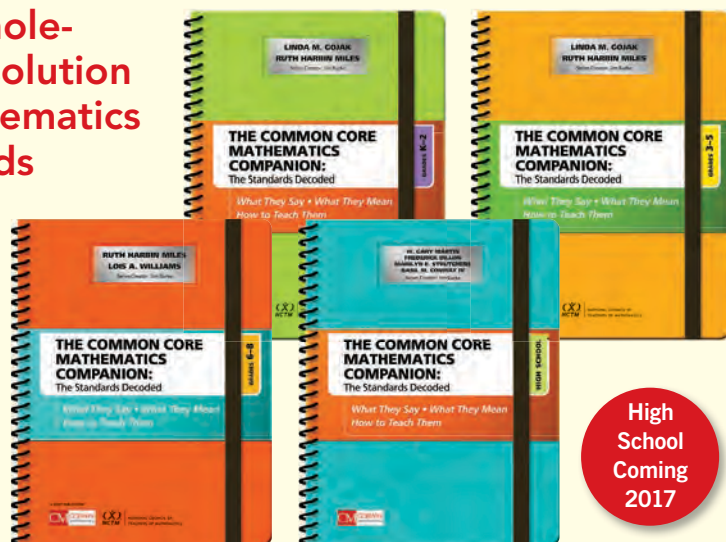


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List Price: \$34.95, *Your Price: \$24.47

Ruth Harbin Miles and Lois Williams

Grades: 6-8, ISBN: 978-1-5063-3219-2,
List Price: \$34.95, *Your Price: \$24.47

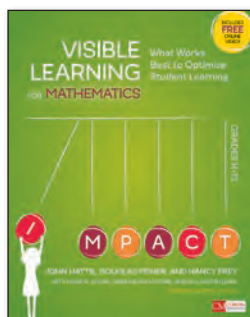
W. Gary Martin, Frederick Dillon,
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2. Additional App functionality is available for purchase. Subject to change without notice.

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 @NCTM.math



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www.facebook.com/TeachersofMathematics

REGISTRATION HOURS

7:00 a.m.—5:00 p.m.

EXHIBIT HOURS

8:00 a.m.—5:00 p.m.

NCTM CENTRAL HOURS

8:00 a.m.—5:00 p.m.

FIRE CODES

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

3 PROF

Annual Meeting Overview & Orientation

General Interest Session

Whether you are new to NCTM or a seasoned veteran, there is something new at the conference for everyone! Hosted by members of the Board of Directors, this session will show you how to maximize your overall conference experience. Learn all the new, innovative aspects this year’s meeting is showcasing or discover something you’ve missed in the past. Find out how to navigate presentations, learn to use the Conference App, and take the opportunity to network with other attendees.

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

Henry B. Gonzalez Convention Center, 221

Regional Caucuses

The NCTM Affiliates’ Regional Caucuses and Delegate Assembly are open to any interested NCTM member. These sessions provide a forum and opportunity for sharing information on emerging issues and offer insight into the ways in which the Council might address issues facing mathematics education and the organization. See Session 54 for the Delegate Assembly information. The Regional Caucuses information is below.

Henry B. Gonzalez Convention Center

| CAUCUS | PRESIDERS | ROOMS |
|---------------------|---|---------------------------|
| Affiliates-at-Large | Gina Kilday, Metcalf Elementary School, Exeter, Rhode Island | Hemisfair Ballroom 2 |
| Canadian | Marj Farris, (Retired), La Crete, Alberta, Canada | Hemisfair Ballroom 2 |
| Central | Jean Lee, University of Indianapolis, Indiana Becky Walker, Cooperative Educational Services Agency, Green Bay, Wisconsin | Stars at Night Ballroom 1 |
| Eastern | Catherine Boutin, John F Deering Middle School, West Warwick, Rhode Island Kathleen (Taffy) McAneny, West Chester University, Landenberg, Pennsylvania | Hemisfair Ballroom 1 |
| Southern | Betty B. Long, Appalachian State University, Boone, North Carolina Jeremy Zelkowski, University of Alabama, Tuscaloosa | Hemisfair Ballroom 3 |
| Western | Joanie Funderburk, Student Achievement Partners, Parker, Colorado Jill Sumerlin, Tillamook School District, Tillamook, Oregon | Stars at Night Ballroom 4 |



5 A&E**A Brief History of Math, The Musical****General Interest Session**

A stylized history of elementary mathematics (up to the beginnings of calculus) should be shared with the masses! No better way to learn about mathematical folk and ideas than in song! Unfortunately, it's a one-man act, so the singing might leave a lot to be desired. But, if you've got the stomach for parodies, come join your crazy ex-math teacher!

Lee Stiff

Past President, National Council of Teachers of Mathematics, Reston, Virginia; North Carolina State University, Raleigh

Henry B. Gonzalez Convention Center, Stars at Night 2&3

6 A&E**An Innovative Online Course for Math Teachers: How to Teach ELLs****Coaches/Leaders/Teacher Educators' Session**

We introduce an innovative online course, Teaching Mathematics to English Language Learners, designed for K–12 preservice and in-service teachers. Participants explore course activities of research-based ELL strategies through case studies and practices in diverse classroom situations. We will also share the responses and impact of the course.

Ji Yeong I

Iowa State University, Ames

Ricardo Martinez

Iowa State University, Ames

Henry B. Gonzalez Convention Center, 008AB

7 TLC**Beyond Superficial: Use Rigorous Mathematics to Engage Students in Global Challenges****6–8 Session**

Deeply engage students in productive struggle through rigorous math projects using the precision of mathematics to explore the ambiguities of global issues. This presentation shares an approach to CCSS-aligned math projects that incorporates team and personalized learning with performance-based learning exhibits. Sample student work and hands-on tasks are included.

Tamar Posner

[@mathaction.org](https://twitter.com/mathaction.org)

MathAction, Oakland, California

Grand Hyatt San Antonio, Travis CD

8 BUILD**BIG Problems Become Small Problems When Mathematical Modeling Is Used****6–8 Session**

This session will engage participants in solving non-routine problems through modeling. Participants will examine the use of tape diagrams, double number lines, percent tables, and the Cartesian coordinate plane to solve ratio and proportion problems. We will also examine why unit rates and scale factors are the best ways to solve proportions.

Anne Collins

Lesley University, Cambridge, Massachusetts

Grand Hyatt San Antonio, Lonestar Ballroom F

Create your personal
schedule using the
**online conference
planner** by visiting
nctm.org/planner



9 **TLC** REFLECTION COVE**Breathing Classroom Life into the Eight NCTM Teaching Practices****General Interest Session**

We can summarize the eight Mathematics Teaching Practices in *Principles to Actions* as goals, tasks, representations, discourse, questioning, fluency, struggle, and evidence. This fast-paced, example-laden presentation will provide examples by which we'll model and discuss each of these critical research-affirmed practices.

Steven Leinwand

American Institutes for Research, Washington, D.C.

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre

10 **TECH** REFLECTION COVE**Classroom Dessert: Putting Assessment into Students' Hands****General Interest Session**

A fine meal is topped off by a carefully crafted dessert; in the classroom, it's called "assessment," and it often lacks flavor. The authors of *The Classroom Chef* rethink how we assess our students, empowering them by tapping into their voice. Leave with ready-to-use resources for authentic assessment in your class.

John Stevens

@jstevens009

Chaffey Joint Union High School District, Ontario, California

Matt Vaudrey

Bonita Unified School District, San Dimas, California

Henry B. Gonzalez Convention Center, 217D

NEW BOOK**Uncover Your Professional Impact****HEART!**

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As a Teacher and Leader



Timothy D. Kanold

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—Scott Carr, middle-level reconfiguration coordinator, Liberty Public Schools, Missouri

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or at SolutionTree.com/Heart



Solution Tree

11 TECH**Coding Computer Games to Motivate Middle School Math Class****6–8 Session**

We will share how we have used the free computer programming software Scratch from MIT to reinforce math concepts. By utilizing paired programming techniques, students create games that help them channel creative energy while coding games that use coordinates, quadrants, comparing, ordering, and logical thinking skills.

Joanne Barrett

🐦 @jbarrettsrq

The Out-of-Door Academy, Sarasota, Florida

Joanna Johnson

The Out-of-Door Academy, Sarasota, Florida

Henry B. Gonzalez Convention Center, 301

12 PROF**Context in Content: The Purpose of Project-Based Learning in Mathematics****10–12 Session**

This session will be a deep dive into the why and the how of project-based learning curriculum in mathematics. Topics will include: selection of state standards, project ideation and implementation, and exploration of actual exemplar as well as non-exemplar student project work.

Pedro Merced

🐦 @pjmerced

Manor New Technology High School, Manor, Texas

Sarah DiMaria

Manor New Technology High School, Manor, Texas

Grand Hyatt San Antonio, Presidio ABC

13 ASSESS**Defining Number Concept and Number Sense****Coaches/Leaders/Teacher Educators' Session**

One district's journey to create a common definition of number concept and number sense leading to eNumeracy. The eNumeracy system can be used as universal screeners, benchmarks, progress monitoring tools, and even diagnostics. This FREE system was locally normed to create a multi-tiered system of support in K–3 elementary math.

Carrie Fortunato

Burlington Public School District, Massachusetts

Henry B. Gonzalez Convention Center, 205

14 TLC**Engaging PK-2 Students in Productive Struggle****Pre-K–2 Session**

In this session, we will explore problem-solving tasks that provide students opportunities to grapple with mathematical concepts. This session will also allow participants to reflect on instructional strategies designed to support all students in productive struggle as outlined in NCTM's *Principles to Actions*.

Jenni McCool

University of Wisconsin-La Crosse, La Crosse, Wisconsin

Jennifer Koaik

University of Wisconsin-La Crosse, La Crosse, Wisconsin

Kim Markworth

Western Washington University, Bellingham, Washington

Grand Hyatt San Antonio, Crockett CD

15 A&E**Enhancing Deeper Learning for English Language Learners and Students Who Are Struggling****6–8 Session**

This session will provide research-based instructional strategies that help English learners, students with disabilities, and other struggling students to achieve deeper understanding of math concepts. Examples that improve success will be discussed in an interactive manner, with the goal to ensure equitable and high-quality mathematics education.

William Jasper

Sam Houston State University/TODOS, College Station, Texas

Grand Hyatt San Antonio, Lonestar Ballroom E

16 PROF**Feedback as a Fractal: Developing a Toolkit for Effective Feedback****Coaches/Leaders/Teacher Educators' Session**

For students, teacher feedback is critical for improving learning. Similarly, feedback from a coach is essential for improving teacher practice. Is there a correlation between the two? In this session, we share specific feedback tools that can be used by coaches and teachers to improve teaching and learning.

Stephanie Slabic

Metamorphosis Teaching Learning Communities, New York, New York

Antonia Cameron

Metamorphosis Teaching Learning Communities, New York, New York

Henry B. Gonzalez Convention Center, 214A

17 PROF**Finally! A Coaching Framework That's Actually about the Math****Coaches/Leaders/Teacher Educators' Session**

Looking to improve feedback for math teachers? Experience the power of the MQI in focusing discussions of math instruction and guiding teachers' growth. The Mathematical Quality of Instruction (MQI) is a Common Core-aligned, math-specific rubric. Promising preliminary research findings show how MQI video-based coaching model helps teachers.

Claire Gogolen

MQI Coaching, Cambridge, Massachusetts

Samantha Booth

MQI Coaching, Cambridge, Massachusetts

Grand Hyatt San Antonio, Republic ABC

18 ASSESS**Fractions: Developing Understanding through Meaningful Tasks and Discussion****3–5 Session**

Participants will examine various fraction tasks, fractional models, and student work in order to explore ways to build conceptual understanding about equivalency and computation. Explore specific strategies for utilizing the Mathematics Teaching Practices to promote fractional understanding. Video and math tasks from classrooms will be analyzed.

Megan Burton

Auburn University, Alabama

Elizabeth Daniel

Auburn University, College of Education, Alabama

Madison Hutto

Auburn University, Alabama

Grand Hyatt San Antonio, Bowie ABC

19 TLC REFLECTION COVE**Framing Mathematics Instruction with the TQE Process****General Interest Session**

The presenters will use classroom video to introduce the TQE process and how it can be used to frame mathematics instruction with (1) TASKS that promote thinking, prompt discourse, and reveal misconceptions; (2) QUESTIONS that advance understanding; and (3) EVIDENCE from the formative assessment process.

Thomasenia Adams

[@TLAMath](#)

University of Florida, Gainesville, Florida

Edward Nolan

Towson University, Maryland

Juli Dixon

University of Central Florida, Orlando

Henry B. Gonzalez Convention Center, 221

20 TECH

Harnessing the Power of 1:1 Classrooms: Integrating Devices to Support Conceptual Understanding

Coaches/Leaders/Teacher Educators' Session

Participants will be engaged in a discussion on how to support teachers in developing lessons that use technology to support conceptual understanding. This will include an activity in which leaders develop strategies for supporting teachers in this work by examining and providing feedback on lesson plans.

Lorraine Males

@drmalesmathed

University of Nebraska-Lincoln

Joshua Males

Lincoln Public School District, Nebraska

Henry B. Gonzalez Convention Center, 214C

21 A&E

Improving Girls' Mathematics Achievement by Improving Spatial Skills

General Interest Session

Girls tend to have lower spatial skills than males, and these skills have been linked to mathematics achievement. This presentation will discuss spatial visualization research and evidence-based interventions that promote gender equity and success in mathematics and also why spatial visualization training is vital, especially for low performing girls.

Martha Carr

University of Georgia, Athens

Sheryl Sorby

Ohio State University, Columbus, Ohio

David Uttal

Northwestern University, Evanston, Illinois

Grand Hyatt San Antonio, Crockett AB

22 PROF

Learning to Listen: Using Clinical Interviews for Professional Growth

Coaches/Leaders/Teacher Educators' Session

Come learn how we use clinical interviews to deepen our understanding of how students think about math. We will watch videos of interviews and analyze teacher learning from this process. You will leave the session with tools to implement and analyze clinical interviews with teacher teams in your school.

Nicora Placa

@nicoraplaca

Hunter College, New York, New York

Grand Hyatt San Antonio, Lonestar Ballroom D

23 A&E

Lessons Learned from ICME-13: International Perspectives on Equity in Mathematics Classrooms

Coaches/Leaders/Teacher Educators' Session

The speakers summarize lessons learned on issues related to equity in mathematics education from the International Congress on Mathematical Education held in summer of 2016, where global educators shared strategies for increasing access to mathematics learning. Participants will consider diverse interventions that can be applied in local settings.

Susan Holloway

St. Vrain Valley School District, Boulder, Colorado

Marilyn Strutchens

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

Dave Tannor

Baker College Online, Flint, Michigan

Grand Hyatt San Antonio, Travis AB

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24 **A&E** REFLECTION COVE**Looking at Tier 1 Instruction and Tier 2 Interventions: Supporting Students Who Struggle****3–5 Session**

With a focus on multitiered systems of support, classroom teachers seek ways to develop highly engaging Tier 1 instruction and Tier 2 interventions for students who struggle in learning mathematics. This session considers interventions and assessments using multiple strategies for learning number and operations and algebraic thinking.

Karen Karp

Johns Hopkins University, Baltimore, Maryland

Henry B. Gonzalez Convention Center, 225

25 **TLC****Problems Worth Talking About: Posing Purposeful Questions for Class Discourse****6–8 Session**

Not all mathematics problems are created equal. In this session, we will share types of problem-solving problems that lend themselves to meaningful class discourse. We will focus on question posing as a first step to establishing the environment for discourse and share examples of teaching practices and student interactions from the classroom.

Linda Venenciano

University of Hawaii at Manoa, Honolulu

Fay Zenigami

University of Hawaii, Curriculum Research & Development Group, Honolulu, Hawaii

Seanyelle Yagi

University of Hawaii at Manoa, Honolulu

Henry B. Gonzalez Convention Center, 303

26 **BUILD****Raise the Bar, Deepen the Learning****3–5 Session**

This interactive workshop focuses on analyzing the Standards for Mathematical Practice, understanding levels of cognitive demand that tasks require as students engage in the practices, and exploring ways to raise and lower the demand through varied question strategies. Join us as we engage in tasks appropriate for grades 3–5.

Kit Norris

Self-employed, Southborough, Massachusetts

Sarah Schuhl

Self-employed, Gresham, Oregon

Henry B. Gonzalez Convention Center, 214B

27 **PROF****Successes & Challenges of Creating a Coaching Culture****Coaching Culture for Educators' Session**

Join a conversation and share successes and challenges of a coaching program (specifically, explore the components in place that support a strong teacher:coach partnership. Models, templates, and other resources will be shared so that members will benefit from discussing and exploring what works, and what is a challenge.

Megan Holmstrom

American School of Dubai, Dubai

Henry B. Gonzalez Convention Center, 007D

28 **TLC****The Truth about Mathematical Modeling****General Interest Session**

Ask anyone what it means to model with mathematics, and you will get different answers from each one. As we look at a set of K-12 modeling activities that spark deeper understanding of math, we will uncover what it means to meet the demands of Math Practice 4 (model with mathematics) and how to scaffold each student's experience.

Sarah Galasso

Carnegie Learning, Pittsburgh, Pennsylvania

Jill Swissa

Carnegie Learning, Chicago, Illinois

Vanessa Cerrahoglu

Orange County Department of Education, Huntington Beach, California

Henry B. Gonzalez Convention Center, 207B

8:00 A.M.–9:00 A.M.

29 **PROF**

Where We Disagree on the SMPs

8–10 Session

You probably can name all eight Standards for Mathematical Practice, but do you agree with others about what they mean? Big on vision but short on description, the SMPs leave room for interpretation. In this session, you'll see where you disagree on the SMPs, both with other attendees and with teachers who participated in a two-year research study.

Raymond Johnson

@MathEdnet

Colorado Department of Education, Denver

Grand Hyatt San Antonio, Texas Ballroom F

29.1 **ew**

Engage Reluctant Learners through 3-Act Mathematical Modeling

6–8 Exhibitor Workshop

Explore lessons that present high-interest situations in 3 acts. Engage students in relevant problems through videos to identify variables, formulate a model, perform operations, and more. You will receive enVisionmath2.0 Grades 6–8 3-Act Mathematical Modeling lesson samples with video access to use in your classroom.

Pearson Learning Services

Chandler, Arizona

Henry B. Gonzalez Convention Center, 206B

29.2 **ew**

Solving for Every Variable with Reasoning Mind

General Interest Exhibitor Workshop

Math education is complicated. Education technology usually promises a quick fix. To succeed, we have to solve for every variable. Experience how education nonprofit Reasoning Mind accomplishes this with award-winning instructional technology mathematics solutions designed by experts for a variety of curriculum needs.

Reasoning Mind

Houston, Texas

Henry B. Gonzalez Convention Center, 207A

8:00 A.M.–9:15 A.M.

30 **BUILD**

Building Conceptual Understanding: Exploring and Connecting Mathematical Ideas Using Technology

6–8 Workshop

In this session, we will explore technology-enhanced tasks that emphasize the coherence of mathematics and highlight strategies to engage and empower your students as they delve into meaningful mathematics.

George Roy

University of South Carolina, Columbia

Farshid Safi

University of Central Florida, Orlando

Brian Dean

District School Board of Pasco County, Land O' Lakes, Florida

Henry B. Gonzalez Convention Center, 304B

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THURSDAY

31 ASSESS

Co-Constructing Assessment Criteria with Students & Student Moderation of Assessment

8–10 Workshop

The goal of this presentation is to develop ways to include students in the assessment process. By allowing students to co-construct the criteria used in assessing their work (e.g., creating rubrics) and then using those criteria to assess their own work and the work of their peers by student moderation, student buy in and ownership is increased.

Patricia Loney

@MsLoneyMath

Thames Valley District School Board, London, Ontario

Henry B. Gonzalez Convention Center, 217C

32 BUILD

Early Beginnings: Creating Mathematical Thinkers

Pre-K–2 Workshop

For young learners, it is essential that they be immersed in a language-rich mathematical environment from the first day of entering school. In this session, you will learn how “the beginning processes” cultivate mathematical thinkers and communicators, and how those critical processes lead to early numeracy success.

Jessica Bobo

ORIGO Education, Inc., Earth City, Missouri

Henry B. Gonzalez Convention Center, 224

33 BUILD

Fair Sharing the Decimal Way: Understanding and Connecting Decimals, Fractions, and Division

3–5 Workshop

Come see how using equal sharing problems with your students can help support their ability to SEE how decimals, fractions, and division are related. We will compare fair sharing problems solved “the fraction way” versus “the decimal way” and discuss key features of contexts and manipulatives that support decimal AND fraction understanding.

Christy Pettis

@PettisChristy

University of Minnesota, Minneapolis

Aran Glancy

University of Minnesota, Woodbury

Pamela Richards

International Center for Leadership Education, Waconia, Minnesota

Grand Hyatt San Antonio, Texas Ballroom B

34 A&E

Fostering Rigor in Mathematics for ALL K–5

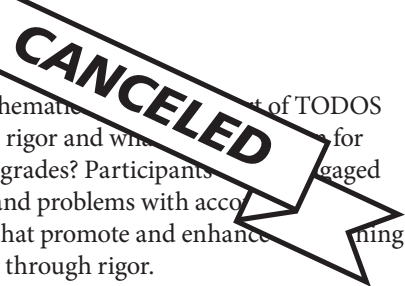
3–5 W

A rigorous mathematics... of TODOS Goal 1. What is rigor and why... for the elementary grades? Participants... engaged with activities and problems with acco... manipulatives that promote and enhance... ning of mathematics through rigor.

Don Balka

Retired, Saint Mary's College, Notre Dame, Indiana

Henry B. Gonzalez Convention Center, 302AB



Don't miss **ShadowCon** at 5:00 p.m. on Thursday, April 6. Because of its growing popularity and overwhelming demand, over the last three years we've made it part of the NCTM Annual Meeting experience.



35 A&E**Fractions on the Number Line for ALL Students****3–5 Workshop**

This session will focus on increasing teachers' conceptual understanding of fractions using the number line approach and will include activities and materials that can be adapted for use in the classroom, including best practices for working with English learners. Come and have some fun learning and interacting with others about fraction sense!

Susie Hakansson
Retired, Venice, California

Henry B. Gonzalez Convention Center, 005

36 TLC**Great Combinatorial Reasoning Activities for AP Statistics and Discrete Mathematics****10–12 Workshop**

Participants will solve challenging problems with combinations (and permutations) with surprising results. We will then complete two activities that can be used to enhance student combinatorial learning. The first uses playing cards; the second, dice. Students become very engaged in the learning process with these activities.

James Matthews
Siena College, Old Chatham, New York

Henry B. Gonzalez Convention Center, 007A

37 TLC**Launching Tasks through Questioning: What Do You Notice and Wonder?****8–10 Workshop**

Participants will consider how the questions “What do you notice?” and “What do you wonder?” can be used to launch tasks in order to promote reasoning and problem solving for all students. Join us as we engage in noticing and wondering, examine students' noticings and wonderings, and consider how to help students learn how to notice and wonder.

Amy Hillen
Kennesaw State University, Georgia
Jennifer Outzs
Pinellas County Schools, Seminole, Florida

Henry B. Gonzalez Convention Center, 217A

38 BUILD**Making Connections between Proportional Reasoning and Algebraic Thinking****6–8 Workshop**

Understanding multiplicative relationships and reasoning proportionally is essential to student success in algebra. Participants will engage in hands-on activities designed to develop proportionality at concrete levels and make explicit connections to algebraic thinking. TI-Nspire® technology will be used to explore and develop these connections.

Gloria Beswick
@grbeswick

Teachers Teaching with Technology, Louisville, Kentucky

Henry B. Gonzalez Convention Center, 304A

39 A&E**Meeting the Needs of All Students through Instructional Routines****6–8 Workshop**

The predictable nature of instructional routines make them powerful tools for engaging students with special needs and English language learners. Come learn how the uniform design of the Recognizing Repetition routine incorporates research-based support strategies to develop repeated reasoning (MP.8) in all students.

Grace Kelemanik
@gracekelemanik

Kelemanik Consulting, Natick, Massachusetts

Amy Lucenta

Math Consultant, Natick, Massachusetts

Grand Hyatt San Antonio, Texas Ballroom C

40 PROF**Navigating Professional Learning to Make Productive Mathematics Classrooms****Coaches/Leaders/Teacher Educators' Workshop**

Improving mathematics instructions can overwhelm novice and experienced teachers and coaches. This session introduces the components of high-quality mathematics instruction in a memorable and compressed format. Participants will learn how TRU Math can help them reflect on instruction, set learning priorities, and organize professional learning.

Robert Wood
@TeachMrWood

GEMS World Academy-Chicago, Illinois

Grand Hyatt San Antonio, Texas Ballroom E

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Stepping Stones 2.0 Grades K-6

This new program combines rigorous problem solving activities, engaging digital games, and a balance of print materials to enhance students' thinking and reasoning skills.

Experience all of our new products at
Booth #209

41 NT**New Teacher Workshop and Kickoff****Coaches/Leaders/Teacher Educators' Workshop**

Do you have questions on how to make it all work? Together we have answers and ideas on management, parents, homework, keeping your sanity, and more. Join other early career teachers and those still in school to learn some strategies for addressing your most pressing problems. We'll have prizes, and good ideas! All are welcome!

David Barnes

National Council of Teachers of Mathematics, Reston, Virginia

Grand Hyatt San Antonio, Texas Ballroom D

42 BUILD REFLECTION COVE**Number Talks in the Middle Grades: Focusing on Student Reasoning****6–8 Workshop**

Number talks are ideal in supporting procedural and conceptual understanding of mathematics, but implementation in the middle grades is different than elementary grades due to the nature of the content. This session will present ideas for middle level teachers looking to learn how to implement number talks in their classroom.

Cory Bennett

@AlohaCory

Idaho State University, Pocatello, Idaho

Emily Lockhart

Alameda Middle School, Pocatello, Idaho

Henry B. Gonzalez Convention Center, 217B

43 BUILD**Parabolas and Transformations****10–12 Workshop**

This session will examine the beautiful and intricate relationship between parabolas and the quadratic functions that define them. Special emphasis will be placed on transformations. We will take a look at the mathematical explanation for some marvelous everyday properties of parabolas. Online and print resources from the UCLA Curtis Center will be provided.

Elyse McVerry

Saddleback Valley Unified School District, Mission Viejo, California

Michael Nakamaye

University of New Mexico, Albuquerque, New Mexico

Henry B. Gonzalez Convention Center, 006B

44 TLC**Parabolas: Properties and Proofs****10–12 Workshop**

Participants will engage in a productive struggle at the crossroads of algebra and geometry as we explore the properties of parabolas. Concrete models will lead to puzzling results and ultimately to proofs about this familiar U-shaped curve. Rigorous and engaging lesson ideas will be shared that can be applied across a wide-variety of courses.

Selena Oswalt

Great Minds, Washington, D.C.

Wendy DenBesten

Great Minds, Washington, D.C.

Henry B. Gonzalez Convention Center, 007B

45 TLC**Proportional Reasoning: Three Strategies to Spark Engagement****6–8 Workshop**

Come experience three activities that engage students in concept development and practice of proportional reasoning: “poster problems,” a “blank paper lesson,” and a “big square puzzle.” Takeaway lessons included!

Shelley Kriegler

Center for Mathematics and Teaching, Sherman Oaks, California

Cynthia Raff

Center for Mathematics and Teaching, Sherman Oaks, California

Henry B. Gonzalez Convention Center, 006D

46 **"M"****Ramp It Up! with STEM****6–8 Workshop**

STEM extends learning beyond the mathematics classroom. Learn the basics of creating, implementing, and assessing integrated STEM projects that are relevant to students. Participants will collaborate within grade levels to design and engage in a STEM lesson utilizing ramps to collect data.

Katherine Hammonds

AMSTI-USA, Mobile, Alabama

Susan Arnette

AMSTI-USA, Mobile, Alabama

Angela Williams

AMSTI-USA, Mobile, Alabama

Henry B. Gonzalez Convention Center, 305

47 **BUILD****Solving the Same Problem Multiple Ways: Building Conceptual Understanding****8–10 Workshop**

Is it important for students to know multiple ways of solving the same problem? This hands-on workshop will explore the benefits to both teachers sharing multiple approaches and encouraging students to come up with their own strategies. Together we will solve problems, observe new approaches and build conceptual understanding with our students.

Matthew Beyranevand

Chelmsford Public Schools, Chelmsford, Massachusetts

Henry B. Gonzalez Convention Center, 006C

48 **BUILD****Teaching Probability on a Dime! (Well, Maybe "Two" Dimes!)****6–8 Workshop**

Probability is introduced in grade 7 in the Common Core Standards. With just a few select models, picture strategies, and questioning techniques, you can help your students make sense of fundamental probability concepts. We will also discuss important concepts/skills from grades 4–6 that students must have to succeed in statistics and probability.

Jennifer Fillingim

Madison County School District, Ridgeland, Mississippi

Henry B. Gonzalez Convention Center, 004

49 **TLC****Teaching Two-Way Frequency Tables: Fostering Mathematical Minds with Statistical Inquiry****8–10 Workshop**

The CCSS asks students to investigate patterns of association in bivariate categorical data by creating and interpreting two-way frequency tables and constructing viable arguments. Attendees will deepen their knowledge of two-way tables in an engaging presentation and leave with conceptually driven lesson resources they can use with their students.

Chase Orton

@mathgeek76

Center for Mathematics and Teaching, Venice, California

Henry B. Gonzalez Convention Center, 304C

50 **A&E****Technology + Choice = Success****6–8 Workshop**

Do you long to hear your students say these three little words, "I love math"? Come discover how the use of UDL via choice, movie clips, and TI-Technologies can increase conceptual understanding and create a fun, dynamic, student-centered classroom. Participants will leave with many resources that can be easily implemented on Monday morning.

Melissa Jackson

@luvmath2

New Jersey Department of Education, Clarksboro

Henry B. Gonzalez Convention Center, 007C

51 **BUILD****Unleash the Mathematician Within: Crafting Rich and Interesting Problems****3–5 Workshop**

Do you want to improve your ability to pose stimulating and thought-provoking problems that engage students in mathematical practices? We will learn how to unpack a standard exercise and turn it into a meaningful mathematical problem through the lens of the CCSS Standards of Mathematical Practice. Materials will be shared.

Bridget Druken

California State University Fullerton, Fullerton

Roberto Soto

California State University Fullerton, Fullerton

Henry B. Gonzalez Convention Center, 006A

8:00 A.M.–9:15 A.M.

52 **TLC**

Using High-Quality Tasks to Promote Meaningful Teacher Feedback

3–5 Workshop

High-quality math tasks actively engage students and allow them to share their thinking and demonstrate understanding. Participants explore high-cognitive tasks and examine related student work to discuss feedback strategies to move learning forward.

Sandra Niemiera

University of Illinois at Chicago

Elizabeth Cape

University of Illinois at Chicago

Jennifer Leimberer

University of Illinois at Chicago

Grand Hyatt San Antonio, Lonestar Ballroom B

53 **TLC**

Young Mathematicians at Play

Pre-K–2 Workshop

Participants will explore how to support the development of young mathematicians through purposeful play using manipulative-based games, with a focus on the Standards for Mathematical Practice and the content domain of Number & Operations in Base Ten, including number sense, computation, and estimation.

Kathryn Coffey

🐦 @literacygurl

Grand Valley State University, Allendale, Michigan

David Coffey

Grand Valley State University, Allendale, Michigan

Grand Hyatt San Antonio, Lonestar Ballroom A

53.1

Reflective and Collaborative Processes to Improve Mathematics Teaching: APME 2017

Coaches/Leaders/Teacher Educators' Workshop

Chapter authors in the newly published *APME 2017* share ideas for enhancing mathematics teaching from teachers' perspectives, including school-based initiatives, research-based models and frameworks, and collaborations between multiple stakeholders.

Melissa Boston

Duquesne University, Pittsburgh, Pennsylvania

Lucy West

Metamorphosis Teaching Learning Communities, New York, New York

Grand Hyatt San Antonio, Texas Ballroom A

9:00 A.M.–10:00 A.M.

54 **PROF**

Sixty-Eighth Annual Delegate Assembly

General Interest Session

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

Affiliate Relations Committee

National Council of Teachers of Mathematics, Reston, Virginia

Henry B. Gonzalez Convention Center, Hemisfair 2

9:30 A.M.–10:30 A.M.

54.1 **BUILD**

$6 \times \frac{2}{3}$ or $\frac{2}{3} \times 6$: Using Structure and Precision to Build Understanding of Fraction Multiplication

3–5 Session

6 copies of $\frac{2}{3}$ and $\frac{2}{3}$ of 6 are a commutative pair, but they involve different mental processes for students to model and evaluate. While interpreting expressions, participants will be presented with various structures for multiplication of fractions and will examine ways that students can develop connections between representations of these products.

Ryan Casey

Boston Public Schools, Roxbury, Massachusetts

Henry B. Gonzalez Convention Center, 214B

55 **BUILD**

Approaching Ten Tough Mathematical Ideas for High School Students

General Interest Session

In this talk, ten of the most difficult yet important ideas from high school algebra, geometry, and precalculus are identified. Reasons for the difficulties are discussed, and ideas are given for approaching each idea.

Zalman Usiskin

University of Chicago, Illinois

Henry B. Gonzalez Convention Center, Stars at Night 4

THURSDAY

Bright Lights on the Horizon

Deanna Haunsperger
Carleton College, Northfield, Minnesota
Henry B. Gonzalez Convention Center, 303

Decimal Operations: Making Meaningful Moves from Misconceptions

Student misconceptions about multiplying and dividing decimals will be shown as a way to launch a brief discussion of the underlying mathematics. To prevent and/or address such misconceptions, three instructional strategies will be presented that include selecting purposeful tasks, facilitating discussions, and varying representations.

Cindy Jong
University of Kentucky, Lexington

Molly Fisher
University of Kentucky, Lexington

Jonathan Thomas
University of Kentucky, Lexington

57.1 Preparing the Next Generation of Teachers of Mathematics: Setting Standards

Learn about the Association of Mathematics Teacher Educators' *Standards for Preparing Teachers of Mathematics* and discuss your role in supporting the preparation of the next generation of teachers of mathematics.

Nadine Bezuk, Jennifer Bay-Williams, Douglas H. Clements,
W. Gary Martin

Ensuring the Tasks in Our Curriculum Are Worthwhile

How do we assure that the tasks we pose promote reasoning and problem solving? In this session, we take up this charge from *Principles to Actions* and consider ways to develop and use worthwhile tasks. Participants analyze typical tasks to consider their potential and revise tasks to provide for multiple entry points and solution strategies.

Steve Vancil
David Douglas School District, Portland, Oregon

Nicole Rigelman
Portland State University, Oregon

Paul Latiolais
Portland State University, Oregon

The Crafting and Use of Technology for Professional Learning

A variety of digital formats for professional learning such as MOOCs, blogs, forums, and online courses with both synchronous and asynchronous designs have been tried in the past with varied success. This session will present research results and potential new possibilities for the future that allow teachers more control over their own learning.

Maarten Dolk
New Perspectives Online, Utrecht, the Netherlands

Cathy Fosnot
New Perspectives Online, New London, Connecticut

24 NCTM 2017 Annual Meeting & Exposition

60 ASSESS REFLECTION COVE**Formative Assessment: Monitoring YOUR Classroom Canvas with The Formative Five. YOU Can Do This!****Coaches/Leaders/Teacher Educators' Session**

Participants will be engaged in the use of a palette of classroom-based formative assessment techniques. The Formative Five are used to guide and monitor planning and teaching. Everyday use of observations, interviews, show me, hinge questions, and exit tasks can make a difference. See how mathematics leaders have begun to use these techniques.

Francis (Skip) Fennell

@SkipFennell

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

Beth Kobett

Stevenson University, Baltimore, Maryland

Jon Wray

Howard County Public Schools, Ellicott City, Maryland

Henry B. Gonzalez Convention Center, Hemisfair 1

61 A&E REFLECTION COVE**Fostering Students' Mathematical Reasoning and Sense Making through Equitable Pedagogy****6–8 Session**

In this session, participants will learn about different strategies that have been used to foster middle school students' mathematical reasoning and sense making. Strategies will include implementing social justice lessons, using multiple-entry-level tasks, and enacting the Mathematics Teaching Practices from NCTM's *Principles to Actions*.

Marilyn Strutchens

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

Auburn University, Alabama

Henry B. Gonzalez Convention Center, 221

62 BUILD**Harnessing the Power of Structure on the Path to Procedural Fluency****Pre-K–2 Session**

When elementary students have opportunities to explore structure through examining patterns and testing conjectures, they develop a greater understanding of numbers and operations. In this session, we will consider routines that support students in making use of structure and how this work contributes to the development of procedural fluency.

Michael Flynn

@MikeFlynn55

Mount Holyoke College, South Hadley, Massachusetts

Grand Hyatt San Antonio, Lonestar Ballroom C

63 A&E**Practices & Instructional Strategies That Strengthen Mathematics in Your Title I, Part A Program****Coaches/Leaders/Teacher Educators' Session**

Learn how to design an effective Title I, Part A program around mathematics from a Washington State National Distinguished School. This session will address how to support the diverse needs of at-risk students using the Washington State Mathematics Menu of Best Practices and Strategies. This user-friendly resource provides a framework for using a multi-tiered system of support and data-driven conversations to identify and monitor student progress. Hear how one school used targeted professional development, family engagement, and extended learning time to effectively impact learning.

Kristi Coe

Washington State Office of Superintendent of Public Instruction, Olympia

Stephanie Bolinger

Kent School District, Washington

Grand Hyatt San Antonio, Travis CD

Don't miss **ShadowCon** at 5:00 p.m. on Thursday, April 6. Because of its growing popularity and overwhelming demand, over the last three years we've made it part of the NCTM Annual Meeting experience.



64 BUILD**How to Tinker with the Algebraic Thinker****3–5 Session**

This session will focus strategies to develop problem solving and generalization skills to prepare the early algebraic thinker conceptually for algebra. Weekly algebra readiness problem-solving activities will be shared. We will model the classroom climate and discuss strategies to implement these algebraic reasoning activities.

Martin Briggs

La Porte Community Schools, Indiana

David Feikes

Purdue University Northwest, Westville, Indiana

Mike Maesch

Michigan City Area Schools, Michigan City, Indiana

Grand Hyatt San Antonio, Bowie ABC

65 TLC REFLECTION COVE**Implement and Reflect on Challenging Mathematical Modeling Tasks to Engage and Empower ALL Students****8–10 Session**

Engage students in challenging mathematics and explore effective practices to draw upon student experiences in exploring mathematical modeling tasks. Take part in an interactive workshop where the topics will range from algebra to precalculus concepts, and see how all students can be empowered by becoming sense-makers in rich classroom discussions.

Farshid Safi

[@farshidsafi](#)

University of Central Florida, Orlando

Aline Abassian

University of Central Florida, Orlando

Henry B. Gonzalez Convention Center, 214C

66 A&E**Inspiring Every Child****General Interest Session**

Join me as I share an inspirational talk about my experience with students in my own classes that provided a springboard for them to believe in themselves and in their capacity to be successful as doers of mathematics. You will cry, laugh, and leave inspired to meet your own teaching challenges!

Kathryn Dillard

Borenson and Associates, Inc. & Benjamin Banneker Association, Allentown, Pennsylvania

Henry B. Gonzalez Convention Center, Hemisfair 3

67 TLC**Making Connections from a Simplex Lock to the Binomial Theorem****10–12 Session**

Making mathematics projects from real-life examples provides mathematical relevance for students. Using a simplex lock is a unique way to explore and study combinatorics. Participants will gain insights and unexpected discoveries, and they will be able to conceptualize the meaning of the binomial theorem.

Ping-Hsiu Lee

Heights High School, Houston, Texas

Ivan Rocha

University of Houston-Downtown, Texas

Grand Hyatt San Antonio, Crockett CD

68 TECH**Making Math in Scratch****10–12 Session**

See how topics in algebra, geometry, and statistics can be easily developed in Scratch, the free, web-based programming environment from MIT. Give your students another entry point to mathematics, and get them integrating math and computing to model with mathematics and use appropriate tools strategically! No prior programming knowledge necessary.

Patrick Honner

[@MrHonner](#)

New York City Department of Education, Brooklyn

Henry B. Gonzalez Convention Center, 217D

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74 BUILD**Success in Algebra Using Manipulatives!****6–8 Session**

Discover how manipulatives can be used to help your students understand algebraic concepts such as integer operations, solving equations, polynomial expressions, and graphing. See how your students can benefit from a visual approach to algebra and learn how hands-on activities can help promote their understanding of algebraic concepts.

Kevin Dykema

 @kdykema

Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Mattawan Consolidated Schools, Michigan

Grand Hyatt San Antonio, Presidio ABC

75 TECH**Teaching Geometry to Girls through Powerful Computer Programs****3–5 Session**

Girls tend to show lower performance and participation, as well as less favorable dispositions, than boys in geometry and computer use. This session will share ideas for using powerful software, especially Geometer's SketchPad and Terrapin Logo, to support girls' geometry skills. A handout with instructional tasks and resources will be provided.

Heather Crawford-Ferre

State of Nevada Department of Education, Carson City, Nevada

Lynda Wiest

University of Nevada, Reno

Julie Henjum

Washoe County School District, Reno, Nevada

Henry B. Gonzalez Convention Center, 008AB

76 TLC**The Problem of Word Problems: Supporting Student Access****3–5 Session**

“Decontextualizing” is a critical math practice, but how do we support students in accessing the mathematics in a situation? Rather than ripping the math out of the context, we can use the story as a way INTO mathematical thinking. In this session, we will examine questioning strategies you can use to move students from stuck to sense making.

Jen Munson

Stanford University, California

Mary Trinkle

Ravenswood City School District, East Palo Alto, California

Henry B. Gonzalez Convention Center, 007D

77 A&E**We Are Family: Ways African American Families Engage in Mathematics****6–8 Session**

It has been documented that family engagement enhances student learning. We also know that different families engage with their mathematics students differently. Understanding how African American families engage with their student can provide a lens on how we can enhance our culturally responsive classrooms and thus increase equity and access.

Desha Williams

Kennesaw State University, Georgia

Chery Pappy

Champion Middle School, Stone Mountain, Georgia

Grand Hyatt San Antonio, Texas Ballroom F

78 A&E**What Is in Your Lesson?****8–10 Session**

Teachers are tasked to create lessons that include the CCSSM standards and the mathematics practices. But there are other standards to include. Too often students of African ancestry see no relevance in their lessons and see them as just doing some math. This presentation shows the salient features that would be included in a culturally relevant math lesson.

Kwame Anthony Scott

Retired, Chicago, Illinois

Grand Hyatt San Antonio, Lonestar Ballroom F

79 **TECH**

You CAN Do Blended Learning

6–8 Session

Blended learning can happen in your classroom with a few clicks of your mouse! Using tools that are readily available, this session will show you how to successfully implement blended learning in your classroom with minimal planning time. Teachers will leave this session ready to tackle the idea of blended learning in their own classrooms.

Kelly Barr

Gilmer County Schools, Glenville, West Virginia

Traci DeWall

Gilmer County Schools, Glenville, West Virginia

Henry B. Gonzalez Convention Center, 207B

80 **TECH** **REFLECTION COVE**

Math Task Makeover with Desmos Activity Builder

8–10 Workshop

Transform your classroom lessons with three Activity Builder veterans who will share best practices for building effective, ongoing math experiences. Whether you've used Activity Builder many times, or you're new to the game, there will be something for everyone!

Robert Lochel

Hatboro-Horsham High School, Horsham, Pennsylvania

Michael Fenton

Desmos, San Francisco, California

Jedidiah Butler

Heritage High School, Perris Union High School District, Menifee, California

Henry B. Gonzalez Convention Center, 301

80.1 **ew**

Unleash the Power of Game-Based Learning with Mangahigh

Coaches/Leaders/Teacher Educators' Exhibitor Workshop

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

Mangahigh

London, United Kingdom

Henry B. Gonzalez Convention Center, 206A

80.2 **ew**

Building Sense-making for Solving Equations

6–8 Exhibitor Workshop

How can we help students “look before they leap” when solving equations? This discussion will explore helping students use intuition and sense making to develop elegant solution pathways. We will explore powerful, dynamic visuals that highlight important strategies for solving equations and their connections to the corresponding algebraic methods.

Texas Instruments

Dallas, Texas

Henry B. Gonzalez Convention Center, 206B

80.3 **ew**

Making Principles to Actions Come Alive with CPM Mathematics

8–10 Exhibitor Workshop

Let CPM show you how we incorporate the eight Mathematics Teaching Practices in your classroom. CPM provides rich mathematics curricula that are student centered and problem solving based. Experience multiple rich tasks, opportunities for student discourse, and concrete ways to build fluency from conceptual understanding that are embedded within the materials.

CPM Educational Program

Elk Grove, California

Henry B. Gonzalez Convention Center, 207A

9:30 A.M.–10:30 A.M.

80.4 ew

Potholes on the Road to Algebra

6–8 Exhibitor Workshop

For some students the path to algebra is smooth and straight. Most students, though, hit at least a few potholes along the way, and some seem to struggle to stay on the road at all. This session demonstrates how to get all students rolling forward, from filling in the inevitable potholes within the core program to paving alternative pathways.

Houghton Mifflin Harcourt
Round Rock, Texas

Henry B. Gonzalez Convention Center, 210AB

80.5 ew

What's New at Casio: Viewing Mathematics through a New Prizm (or Two!)

10–12 Exhibitor Workshop

The current rate of change with respect to technology, curriculum, standards, and requirements demands that we as leaders and teachers regularly re-evaluate. With the additions of CAS, 3D graphing, and Exam Mode to the Prizm platform, join Mike Reiners to learn how Casio continues to be the affordable, pedagogically sound choice for school handheld technology.

Casio
Dover, New Jersey

Henry B. Gonzalez Convention Center, 213AB

80.6 ew

Meeting Individual Student Needs and Informing Classroom Practice with i-Ready Adaptive Technology

3–5 Exhibitor Workshop

Engage all math students and provide each with necessary opportunities to learn! Identify misconceptions and gaps and provide personalized learning. This session will share adaptive technology that assesses, delivers customized learning, and informs classroom instruction. Experience a technology that helps teachers ensure success for all learners.

Curriculum Associates
North Billerica, Massachusetts

Henry B. Gonzalez Convention Center, Exhibitor Workshop
Theater in Exhibit Hall 3/4

9:45 A.M.–11:00 A.M.

81 BUILD

Algorithms: Past Success, Present Findings, and Future Implications Supporting Understanding & Fluency

3–5 Workshop

“Alternative algorithms”—ways that differ from the U.S. historically taught ways to compute—can lead to students understanding the elegance and interconnectedness of numbers and operations. Learn, confirm, and/or extend your thinking about the role of these algorithms in building a bridge between understanding and fluency.

Christine Moynihan
Independent Consultant, East Falmouth, Massachusetts
Henry B. Gonzalez Convention Center, 004

82 BUILD

Circle the Wagons: Conceptual AND Procedural Power for the Equation of a Circle

10–12 Workshop

Procedural power requires conceptual understanding. Put this principle to practice by working with three learning tasks that show how understanding the equation of a circle develops flexibility, efficiency, and accuracy in applying the procedures. You will walk away with new connections between the algebraic and geometric work of circles.

Barbara Kuehl
Mathematics Vision Project, Salt Lake City, Utah
Henry B. Gonzalez Convention Center, 006A

THURSDAY

83 A&E**Cultural Competence: Equity Success Using Differentiation Embedded with Culturally Relevant Pedagogy****Coaches/Leaders/Teacher Educators' Workshop**

Math teachers, especially in today's diverse society, must have skill at teaching in a culturally diverse setting. As math educators, we enable each student to relate course content to his or her cultural context. Culturally relevant teaching has been proven to be an effective form of pedagogy for students of all racial and ethnic backgrounds.

Natalie Holliman

[@N_Holliman](#)

Little Rock School District, Arkansas

Kelli Mack

Little Rock School District, Arkansas

Quintin Cain

Little Rock School District, Arkansas

Henry B. Gonzalez Convention Center, 007B

84 BUILD**Developing and Assessing Addition Fact Fluency****Pre-K–2 Workshop**

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

Gina Kling

Western Michigan University and UChicago STEM Education, Kalamazoo, Michigan

Grand Hyatt San Antonio, Texas Ballroom B

85 ASSESS**Embedding Formative Assessment within an Instructional Routine****8–10 Workshop**

The thoughtful use of formative assessment has been shown to improve student outcomes but can be challenging to integrate into practice. Come experience an engaging and flexible instructional routine and then unpack the use of formative assessment strategies embedded within the routine.

David Wees

[@davidwees](#)

New Visions for Public Schools, New York, New York

Grand Hyatt San Antonio, Lonestar Ballroom B

86 TECH**Embrace the Digital Age: Using Apps with Children's Literature in Math****Pre-K–2 Workshop**

Children's literature can build great connections for mathematical concepts for elementary children. In this session, the presenters will share apps that can be used with popular children's literature to help children make connections with important mathematics concepts.

Sandi Cooper

[@drcoopermath](#)

Baylor University, Waco, Texas

Kylie Terry

Baylor University, Waco, Texas

Kaitlin Welsh

Baylor University, Waco, Texas

Henry B. Gonzalez Convention Center, 304A

87 BUILD**Fluency with Functions through Multiple Representations****8–10 Workshop**

Just as elementary students should be able to perform simple operations without a calculator, secondary students should be flexible with simple functions apart from a graphing calculator. Strategies like card sorts, foldables, manipulatives, and the Rule of Four can help students develop fluency with linear, exponential, and quadratic functions.

Victoria Miles

[@MsMilesMath](#)

Middleborough High School, Massachusetts

Shephali Chokshi-Fox

Fox Math Consulting, Sutton, Massachusetts

Grand Hyatt San Antonio, Texas Ballroom E

88 BUILD**Giving Meaning to Scatter Plots & Regression Lines****8–10 Workshop**

Participants will actively use manipulatives and graphing calculators to explore activities through which students can enhance their skill in creating and interpreting scatter plots and regression lines, determining the appropriateness of multiple types of regression models, and identifying limitations on the use of such models in forecasting.

Michael Hardy

Saint Xavier University, Chicago, Illinois

Henry B. Gonzalez Convention Center, 217A

89 A&E**Gut Instincts: Developing ALL Students' Mathematical Intuitions****3–5 Workshop**

We've long misunderstood mathematical intuition, assuming it's innate rather than developed through high-quality learning experiences. As a result, students who haven't yet had opportunities to refine their intuitions are often denied access to meaningful math. We'll explore three teaching techniques that empower ALL students to grasp math intuitively.

Tracy Zager

[@tracyzager](#)

Stenhouse Publishers/Rollinsford Grade School, Portland, Maine

Grand Hyatt San Antonio, Texas Ballroom C

90 TECH**How Many Elephants Fit on the Moon? Using Technology to Address Ill-Structured Problems****8–10 Workshop**

Learn to pose your own ill-structured problems for use in your own classroom, and discover how to address these problems using two freely available mathematics technologies (Wolfram|Alpha and Desmos). You will also learn how lesson development parallels the process of technology development and will be introduced to a platform for lesson study and sharing.

Christina Watts

Utah State University, Logan

Henry B. Gonzalez Convention Center, 304B

91 TLC**I-THINK: Engaging All Students in Productive Struggle Using Metacognitive Supports****3–5 Workshop**

In this session, math and special education teacher educators will engage you in the I-THINK problem-solving framework. Aligned to CCSS SMPs 1, 3, and 6, this framework supports struggling students in task analysis, solution strategy selection, self-regulation, and justifying solutions. We will discuss research to practice in grades 1–8 general education and RTI Tier II settings.

Sararose Lynch

Westminster College, New Wilmington, Pennsylvania

Jeremy Lynch

Slippery Rock University, Pennsylvania

Henry B. Gonzalez Convention Center, 302AB

92 BUILD**Integer Operation Models That Matter****6–8 Workshop**

Teaching students how to compute with integers is a pivotal point in math. Often we teach students how to model these operations but never make the connection between the models and their lives. This session will focus on modeling integer operations in a real-world context to help struggling students bridge the gap between concrete and abstract.

Katelyn Devine

[@kaw5290](#)

Virginia Beach City Public Schools, Virginia

Henry B. Gonzalez Convention Center, 007A

93 ASSESS**Making Fact Fluency Assessments Meaningful****Pre-K–2 Workshop**

Looking to assess fact fluency more effectively than with timed tests? We'll focus on how to use homegrown comprehensive formative assessments to drive fact fluency instruction. Learn about our journey in this process, and leave with ideas for creating and implementing an effective fluency assessment practice in your classroom, school, or district.

Robin Moore

[@rmoore628](#)

Regional School District 6, Litchfield, Connecticut

Sara Baranauskas

Suffield Public Schools, Suffield, Connecticut

Henry B. Gonzalez Convention Center, 005

94 A&E**The Most Versatile Tool in the Elementary Mathematics Classroom: The Number Line!****3–5 Workshop**

Explore the many ways a number line can represent mathematical thinking in the intermediate grades. Participants will engage in activities that use a number line for developing understanding of fractions, decimals, and whole numbers while connecting them to the eight teaching practices from *Principles to Actions*.

Connie Phillips Conroy

Howard County Public Schools, Ellicott City, Maryland

Denise Jamie Bogart

Howard County Public Schools, Columbia, Maryland

Henry B. Gonzalez Convention Center, 006B

95 TLC**Math with More Than One Right Answer****6–8 Workshop**

The view that there is always one right answer in math limits mathematical discourse and causes anxiety. One plus one will always equal two, but we will explore engaging problems applicable to middle school and beyond where this is not the case, working on math that requires students to construct viable arguments and model with mathematics.

Lissie Mcalvey

The Nueva School, Hillsborough, California

Avery Pickford

The Nueva School, Hillsborough, California

Henry B. Gonzalez Convention Center, 217C

96 A&E**Middle School OER Curriculum with Built-In Supports for English Language Learners****6–8 Workshop**

Illustrative Mathematics is writing middle school OER curriculum in partnership with the K–12 OER Collaborative. With help from a team of interdisciplinary experts, the curriculum materials have many built-in supports for English language learners. In this session, we will explore the philosophy and practical implementation of these supports.

Kristin Umland

Illustrative Mathematics, Tucson, Arizona

Henry B. Gonzalez Convention Center, 224

97 NT**Leveraging First-Year Teacher Experiences for Second-Year Growth****Coaches/Leaders/Teacher Educators' Workshop**

After a year of “firsts” you have many things to celebrate and may have things you want to work on. In this session, we will reflect together on your first year of teaching and leverage those experiences to begin preparing for next year. Participants will explore strategies and ideas for incorporating classroom management, lesson planning, and meaningful student discourse into mathematics instruction.

Delise Andrews

Lincoln Public Schools, Nebraska

Karla Bandemer

Lincoln Public Schools, Nebraska

Grand Hyatt San Antonio, Texas Ballroom A

Attending the meeting is just the beginning! Engage with featured speakers, access additional material, network with peers, and much more on the extended meeting experience website at annual.nctm.org.



98 BUILD**Probability beyond Bunko: Can You Improve the Standard Die?****6–8 Workshop**

How do we engage students to understand probability beyond simple tosses of coins and dice? Can you modify the standard die to beat your partner in a roll-off? Would you rather take the sum of three 4-sided dice or the sum of an 8-sided and 4-sided die? Experience classroom-tested, engaging lessons that scaffold and provide access for all learners.

Karajean Hyde
University of California, Irvine
Janna Canzone
University of California, Irvine

Henry B. Gonzalez Convention Center, 217B

99 "M"**STEM Gives Meaning to Mathematics****3–5 Workshop**

Engineering design in elementary classrooms develops habits of mind that increase achievement in mathematics. Learn how an integrated engineering curriculum can provide application for measurement and data collection concepts while fostering development of the Standards for Mathematical Practice.

Lukas Hefty
Pinellas County Schools, St. Petersburg, Florida

Grand Hyatt San Antonio, Lonestar Ballroom A

100 PROF**Developing Number Sense in Emergent Bilingual Learners****Coaches/Leaders/Teacher Educators' Workshop**

Anchor charts, word walls, and sentence frames are a few strategies that teachers can use to support deep understanding of number sense for K–5 bilingual/ELLs. This session provides educators with an opportunity to learn mathematics in a Spanish bilingual lesson that models highly effective strategies, for bilingual/ELL's mathematics success, as well as materials that can be used in the classroom on Monday!

Rocío Benedicto
New Mexico State University CORE, Las Cruces
Zaira Falliner
New Mexico State University CORE, Las Cruces

Grand Hyatt San Antonio, Texas Ballroom D

101 TECH**Touching Screens or Touching Objects: Which Is Better and When?****3–5 Workshop**

Concrete manipulatives have been used in classrooms for many years. Recently, digital manipulatives have become much more common. When is it important to use physical manipulatives, and when do digital manipulatives offer advantages? Come and discuss the affordances and costs of physical objects versus digital models and tools.

Carla Strickland
UChicago CEMSE, Chicago, Illinois
Catherine Donaldson
McGraw-Hill Education, Chicago, Illinois

Henry B. Gonzalez Convention Center, 006D

Download the **mobile conference app** to search for sessions, create a schedule, network with attendees, and much more! Search "NCTM Annual Meeting" in the App Store and Google Play.



102 **"M"**

Transform How You Think about Math and Molecules

10–12 Workshop

Looking to promote deeper understanding of transformational geometry? Take a look at Platonic solids and tilings of the plane through molecular geometry. Online and print resources from the UCLA Curtis Center summer institute will be given.

Michael Nakamaye

University of New Mexico, Albuquerque

Elyse McVerry

Saddleback Valley Unified School District, Mission Viejo, California

Henry B. Gonzalez Convention Center, 007C

103 **BUILD**

Using Manipulatives to Deepen Understanding of CCSS Fraction Progressions

3–5 Workshop

Want to deepen your understanding of how the Common Core standards build the meaning of fraction? Come explore a variety of manipulatives to unpack key fraction concepts such as partitioning and iterating the whole, determining equal-size pieces, and modeling with different representations. Task resources will be shared.

Alison Marzocchi

California State University, Fullerton

Bridget Druken

California State University, Fullerton

Michelle Brye

California State University, Fullerton

Henry B. Gonzalez Convention Center, 304C

104 **TLC**

Using Manipulatives to Support Students in Solving Challenging Word Problems

Pre-K–2 Workshop

Teaching students how to persevere in solving challenging math problems and how to engage in productive discourse begins in K–2. We will discuss how to support students' development in those mathematics practices by having them use manipulatives to solve various types of addition and subtraction word problems with the unknown in all positions.

Karen Heinz

Rowan University, Glassboro, New Jersey

Henry B. Gonzalez Convention Center, 006C

105 **BUILD**

What's Your Story? Moving beyond Keywords!

3–5 Workshop

Students make sense of mathematics by exploring it in real-world contexts; therefore, it is imperative for them to be exposed to different types of word problems. In this session, participants will actively engage in problem-sorting activities designed to enhance their ability to support students in developing effective problem-solving skills.

Tashana Howse

@tdhowse_math

Georgia Gwinnett College, Lawrenceville, Georgia

Guy Barmoha

Broward County Schools, Fort Lauderdale, Florida

Lakesia Dupree

University of South Florida, Tampa

Henry B. Gonzalez Convention Center, 305

Explore the
Exhibit Hall for
the latest educa-
tional resources.




106 A&E

“We Are Mathematicians”: Building Mathematical Communities Based in Sense Making, Agency, and Joy

3–5 Session

How do we build communities of mathematicians in classrooms and throughout a school? This session explores how teachers, coaches, and students use problem solving, number-sense routines, and play to build communities in which everyone identifies as a mathematician and engages in mathematics as a joyful and empowering practice.

Kassia Omohundro Wedekind

 @kassiaowedekind

Fairfax County Public Schools, Falls Church, Virginia

Mary Beth Dillane

Fairfax County Public Schools, Falls Church, Virginia

Henry B. Gonzalez Convention Center, 214B

107 A&E

A Model for Mathematical Argumentation: Making It Work in Your Classroom

6–8 Session

The Standards for Mathematical Practice highlight the need for students to construct mathematical arguments, communicate, and respond to the reasoning of others. In this session, we will present a practical four-part model to help promote argumentation in your classroom. Online math activities for coordinate geometry are included.

Teresa Lara-Meloy

SRI International, Menlo Park, California

Jennifer Knudsen

SRI Education, Austin, Texas

Harriette Stevens

Mathematics Education Group, San Francisco, California

Grand Hyatt San Antonio, Travis CD



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108 TECH**Bringing Chrome Home—1:1, A New Ratio For Your Classroom****8–10 Session**

You're Invited! Come join in sharing my experiences with 1:1 devices as a facilitator for deeper understanding and active engagement in the math classroom. Attendees will leave the session with an array of best practices, anticipated challenges as well as solutions, and bountiful resources not only for students, but for you as a teacher as well.

Kelley Gould

Hyde Park Central School District, Hyde Park, New York

Grand Hyatt San Antonio, Crockett AB**109 PROF****Are You Interested in Earning a Doctorate in Mathematics Education?**

The speaker will discuss the range of doctorates in mathematics education and the opportunities in institutions of higher education. A range of different doctoral programs will be presented. Suggestions for choosing a doctoral program and for a career in higher education will be discussed.

Robert Reys

University of Missouri, Columbia

Grand Hyatt San Antonio, Presidio ABC**110 BUILD****Boost Conceptual Understanding & Procedural Fluency with Rich Number Sense Tasks****6–8 Session**

Would your students benefit from rich number sense tasks connected to ratios, proportions, expressions, and solving equations? Come participate in hands-on tasks that provide students with opportunities to use their own reasoning strategies and methods for solving problems that coherently build conceptual understanding and procedural fluency.

Andrew Stadel

@mr_stadel

Tustin Unified School District, California

Henry B. Gonzalez Convention Center, 301**111 PROF****Changing Minds: Coaching for a Growth Mindset in Math****Coaches/Leaders/Teacher Educators' Session**

Teachers' identities as math learners and their beliefs about the nature of mathematics play a critical role in shaping learning opportunities given to students and students' math mindsets. This session offers ideas and tools for using coaching as a vehicle to help teachers reflect on their unconscious beliefs and begin to adopt a growth mindset.

Sue Chapman

University of Houston-Clear Lake, League City, Texas

Grand Hyatt San Antonio, Republic ABC**112 A&E****Co-Teaching: Considerations and Practices to Ensure Success for All****Coaches/Leaders/Teacher Educators' Session**

With purposeful planning and implementation, co-teaching is a powerful approach in meeting the unique needs of all learners in inclusive mathematics classrooms. We describe a PD model and lessons learned from a collaborative project with general and special educators focused on co-teaching, differentiation, and high-quality mathematics tasks.

Kristin Harbour

University of Alabama, Tuscaloosa

Stefanie Livers

University of Alabama, Tuscaloosa

Nicolette Nalu

University of Alabama-AMSTI, Tuscaloosa

Henry B. Gonzalez Convention Center, 007D

113 PROF**Connecting and Becoming Stronger Advocates through Affiliates****General Interest Session**

The NCTM Affiliate Relations Committee supports affiliates in their individual and collective capacities to advocate for high-quality mathematics education. We respond to survey results and participants reflect on the strengths of their affiliate, and we develop one affiliate goal for the upcoming year and revisit their goals from the NCTM Leaders' Conference.

Jean Lee

University of Indianapolis, Indiana

Jeremy Zelkowski

University of Alabama, Tuscaloosa

Jill Sumerlin

Tillamook School District #9, Oregon

Henry B. Gonzalez Convention Center, Stars at Night 1

114 "M"**Did That Really Happen?****10–12 Session**

We often see amazing scenes in viral videos and movies then ask ourselves is that really possible. Participants will receive class-ready modules based on online videos. The modules will contain class-ready worksheets, suggestions, and other materials required to successfully develop, analyze, and evaluate individual models in the classroom.

Charles Emenaker

University of Cincinnati Blue Ash College, Ohio

Gene Kramer

University of Cincinnati Blue Ash College, Ohio

Henry B. Gonzalez Convention Center, 207B

115 A&E**Engaging All Learners through Project-Based Social Justice Mathematics (PB-SJM)****6–8 Session**

This session will explore a PB-SJM framework that addresses Content Knowledge, Community Connections, Critical Inequity, and Change Agency. Participants will examine how PB-SJM was used in a middle school math classroom to engage students in meaningful math centered on societal inequities as well as ways to incorporate PB-SJM into their classroom.

Maggie McHugh

@mlmchugh

School District of La Crosse, Wisconsin

Lida Uribe-Flórez

NMSU, Las Cruces, New Mexico

Grand Hyatt San Antonio, Lonestar Ballroom C

116 TLC**Geniuses Are Made Not Born: Fostering Productive Struggle and Growth Mindset in Mathematics****6–8 Session**

Research is finding that talent alone cannot explain the genius phenomena and that intelligence can be altered. Join this session as we look at the impact of mindset on learning and explore resources and activities that BOOST brain power and foster and promote student motivation and productivity.

Cynthia (Cindy) Bryant

@mlmchugh

LearnBop, Springfield, Missouri

Grand Hyatt San Antonio, Texas Ballroom F

117 TLC REFLECTION COVE**Get Your Model On: Using 3-Act Tasks in the Elementary Classroom****Pre-K–2 Session**

The term “model” is frequently misinterpreted as simply the use of manipulatives in math. This alone doesn't satisfy the expectation of Standard for Mathematical Practice #4: Model with Mathematics. In this session, participants will develop an understanding of mathematical modeling through 3-act tasks.

Graham Fletcher

@gfletchy

Griffin-Spalding Schools, Georgia

Henry B. Gonzalez Convention Center, Hemisfair 2

118 **TLC****Girls Mentoring Girls: How GEMS Is Changing the Lives of Many Girls****3–5 Session**

GRISM is an organization formed by high school girls from the Seattle area. They have an annual meet called GEMS (Girls embrace math and science), which is open for girls from third to fifth grade. This year they had their third meet, with more than two hundred girls attending. Girls at the meets are teamed with other girls from other schools and grades.

Claudia Sibila

The Meridian School, Seattle, Washington

Grand Hyatt San Antonio, Crockett CD**119** **PROF****How to Apply and Present at NCTM Conferences****General Interest Session**

Interested in presenting at math education conferences? The speakers have presented around the world and served on the NCTM program committee, which is responsible for approving proposals. They'll offer inside information, tips, and tricks for getting your session approved and for presenting it afterwards. Ask questions! Go to bit.ly/presentation-questions.

Dan Meyer

@ddmeyer

Desmos, San Francisco, California

Robert Kaplinsky

Downey USD, Long Beach, California

Henry B. Gonzalez Convention Center, Stars at Night 4**120** **TECH****Introduce Function Concepts and Linear Functions Geometrically(!) with Web Sketchpad****8–10 Session**

CCSSM expects students to understand transformations as functions. With Web Sketchpad, our algebra students exploited this edict: they used geometric transformations to vary variables; experience domain, range, and rate of change; and to connect their learning back to algebra. Bring a tablet or laptop. Leave with student-ready activities.

Scott Steketee

21st Century Partnership for STEM Education, Philadelphia, Pennsylvania

Daniel Scher

KCP Technologies, New York, New York

Henry B. Gonzalez Convention Center, 008AB**121** **ASSESS****Learning from the Crowd, Teaching One Student at a Time****3–5 Session**

When adding $\frac{1}{3}$ and $\frac{1}{4}$, how often do students say it's $\frac{1}{7}$, $\frac{3}{4}$, or something else entirely, and how are they thinking about it? With open-ended, digital assessments, a wider distribution of student understanding can be explored. More importantly, this data can be leveraged to scalably test various interventional approaches for different students.

Zachary Wissner-Gross

@xaqwg

Amplify Education, Brooklyn, New York

Drew Corley

Amplify Education, Raleigh, North Carolina

Lauren Whitley

Amplify Education, Raleigh, North Carolina

Henry B. Gonzalez Convention Center, 214A

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122 BUILD**Lessons for Today: Applying Reflections from Decades of Mathematics Education to Our Setting****General Interest Session**

Today's issues and controversies in mathematics education have been cyclical and seemingly intractable throughout history. Join me in reflecting-from before the "New Math," to back-to-basics (repeated frequently), to NCTM Standards, the Math Wars, the National Math Panel, and now CCSSM. What can we do to break the cycle?

Henry Kepner

Past President, National Council of Teachers of Mathematics, Reston, Virginia; University of Wisconsin-Milwaukee

Henry B. Gonzalez Convention Center, 221

123 BUILD**Navigating the Delicate Pathway between Conceptual Understanding and Procedural Fluency****Pre-K–2 Session**

We know there needs to be a balance between conceptual understanding and procedural fluency, but how and when do we transition students between those seemingly different ideas? Let's examine some research-based strategies on how we can use student thinking to balance the delicate interplay between these critical aspects of rigor.

Ryan Dent

[@4ryandent](#)

Idaho Regional Math Center/Lewis-Clark State College, Lewiston

Kristian Quiocho

Lake Elsinore Unified School District, California

Grand Hyatt San Antonio, Lonestar Ballroom E

124 A&E**Planning for Equitable Mathematics Teaching: Tips and Suggestions for New Teachers****General Interest Session**

This session features strategies for planning equitable mathematics lessons that include posing purposeful questions to encourage sense making and using exit tickets to increase access and participation for all learners. Early career teachers will be guest speakers in this session as they share about using an equity sticky note for planning lessons.

Imani Goffney

University of Maryland, College Park

Grand Hyatt San Antonio, Bowie ABC

125 PROF REFLECTION COVE**Professionalism: Building a Culture by Creating Time and Space****General Interest Session**

In this session, we will make connections across the grade bands where appropriate to discuss professionalism. We use vignettes as descriptions highlighting critical aspects of the areas and embedding the range of productive and unproductive beliefs that affect professionalism. We will discuss next steps and critical actions.

Robert Q. Berry III

[@robertqberr](#)

President-Elect, National Council of Teachers of Mathematics, Reston, Virginia; University of Virginia, Charlottesville

Henry B. Gonzalez Convention Center, Hemisfair 3

126 ASSESS**Standards-Based Assessment: An Easy-to-Use SBA Quiz System****10–12 Session**

In this session, I will explain my SBA (Standards-Based Assessment) Quiz system (most of which I learned from another teacher). I have found it to be a great way to do formative assessment. I will describe the features of this system that make it effective and easy to use—and how it has raised my students' understanding and scores on exams.

James Olsen

[@DrOlsen314](#)

Western Illinois University, Macomb

Grand Hyatt San Antonio, Travis AB

127 **TECH****Strategic Use of Technology Tools for Statistics in High School Math Courses****8–10 Session**

Experience activities that you can do with students, both with and without technology, involving statistical representations, measures of spread and variability, scatterplots, regression, sampling, and simulations. We will feature a variety of apps, software, and websites that provide visual and dynamic representations of statistics concepts.

Andres Marti

SFUSD, San Francisco, California

Elizabeth DeCarli

SFUSD, San Francisco, California

Henry B. Gonzalez Convention Center, 214C**128** **TLC****Supporting Students as They Work with Bar Models****General Interest Session**

Bar models (also called strip or tape diagrams) are a powerful visual tool for representing and solving math problems. But they can be challenging for students. Come to this hands-on session to explore a variety of strategies for scaffolding students as they learn to effectively work with bar models. Familiarity with bar models is assumed.

Sue McMillen

SUNY Buffalo State, New York

Jodelle Magner

SUNY Buffalo State, New York

Grand Hyatt San Antonio, Lonestar Ballroom F**129** **ASSESS****Testing Your Students vs. Testing All Students****Coaches/Leaders/Teacher Educators' Session**

With all the negative press lately regarding assessment, it's hard to get excited about writing test questions. But as we consider the implications of high-stakes testing, how can we ensure that our tests are solid? Learn some strategies used in larger-scaled assessments that help to turn good questions into great questions!

Shona Ruiz Diaz

Educational Testing Service, Princeton, New Jersey

Michelle Worthington

Educational Testing Service, Princeton, New Jersey

Grand Hyatt San Antonio, Lonestar Ballroom D**130** **"M"****The DaVinci Club: An After-School STEAM Program for Students At-Risk****3–5 Session**

The DaVinci Club is an after-school club that integrates reading with STEAM. The club allows elementary students from an economically disadvantaged and culturally diverse school to engage in book discussions and complete self-chosen projects in the areas of technology, math, science, and the arts. Sample projects will be shared.

Mercedes Tichenor

Stetson University, Deland, Florida

Kathy Piechura

Stetson University, Deland, Florida

Elizabeth Heins

Stetson University, Deland, Florida

Henry B. Gonzalez Convention Center, 217D**131** **TLC****The Hidden Treasures in Student Misconceptions****Pre-K–2 Session**

Teachers can use students' misconceptions to facilitate rich mathematical discourse. Therefore, we will highlight how teachers can seize the opportunities presented in students' errors to make mathematical connections and promote conceptual understanding. In this way, misconceptions can unearth hidden treasures.

Lakesia Dupree

University of South Florida, Tampa

Ruthmae Sears

University of South Florida, Tampa

Henry B. Gonzalez Convention Center, 303

132 **TLC**

The Redesign Common Core SAT: Getting Our Students Ready

8–10 Session

The Redesign of the SAT is Common Corebased. This session participants will hear ideas how to incorporate New SAT concepts into algebra, geometry, and algebra 2 without losing time in our packed curriculums.

Kimberly Epps

Oceanside School District, New York

Grand Hyatt San Antonio, Crockett CD

133 **TECH**

Classroom Resources for NCTM Members

General Interest Session

As busy teachers, it can be hard to find the best resources for your classroom. NCTM offers members a wealth of high-quality resources from apps and online games to lesson plans and complete lesson arcs. Come learn about NCTM's online classroom resource collections.

Derek Pipkorn

Mequon-Thiensville School District, Mequon, Wisconsin

AnnMarie Varlotta

Howard County Public School System, Ellicott City, Maryland

Max Ray-Riek

The Math Forum at NCTM, Reston, Virginia

Henry B. Gonzalez Convention Center, 225

134 **BUILD** **REFLECTION COVE**

Three Critical Components for Building Bridges between Concepts and Procedures

General Interest Session

Concepts and procedures are most valuable when they are connected. Engage in experiences designed to bridge concepts and procedures. Explore three critical components demonstrated as essential for connecting concepts and procedures in K–grade 12. Make sense of the three components through tasks, classroom video, and discussion.

Juli Dixon

University of Central Florida, Orlando

Henry B. Gonzalez Convention Center, 225

135 **TLC**

"Noticing and Wondering" as a Vehicle to Understanding the Problem

General Interest Session

The practices of noticing and wondering can help all students generate mathematical ideas and make connections between them. Noticing and wondering pave the way for the development of other problem-solving strategies and support a classroom culture that gives every student a way to contribute mathematically and that treats math as a creative process.

Annie Fetter

@MFAAnnie

The Math Forum at NCTM, Reston, Virginia

Henry B. Gonzalez Convention Center, Hemisfair 1



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THURSDAY

135.1 **ew****Mathspace—Why You'll Never Grade Math Assignments Again. Seriously. (BYOD!)****General Interest 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 to try award-winning Mathspace live, and ask about a free trial!

Mathspace
New York, New York

Henry B. Gonzalez Convention Center, 206A

135.2 **ew****Experience Hands-On Equations and Hands-On Equations FRACTIONS . . . Dr. Borenson's Newest Invention!****6–8 Exhibitor Workshop**

We will review the key strategies of Hands-On Equations, the innovative program that has enabled students in third grade and up to easily solve equations such as $4x + 3 = 3x + 9$ in just three lessons. We will then provide a taste of Hands-On Equations Fractions, and we will show how to solve fractional equations concretely.

Borenson & Associates
Allentown, Pennsylvania

Henry B. Gonzalez Convention Center, 206B

135.3 **ew****Personalizing Learning in the Math Classroom****General Interest Exhibitor Workshop**

Janet Pittock, VP of Curriculum at McGraw-Hill Education, discusses the role of adaptive technology in personalizing learning in the math classroom. Using Stanford University research and best practices, she will provide tools for selecting the right mix of materials and software, as well as tips for implementation and classroom management.

McGraw Hill Education
Columbus, Ohio

Henry B. Gonzalez Convention Center, 207A

135.4 **ew****Looking at Upside-Down Classrooms: Turning Every Student into a Powerful Problem Solver****General Interest Exhibitor Workshop**

One way to engage students in constructive struggle is to turn teaching upside down. Instead of teaching a procedure and then giving problems, consider giving a good problem and using students' struggle and discourse to set the stage for learning. We will use videos from across the grades to discuss how real teachers do this in their classrooms.

Houghton Mifflin Harcourt
Round Rock, Texas

Henry B. Gonzalez Convention Center, 210AB

135.5 **ew****Parents Count! A Bedtime Math Partnership with School Districts to Build Math Skills at Home****General Interest Exhibitor Workshop**

Bedtime Math is excited to be partnering with school districts across the country on Parents Count, a new initiative that uses our app to foster both parental engagement and early math skills. Partner districts receive communications support and data on app usage within their district. Come hear how to help even more kids learn to love math!

Bedtime Math Foundation
Summit, New Jersey

Henry B. Gonzalez Convention Center, 212AB

135.6 **ew****What We Can Learn (and Use) from Video Game Designers to Make Math Irresistible****General Interest Exhibitor Workshop**

Learn simple strategies to help change student mindsets, spark curiosity, and create a culture where students persevere. Many students are inhibited by the fear of getting wrong answers and low grades. Using video game design psychology and concepts, teachers can increase student interest and decrease anxiety for successful math content mastery.

McGraw-Hill Education
Columbus, Ohio

Henry B. Gonzalez Convention Center Exhibitor Workshop
Theater in Exhibit Hall 3/4

136 A&E**Building Reading Comprehension in Math Using Read Aloud Think Aloud****General Interest Burst**

Reading comprehension is vital to student's success in math. Participants will learn how to use RA/TA to teach reading comprehension in the math classroom. RA/TA strategies will be explicitly modeled to demonstrate how these strategies help with math comprehension, and student work samples will be shared with participants.

Jeremiah Barrett

Holyoke Public Schools, Massachusetts

Henry B. Gonzalez Convention Center, 302AB

137 BUILD**Computational Fluency with Multiplication—What's the Fuss?**

3–5 Burst

C... the ability to apply an understanding to accurately, efficiently, and flexibly work with... Participants will learn about what research says are... strategies for developing computational fluency with multiplication. They will leave with several methods and... ready to be applied in the classroom.

Bethany Lloyd

Wilmington Public Schools, Massachusetts

Jessica de la Cruz

Assumption College, Worcester, Massachusetts

Henry B. Gonzalez Convention Center, 005

138 TLC**Do You "Read" Math? YES! . . . through Literature**

6–8 Burst

Interesting literature is a natural hook for young adult learners who find math more engaging when embedded in real-world contexts. Learn how successful math teachers provide opportunities for students to engage in productive struggle as they solve the everyday math dilemmas of characters that they identify with in the text.

Liza Cope

Delta State University, Cleveland, Mississippi

Leslie Griffin

Delta State University, Cleveland, Mississippi

Grand Hyatt San Antonio, Lonestar Ballroom B

139 ASSESS**Formative Assessment for Learning in a Precalculus Class: Helping Students Develop a Growth Mindset**

10–12 Burst

Formative assessment is a key element in the math classroom. In this session, participants will learn about the principles underlying effective formative assessment as well as specific strategies. In addition, participants will learn how to use formative assessment not only to assist in planning but also to help students develop a growth mindset.

Erica Slate Young

Appalachian State University, Boone, North Carolina

Henry B. Gonzalez Convention Center, 006B

140 TECH**Google Maps and Desmos for Solving Systems of Linear Inequalities**

8–10 Burst

This session will highlight a 5E lesson implemented using Google Maps for solving systems of linear inequalities. We will incorporate Desmos to support student understanding, and we will demonstrate how to embed images generated by Google Maps into Desmos. Methods for distributing and collecting student work will also be presented.

Colleen Eddy

University of North Texas, Denton

Cheyenne Green

Sherman Independent School District, Texas

Sarah Pratt

University of North Texas, Denton

Henry B. Gonzalez Convention Center, 007B

141 BUILD**How to Get the Most Out of Short Writing Tasks**

Higher Education Burst

Writing makes students' thinking visible to us. Let's explore what can make short writing tasks effective in promoting students' deeper understanding of mathematical ideas and providing important information to teachers. Example tasks, some student work, and ideas you can use will be shared.

Susan Gay

University of Kansas, Lawrence

Ingrid Peterson

University of Kansas, Lawrence

Henry B. Gonzalez Convention Center, 007A

142 ASSESS

Just the FACTs: Formative Assessment Classroom Techniques

6–8 Burst

Classrooms with a formative assessment focus lead to greater student understanding. Participants will learn about a variety of formative assessment techniques where teachers can use the student information they gather to inform their teaching.

Micah Stohlmann

University of Nevada, Las Vegas

Henry B. Gonzalez Convention Center, 304B

143 TLC

Making Mathematical Modeling Manageable with Co-Teaching

3–5 Burst

We will showcase two elementary teachers' work to engage students in mathematical modeling tasks. Mathematical modeling can greatly improve understanding, but one obstacle is that students' mathematical understanding, thought processes, and learning styles vary, making management difficult. Come see how teaming up can manage structural complexities.

Jihyun Hwang

University of Iowa, Iowa City

Tracy Jarrett

Mount Pleasant Community School District, Iowa

Stephanie Nudd

Mount Pleasant Community School District, Iowa

Henry B. Gonzalez Convention Center, 305

144 PROF

Math Buddies: A Multigrade Co-Teaching Experience to Promote Student Mentorship

6–8 Burst

Math Buddies unites teachers and students from multiple grades. Experienced problem solvers teach novices about Polya's 4 phases and the importance of explaining your thinking verbally using CueThink's problem-solving platform. The use of technology, cross-grade teacher collaboration, and peer tutoring strengthened students' conceptual understanding.

Sarita Spillert

@sspillert

CueThink, North Reading, Massachusetts

Adrienne Norris

Natick Public Schools, Massachusetts

Henry B. Gonzalez Convention Center, 006A

145 PROF

Math Journal Club for Teachers: Developing Professional Learning Network

Burst

How can you create professional networks for teachers in rural areas? We started an online Math Journal Club to discuss NCTM journal articles on teaching strategies and key topics in junior high school math. At this session, we'll share teacher feedback, discuss video clips from the online meetings, and analyze what worked and what didn't!

Megan Snow

@MeganMSnow

Tri-County Regional School Board, Yarmouth, Nova Scotia

Irina Lyublinskaya

College of Staten Island, New York

Henry B. Gonzalez Convention Center, 304C

2017 Regional Conferences

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146 **A&E****On-Demand Learning****General Interest Burst**

Our presentation will describe the teacher-created course called Math Personalized Learning Plan. Math PLP covers the algebra 1, geometry, and algebra 2 curriculum and is based off the one-room schoolhouse idea. We will expose participants to an innovative model that can be modified for their classrooms.

Maddie Backes

Liberty Public Schools, Missouri

Susan Link

Liberty Public Schools, Missouri

Henry B. Gonzalez Convention Center, 006D

147 **TLC****Say This, Don't Say That****3–5 Burst**

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

Amy Zuber Seguin

School District of the Menomonee Area, Wisconsin

Michelle Dupree

School District of the Menomonee Area, Wisconsin

Grand Hyatt San Antonio, Lonestar Ballroom A

148 **BUILD****Sequencing Series in Calculus****10–12 Burst**

Students often miss connections that can lead to understanding series more fully. Building on tangent line approximations, students can calculate quadratic approximations, laying the groundwork for higher order Taylor polynomial approximations. Investigating approximations early and often can be integral in providing a framework for success.

Josh Berberian

The Shipley School, Bryn Mawr, Pennsylvania

Henry B. Gonzalez Convention Center, 007C

149 **ASSESS****Strategies for Providing Effective Written Feedback in Mathematics****General Interest Burst**

Research indicates that providing effective written feedback to your students can greatly impact student learning. This session will describe the characteristics of effective feedback and strategies that go beyond marking student work as “right or wrong” and, instead, writing statements that push student thinking forward in productive ways.

Tony Thompson

East Carolina University, Greenville, North Carolina

Kwaku Adu-Gyamfi

East Carolina University, Greenville, North Carolina

Henry B. Gonzalez Convention Center, 217C

150 **TECH****Technology Tools to Enhance Your Math Class****3–5 Burst**

Having the technology is not enough. For the technology to be effective in math class, there has to be quality content. Learn about online resources that are effective for student instruction; conceptual understanding and problem-solving strategies; and assessment. Tools and resources that support everyday instruction and assessment will be shared.

Christopher Coyne

[@ctcoyne](#)

Marshall Cavendish Education, Tarrytown, New York

Henry B. Gonzalez Convention Center, 304A

151 **BUILD****Understanding Fraction Division: Don't Just Flip and Multiply!****6–8 Burst**

Join us to learn how the operation of division is the same for whole numbers, decimals, and fractions. We will explore a visual model and use it to solve applications to build a solid understanding of fraction division.

Barbara Boschmans

Northern Arizona University, Flagstaff

Brian Beaudrie

Northern Arizona University, Flagstaff

Henry B. Gonzalez Convention Center, 224

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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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More Lessons Learned from Research, Volume 2: Helping All Students Understand Important Mathematics

EDITED BY EDWARD A. SILVER AND PATRICIA ANN KENNEY

Applying research to strengthen teaching practice and ensure students' success in mathematics

More than seventy years of research point to the importance of teaching mathematics for understanding. Successful students actively construct understanding rather than passively receive knowledge. Implications of this fundamental lesson from research are explored in different ways through twenty-four chapters presented in this book. Chapters cover investigations of a wide range of topics, approaches, and settings, and mathematics teachers at all levels will find examples of research that are relevant to the challenges they face.

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DON'T MISS! More Lessons Learned from Research, Volume 1

EDITED BY EDWARD A. SILVER

Helps to link classroom teachers to all that original research has to offer

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Putting Essential Understanding of Geometry and Measurement into Practice in Grades 3–5

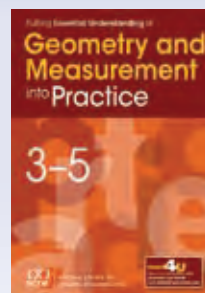
BY KATHRYN CHVAL, JOHN LANNIN, AND DUSTY JONES

KATHRYN CHVAL, VOLUME EDITOR

BARBARA J. DOUGHERTY, SERIES EDITOR

Do your students have “concept images” that limit their ideas of shapes to specific examples, oriented in particular ways? Do they confuse the size of an angle with the length of the rays in a drawing of an angle? This book demonstrates how to use multifaceted knowledge to address the big ideas and essential understandings that students must develop for success with geometry and measurement—not only in their current work, but also in higher-level mathematics and a myriad of real-world contexts.

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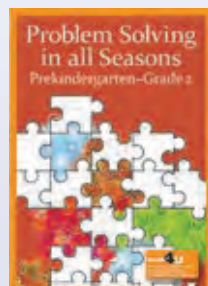


Problem Solving in All Seasons, Grades 3–5

BY KIM MARKWORTH, JENNI MCCOOL, AND JENNIFER KOSIAK

Holidays and seasonal activities offer perfect backdrops for mathematical tasks that can be related to other topics and themes in the classroom. This book delivers thirty-six 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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DON'T MISS! Problem Solving in All Seasons, Pre-K–Grade 2

BY KIM MARKWORTH, JENNI MCCOOL, AND JENNIFER KOSIAK

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152 BUILD**Units of Study: Understanding the Limitations of Isolated Learning****Burst**

Yearly plans based on units of study have been developed to ensure all mathematics outcomes are addressed throughout the year. However, such an approach to instruction has limitations and may jeopardize student mathematical understanding. Learn about the limitations associated with units of study, and how such planning can isolate learning.

David Costello

[@dr_costello](#)

Department of Education, Early Learning and Culture,
Summerside, Prince Edward Island, Canada

Henry B. Gonzalez Convention Center, 217A

153 TLC**Unwrapping Your Lessons: Generating Curiosity & Problem Solving****Pre-K–2 Burst**

Feeling stuck in the grind of daily planning and instruction? Engage in collaborative discussions to spark fresh energy and curiosity in students. We will share routines for unwrapping lessons to create entry points for all students. Walk away with strategies for increasing the cognitive demand of lessons without starting from scratch.

Devin Anderson

[@devin_andersond](#)

Gahanna-Jefferson Public Schools, Ohio

Renee Snyder

Teaching & Learning Collaborative, Worthington, Ohio

Andrea Mulisano

Gahanna-Jefferson Public Schools, Ohio

Henry B. Gonzalez Convention Center, 214D

154 TLC**Using Learning Progressions to Find a "Place" for Place Value****Pre-K–2**

Struggling to find ways to support place value across the year? Learn how learning progressions to plan lessons with specific strategies will be shared to inspire engagement with students and foster investigation. Leave with ideas that encourage all students to continue along on their path of deeper understanding.

Jamie Duncan

[@jamiedunc3](#)

Lake Elsinore Unified School District, California

Devin Anderson

Gahanna-Jefferson Public Schools, Ohio

Andrea Mulisano

Gahanna-Jefferson Public Schools, Ohio

Henry B. Gonzalez Convention Center, 004

155 TLC**Utilizing Random Number Sheets to Carry Out Simulations Aligning with CCSS****6–8 Burst**

The Common Core State Standards (CCSS) require using simulation in teaching and learning probability and statistics. For example, 7.SP.C.8.C: "use simulations to generate frequencies for compound events." This presentation shows how to use random number sheets to conduct simulations aligning with CCSS. Detailed activities will be shared.

Lina DeVaul

University of Nevada, Las Vegas, Henderson

Amy Adkins

University of Nevada, Las Vegas

Travis Olson

University of Nevada, Las Vegas

Henry B. Gonzalez Convention Center, 006C

11:30 A.M.–12:00 P.M.

156 BUILD

What Makes Residuals So Special?

10–12 Burst

What are residuals and why do I need them? When determining a best fit for data, why not just use r , or r^2 , or R^2 ? Why are residuals important? What can they tell me that I don't already know? In this session, we will explore data sets that help you understand the importance of residuals.

Sharon Taylor

Georgia Southern University, Statesboro, Georgia

Henry B. Gonzalez Convention Center, 217B

157 BUILD

Where's the Math?

General Interest Burst

A researcher once observed: "In U.S. lessons, there are students and there is the teacher. I have trouble finding the mathematics." The presence of procedures and numbers does not a math education make. Doing math is an exhilarating, satisfying adventure that too few students experience. Learn strategies that enable real math thinking to thrive.

Zack Miller

@zmill415

Summit Public Schools, Daly City, California

Grand Hyatt San Antonio, Texas Ballroom A

158 BUILD

Wrangling Ratios

6–8 Burst

This session will focus on building conceptual understanding of ratios using hands-on activities. We will also examine alternative ways to visualize and solve problems involving ratios using strip diagrams.

Eileen Faulkenberry

@efaulkenberry

Tarleton State University, Stephenville, Texas

Melanie Fields

Texas A&M University-Commerce

Grand Hyatt San Antonio, Texas Ballroom B

12:30 P.M.–1:00 P.M.

159 BUILD

Beyond Linear: Relatable Problems That Lead to a Deep Understanding of Quadratic Functions

10–12 Burst

Dive into quadratics with real-world contexts! Work through problems that put students in a "quadratic" frame of mind, even if they have no experience with quadratic functions. Learn how the context can serve as a foundation for deep understanding. Leave with ideas you can implement in your classroom.

Carl Oliver

City-As-School, New York, New York

Henry B. Gonzalez Convention Center, 006B

160 TLC

Connecting Geometry, Functions, and Data—with Modeling

10–12 Burst

Want productive struggle? Try modeling. In these mini-investigations, we will see the whole cycle: students measure geometric figures, plot measurements as data, find functions to act as models, and connect those models to the original geometrical context. Free online tools make it practical. We'll also discuss assessment using real student work.

Tim Erickson

@eeps

Epistemological Engineering, Oakland, California

Henry B. Gonzalez Convention Center, 007C

161 PROF

Designing and Teaching Mathematics Courses for EC-6 Preservice Teachers

Higher Education Burst

As EC-6 mathematics curricula change, preservice mathematics courses must be updated to reflect the content that future teachers will be expected to deliver. This session will review the structure of the mathematics content and strategies used in courses for EC-6 preservice teachers and how they meet state and national mathematics standards.

Winifred Mallam

Texas Woman's University, Denton

Henry B. Gonzalez Convention Center, 006C

162 TECH**Designing GeoGebra Applets to Maximize Student Engagement****10–12 Burst**

GeoGebra is a free and powerful tool teachers and students can use to explore various mathematical ideas. In this presentation, we highlight how GeoGebra files can be created and shared to minimize distractions and maximize engagement with mathematical ideas. We describe the general pedagogical principles behind specific applets.

Teo Paoletti

Montclair State University, New Jersey

Ceire Monahan

Montclair State University, New Jersey

Madhavi Vishnubhotla

Montclair State University, New Jersey

Henry B. Gonzalez Convention Center, 304A

163 A&E**Engaging Students in Mathematics with Culturally Responsive Stories****3–5 Burst**

What makes a story culturally responsive? Come find out and then listen to recent research on using these stories to engage students in multicultural classrooms. Participants will experience the evaluation process with several examples and are given resources for creating their own library of culturally responsive stories for mathematics.

Amy Corp

Texas A&M Commerce, Corsicana

Dittika Gupta

Midwestern State University, Wichita Falls, Texas

Henry B. Gonzalez Convention Center, 304C

164 BUILD**Fraction (or Fractured?) Understanding****3–5 Burst**

Did you know that using a limited number of visual models for fractions hinders students' abilities to internalize and generalize fraction concepts? Explore four different representations of fractions and why each is so critical. Learn how different types of models provide different perceptual features and therefore serve different purposes.

Debi DePaul

ORIGO Education, Earth City, Missouri

Henry B. Gonzalez Convention Center, 004

165 TLC**Give Your Classes a Global Perspective****General Interest Burst**

The mathematics of the Colosseum and the Sydney Opera House. The lighting of the Olympic torch. Discussing international issues using mathematics. Students need to be aware of the world around them, and this burst will provide examples of simple ways of adding a global perspective to your regular lessons.

James Roznowski

Delta College, University Center, Missouri

Henry B. Gonzalez Convention Center, 302AB

166 TECH**Increase Your Students' Mathematical Communication with a Writing Checklist and Google Classroom****6–8 Burst**

Learn how to create online writing activities and use peer-to-peer and instructor feedback to improve conceptual understanding through a student-centered writing checklist. Three writing components are stressed: correct answer, correct mathematical reasoning, and complete explanation. Sample work from a unit on solving equations will be shared.

Andrea Lohse

Cherry Creek School District, Aurora, Colorado

Henry B. Gonzalez Convention Center, 007B

167 **TLC****Let's Be Detectives: The Search for Rules, Patterns, and Understanding with SMP 7 & 8 in the Early Years****Pre-K–2 Burst**

Come and learn what structure and regularity in repeated reasoning looks like in the early childhood math classroom. After the sharing of specific activities, tasks, and student work, you will leave this burst with a clear understanding of SMP 7 & 8 as well as routines and activities you can start using tomorrow!

Susan Looney

[@looneymath](#)

Looney Math Consulting, North Easton, Massachusetts

Molly Vokey

Looney Math Consulting, North Easton, Massachusetts

Henry B. Gonzalez Convention Center, 224

168 **ASSESS****Math Mini-Assessments: Quality, Components, and Use Cases****3–5 Burst**

Engage with mini-assessments that weave together the instructional shifts and criteria for high-quality assessment. These free resources can provide a snapshot of student progress through grade level content. Each assessment is designed to measure students' procedural skill and fluency, conceptual understanding, or application of content.

Astrid Fossum

[@AstridFossum](#)

Student Achievement Partners, Brooklyn, New York

Henry B. Gonzalez Convention Center, 217C

169 **BUILD****Multistep Word Problem Solution Patterns of First and Second Graders****Pre-K–2 Burst**

Students who have developed understanding of mathematics conceptually do not need unconnected methods to solve multistep word problems, even before being formally taught. From data collected from students in the first and second grade, solution patterns and thought processes of students while solving multistep word problems will be explored.

Makini Campbell-Sutherland

University of Central Florida, Orlando

Katie Harshman

University of Central Florida, Orlando

Henry B. Gonzalez Convention Center, 005

170 **BUILD****Number Sense: Foundations for Deep Mathematical Understanding****General Interest Burst**

Number sense is the foundation for all mathematical understanding. But, really, what is number sense? This session will present a framework for understanding number sense and its various components. Embedded in this discussion will be a summary of number sense research and instructional strategies geared to developing students' number sense.

Jessica Shumway

[@JessicaShumway](#)

Utah State University, Logan

Grand Hyatt San Antonio, Texas Ballroom B

171 **A&E****Parent University****6–8 Burst**

How many times do you hear parents say, "I would love to help my child with math, but it doesn't look like how I learned it?" Parent University is a program of biweekly classes developed to teach parents the math concepts and strategies needed to help their children succeed. Parents learn upcoming content in their child's class from the teacher.

Derek Fialkiewicz

Brian and Teri Cram Middle School, North Las Vegas, Nevada

Grand Hyatt San Antonio, Lonestar Ballroom A

172 BUILD**Promoting Classroom Discourse through Open Middle Problems****General Interest Burst**

Who is doing the math in our class? Who is doing the talking? In this session, we'll get students talking about problems, not telling answers. Bring a troublesome lesson along, and we'll transform those standard problems into opportunities to explore student thinking and deepen student learning.

Bryan Anderson

🐦 @Anderson02B

First City School, Bemidji, Minnesota

Henry B. Gonzalez Convention Center, 217B

173 TLC**Questioning Strategies to Deepen Mathematical Understandings****General Interest Burst**

Students learn more when they are the ones talking, explaining, and teaching. Learn questioning strategies that will encourage your students to communicate with you and with one another, and you will see their mathematical understandings deepen.

Kari Maurer

🐦 @KariMaurer1

Round Rock ISD, Texas

Grand Hyatt San Antonio, Texas Ballroom A

174 A&E**Quick Quantitative Literacy****General Interest Burst**

After we briefly define quantitative literacy and discuss its importance in today's world, participants will partake in several activities designed to develop the quantitative reasoning abilities of them and their students. The activities are fun, fast, and designed to help all who do them view "typical" numbers from a very different perspective!

Brian Beaudrie

Northern Arizona University, Flagstaff

Barbara Boschmans

Northern Arizona University, Flagstaff

Henry B. Gonzalez Convention Center, 214D

175 TLC**Revoicing: What Do Your Students Know?****10–12 Burst**

Revoicing student ideas can stifle classroom discourse or it can enhance it. Come watch a brief video of a lesson and participate in a lively discussion about enhancing mathematical discourse. Leave with practical tips you can use on Monday!

S. Leigh Nataro

🐦 @mathteacher24

Moravian Academy Upper School, Bethlehem, Pennsylvania

Henry B. Gonzalez Convention Center, 217A

176 TECH**Seven Ways ROCKSTAR Math Teachers Use YouTube****10–12 Burst**

This session will demonstrate how to use and create videos to enhance mathematics instruction through a series of YouTube videos created by the presenter and additional YouTube channels and videos. The session will also consider a variety of effective strategies for integrating web-based video clips into the secondary mathematics curriculum.

Tinashe Blanchet

🐦 @learnlabnola

The Learning Laboratory New Orleans, Inc., Louisiana

Yvelyne Germain-McCarthy

University of New Orleans, Louisiana

Henry B. Gonzalez Convention Center, 304B

177 PROF**Stuck on a Professional Island? Let Social Media Be Your Boat****Burst**

Feeling isolated by choice or circumstance? In this session, we will provide resources and outlets that you can utilize to build your own boat and sail off your island. Learn to use social media, education websites, and an instructional coach to meaningfully collaborate with people and build a PLN inside and outside the walls of your school.

Tracy Pattat

🐦 @tracypattat

Clear Creek ISD, League City, Texas

Sara Bordelon

Clear Creek ISD, League City, Texas

Henry B. Gonzalez Convention Center, 006D

12:30 P.M.–1:00 P.M.

178 BUILD**Supporting Students' Development of Mathematical Thinking****General Interest Burst**

Mathematical thinking is central to doing mathematics. How can we help students to develop and use it to learn mathematics with deep understanding? This session will address ways that teachers can support students in developing mathematical thinking through inquiry-based, mathematical pattern tasks for building conceptual understanding.

Olive Chapman

Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of Calgary, Alberta, Canada

Henry B. Gonzalez Convention Center, 305

179 "M"**The Architecture of Thomas Jefferson: Integrating Math, Science, and History****8–10 Burst**

We use Jefferson's drawings as a springboard into our interdisciplinary curriculum that combines geometry, environmental science, and U.S. history. The lessons ask students to analyze the geometry present in classic architecture, relate it to familiar structures, and take a Google Earth tour of some of the first buildings to dot the colonial landscape.

Beverly Heigre

Notre Dame High School, San Jose, California

Lee Pruett

Notre Dame High School, San Jose, California

Henry B. Gonzalez Convention Center, 007A

180 A&E**Vocabulary: The Reciprocal Relationship between Mathematics and Literacy****6–8 Burst**

Discover how to better engage all students in vocabulary acquisition as it relates to mathematics. Participants will engage in rich discussion as well as multiple hands-on activities that can be immediately implemented into the mathematics classroom and enhance overall student learning for all students.

Karen DiBella

University of Tennessee at Martin

Kimberly Williams

University of Tennessee at Martin

Henry B. Gonzalez Convention Center, 006A

181 TLC**Why Is That Wrong? Using Mistakes to Build Meaning in Math Class****General Interest Burst**

Talking about students' errors and why they are wrong can help students develop correct solution strategies and sound ideas. We will address the research on the relationship between mistakes and learning and offer strategies for using mistakes as instructional tools. Common misconceptions about error analysis will also be discussed.

Nancy Anderson

Milton Academy, Massachusetts

Sandra Correia

Milton Academy, Massachusetts

Grand Hyatt San Antonio, Lonestar Ballroom B

12:30 P.M.–1:30 P.M.

182 BUILD**Build Conceptual Understanding Using a Clothesline****6–8 Session**

Explore how using a clothesline as a number line can help students learn grade-level content while strengthening their number sense. Learn how to consistently use this simple yet dynamic tool, which will help deepen students' conceptual understanding, connect different math concepts, and increase student discourse.

Daniel Luevanos

[@danluevanos](https://twitter.com/danluevanos)

San Marcos Unified School District, California

Grand Hyatt San Antonio, Crockett AB

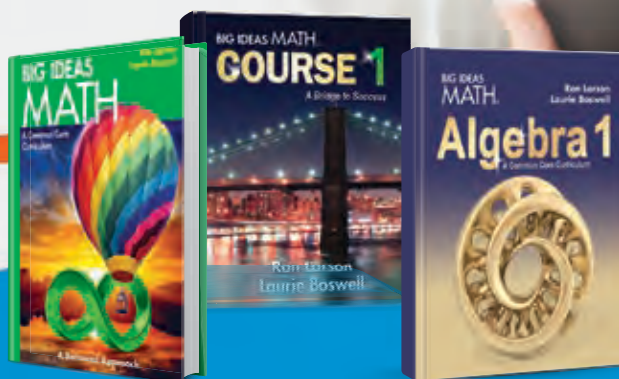
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183 **A&E****Connecting Representations: A Routine for Reasoning for ALL Students****6–8 Session**

We'll address challenges and opportunities in the SMPs, and we'll model a robust instructional routine that fosters the math practices in all students. We will then unpack the supports that are designed for English language learners and students with learning disabilities. Participants will leave with concrete strategies to develop SMPs in ALL students.

Amy Lucenta

Math Consultant, Natick, Massachusetts

Grace Kelemanik

Kelemanik Consulting, Natick, Massachusetts

Henry B. Gonzalez Convention Center, Hemisfair 3

184 **ASSESS****Does Technology Help with Any of This?****General Interest Session**

Laptops, iPads, Chromebooks, BYOD. As our school's technology has evolved, so has our process for determining where, when, what technology we use. Find out what our process looks like now; what tech, apps, and more we use or don't use and why; and how we do all of this to meet our daily goals of collaboration, teamwork, and problem solving.

Shawn Trotter

🐦 @307Trot

PCSD #6, Cody, Wyoming

Kelly Phelan

PCSD #6, Cody, Wyoming

Henry B. Gonzalez Convention Center, 205

185 **A&E** **REFLECTION COVE****Don't Underestimate Your Students: Differentiate Successfully by Asking Richer Questions****General Interest Session**

The questions that teachers ask make all the difference! Participants will explore mathematical question styles that not only provide entry points for all students but also allow for high ceilings, ensuring that all students, from those who struggle to those who don't, are engaged in meaningful mathematical thinking.

Marian Small

University of New Brunswick, Fredericton, New Brunswick, Canada

Henry B. Gonzalez Convention Center, Hemisfair 2

186 **A&E****ELLs Using Linguistic Capital to Create Equitable Learning Opportunities in an Online Math Course****Research Session**

In this study, ELLs discuss how making meaning of mathematical vocabulary and explanations are aided by their bi-cultural capital. We show how effective online environments allow ELLs to utilize their bi-cultural assets to enhance math understanding and to provide equitable access to math instruction. Authentic digital practices will be discussed.

Julian Viera

University of Texas at El Paso

Olga Kosheleva

University of Texas at El Paso

Henry B. Gonzalez Convention Center, 217D

187 **A&E****Engaging Activities and Strategies to Spark Numeric Fluency and Mathematical Reasoning****3–5 Session**

Besides improving students' numeric competency, these strategies promote greater sense making and participation. Experience effective ways to differentiate instruction and efficiently implement the Standards for Mathematical Practice. While enhancing mathematical reasoning, the handout activities improve number and operation sense.

Leigh Childs

San Diego County Office of Education, California

Henry B. Gonzalez Convention Center, 007D

188 **A&E****Engaging the English Language Learner to Grasp Growing Sequences****6–8 Session**

Support language development and productive struggle, and motivate the English language learner in algebraic thinking by examining growing pattern tasks through well-planned interrelated social and analytic scaffolding. Simultaneously engaging in mathematical discourse focused on the key practices of argumentation, structure, and regularity.

José Francisco Sala García

[@JoseFSala](#)

IES Santa Maria d'Eivissa, Ibiza, Balearic Islands

Grand Hyatt San Antonio, Presidio ABC

189 **TECH****Enhancing Calculus with Modeling and Technology****10–12 Session**

Modeling problems help engage students in learning and reinforcing important calculus concepts. Technology such as GeoGebra and spreadsheets provide students with the power to understand these problems, develop models, and see calculus in action. Classroom-tested problems and solutions will be shared.

Cheryl Gann

North Carolina School of Science and Mathematics, Durham

Henry B. Gonzalez Convention Center, 214C

190 **A&E****Getting Mathematical Understanding to SOAR!****General Interest Session**

We will analyze a student's responses to a SOAR mathematics interview and hypothesize possible "next best" learning opportunities based on a learning pathway. We will revisit the student after several more learning opportunities looking for more evidence of understanding and discuss the potential benefit of additional learning opportunities.

Kristin Klingensmith

University of Pittsburgh, Pennsylvania

Victoria Bill

University of Pittsburgh, Gibsonia, Pennsylvania

Henry B. Gonzalez Convention Center, 221

191 **"M"****Mathematics of Bees****10–12 Session**

Bees use very sophisticated thinking for surviving. This presentation will illustrate applications of discrete mathematics topics, such as trigonometry, higher dimensional geometries, and Steiner Points to the lives of bees. The connections between mathematics and bees' methods for finding food and building hives will be discussed.

Thomas Leslie Newsome III

Guilford County Schools, Greensboro, North Carolina

Grand Hyatt San Antonio, Travis AB

192 **A&E****How the "URock Math" After-School Program Supports Students of Color in and out of the Classroom.****Coaches/Leaders/Teacher Educators' Session**

Dr. Daryl Rock, the former principal of Benjamin Banneker Academy in Brooklyn, will detail how he used student support to achieve a 98% high school graduation rate for African American students. Furthermore, he will describe how those support systems are used successfully in the URock Math after-school program.

Daryl Rock

Rock Academic Services, Brooklyn, New York

Grand Hyatt San Antonio, Lonestar Ballroom D

193 **A&E****If You Build It: Creating a Schoolwide Math Community****Coaches/Leaders/Teacher Educators' Session**

When creating a math community at a school, teachers and leaders need to look beyond the classroom walls. Learn how one school built and fostered community through family math nights, inviting families into the math classroom during the school day, special schoolwide math events, and community partnerships.

Kristen Mangus

[@kristenlmangus](#)

Howard County Public School System, Columbia, MD

Henry B. Gonzalez Convention Center, 303

194 PROF**Mathematical Mindsets: Creating a New Future for Math Teachers and Learners****General Interest Session**

New discoveries in brain science are both amazing and at times surprising. They help us understand why so many students—and perhaps you—haven't developed the connections with math that are possible and truly liberating. Come and learn what we can say and do with students to ignite new math pathways, creating classrooms that are full of excited, engaged students. Meet and greet following session.

Jo Boaler

Stanford University/Co-Founder Youcubed, Stanford, California

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre

195 PROF**Making the Case for Elementary Mathematics Coaches****Coaches/Leaders/Teacher Educators' Session**

Elementary math coaches are to provide school-based professional support spanning math content, instructional approaches, and interpretation of student understanding. Come interpret data describing how coaches spent their time as we discuss implications. Learn of research findings connecting the work and activity of coaches to student achievement.

Patricia Campbell

University of Maryland, College Park

Grand Hyatt San Antonio, Republic ABC

196 TLC**Mathematical Practices: Making Complex Mathematics Accessible to Every Student****3–5 Session**

Participants will examine specific instructional practices that support students in doing the complex mathematical work involved in engaging in mathematical practices. These teaching practices make it possible for teachers to unpack the mathematical work in ways that give all students access to challenging ideas, without reducing the complexity.

Nicole Garcia

University of Michigan, Ann Arbor

Meghan Shaughnessy

University of Michigan, Ann Arbor

Henry B. Gonzalez Convention Center, 214B

197 TLC**Mistakes Are Expected, Respected, and INSPECTED! How Do We Inspect Mistakes Productively?****General Interest Session**

Many teachers are changing their minds about the role of mistakes in learning. This session goes beyond setting up a safe classroom environment. Strategies will be shared for highlighting mistakes as a TOOL for making connections to mathematical structure. Don't correct mistakes! Figure out why they make sense and how they can help deepen learning!

Erica Burnison

Davis Joint Unified School District, California

Grand Hyatt San Antonio, Travis CD

198 BUILD**More Than Meets the "Line"****8–10 Session**

Finding the equation for the line of best fit is just the beginning. Why do we always stop working on a best fit problem when we find an equation? Should we care about the slope and y-intercept? Let's explore the value of determine the line of best fit and what it tells us when analyzing and interpreting data in context.

Kelly Edenfield

[@CLKedenfield](https://twitter.com/CLKedenfield)

Carnegie Learning, Pittsburgh, Pennsylvania

Janet Tomlinson

Carnegie Learning, Inc, Pittsburgh, Pennsylvania

Grand Hyatt San Antonio, Lonestar Ballroom F

199 PROF**More Than Resources: The Internet and Deliberate Practice****General Interest Session**

Social media has made it easier than ever to share high-quality resources; Visual Patterns, Estimation 180, and three-act tasks are just a few examples. While sharing resources is useful, this session will focus on using free Internet-based resources to foster deliberate, reflective practice and develop skills that make us better teachers.

Dylan Kane

🐦 @math8_teacher

High Mountain Institute, Leadville, Colorado

Henry B. Gonzalez Convention Center, 008AB

200 TLC**Non-Routine Problems to Promote Persistence, Creativity, and Positive Dispositions****6–8 Session**

We will explore the use of non-routine problems to engage students and help them become better problem solvers. The problems align with middle school content and Common Core practice standards. Participants will receive several problems that promote productive struggle, creativity, and positive dispositions. Student work will be shared.

Hoyun Cho

Capital University, Columbus, Ohio

Gary Lawrence

Mustard Seed School, Hoboken, New Jersey

Grand Hyatt San Antonio, Lonestar Ballroom E

201 BUILD**Numberless Word Problems in the Elementary Grades****Pre-K–2 Session**

How can we develop conceptual understanding of the underlying structures of word problems to help students become proficient at solving them? Take out the numbers! In this session, we'll share a simple yet effective instructional routine that scaffolds student understanding of word problem types and promotes sense making prior to computation.

Brian Bushart

🐦 @bstockus

Round Rock Independent School District, Texas

Regina Payne

Round Rock Independent School District, Texas

Grand Hyatt San Antonio, Texas Ballroom F

202 TECH REFLECTION COVE**Principles for Building and Using Effective Digital Tasks****General Interest Session**

What do the most powerful digital math tasks have in common? What teacher moves allow students to get the most out of any lesson? In this session, we'll consider answers to these questions and use the Desmos Activity Builder as a lens for exploring the intersection of computers, teaching, and math.

Michael Fenton

🐦 @mjfenton

Desmos, San Francisco, California

Henry B. Gonzalez Convention Center, 301

203 "M"**Simple Machines Design Challenge for Middle School Science and Math Students****6–8 Session**

This challenge is an interdisciplinary group project where students investigate the history and physics of simple machines; design a new machine; and construct, test, and evaluate peers' designs. It provides students with the opportunity to incorporate inquiry, equations, construction, and graphical representations all in one unit.

Anna Delia

Hawken School, Lyndhurst, Ohio

Kimberly Brandt

Hawken School, Lyndhurst, Ohio

Grand Hyatt San Antonio, Crockett CD

204 **A&E****Statistics for Social Justice: A Critical Theory Approach****10–12 Session**

We will explore how to engage the AP Statistics learners in topics of social justice and critical theory, how to find resources, and how to incorporate these ideas of justice into the classroom and curriculum without losing a focus on rigor necessary for the exams.

Glenn Waddell

@gwaddellnvhs

University of Nevada, Reno

Megan Schmidt

St. Francis High School, Minnesota

Grand Hyatt San Antonio, Lonestar Ballroom C**205** **TLC****The Advanced Algebra/Finance Connection: A Perfect 3rd- or 4th-Year Math Course****10–12 Session**

Learn ways to use financial applications and activities in an advanced algebra course with only algebra 1 as a prerequisite. The math will be explored in the contexts of discretionary expenses, banking, credit, auto ownership, employment, taxes, housing, investing, entrepreneurship, retirement, and budgeting. Handouts will be distributed.

Richard Sgroi

Bedford Central Schools, New York

Robert Gerver

North Shore Schools, Glen Head, New York

Henry B. Gonzalez Convention Center, Hemisfair 1**206** **"M"****Using Design Thinking to Drive STEM PBL****10–12 Session**

You will experience how math, science, and technology teachers put students in the driver's seat through a human-centered design project. Participants will step in and out of the design-thinking process to understand how student empathy and curiosity can drive learning, while integrating multiple disciplines and addressing national learning standards.

Zach Strother

@trefpool

Mount Vernon Presbyterian School, Atlanta, Georgia

Robin Mathews

Mount Vernon Presbyterian School, Atlanta, Georgia

T.J. Edwards

Mount Vernon Presbyterian School, Atlanta, Georgia

Grand Hyatt San Antonio, Bowie ABC**207** **ASSESS****Using MTMS in the Classroom****6–8 Session**

An editorial panel member will demonstrate various ways that *Mathematics Teaching in the Middle School* can be used by middle school teachers. Come find how feature articles and departments in this NCTM resource can be used to enhance your teaching, your understanding of mathematics, and effective use of formative assessment strategies.

Terry Wyberg

University of Minnesota, Lakeville

Henry B. Gonzalez Convention Center, 214A**208** **BUILD****What Are Statistical Models, and Why Do I Need Them?****10–12 Session**

Mathematical models connect math to the physical world. Statistical models serve the same purpose, and they provide a more thorough description of the behavior of the data under study. Learn how math models describe the structure of a relationship, and how statistical models make them more thorough. Examples, activities, and resources will be provided.

Stephen Miller

Winchester Thurston School, Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, 207B

12:30 P.M.–1:30 P.M.

209 BUILD

What Is Multiplication and How Should We Introduce It?

3–5

American teachers often introduce multiplication by first looking at positive integers and introduce it as “repeated addition.” Professional mathematicians often complain that this definition is wrong (even for positive integers). What is the correct definition and how can teachers better introduce the concept?

Keith Devlin

@profkeithdevlin
Stanford University, California

Henry B. Gonzalez Convention Center, 225

209.1 ew

Strategies for Managing Small Groups with an Equity Stance

General Interest Exhibitor Workshop

How do we manage mathematical discourse with an equity stance? Small groups create safe environments for students and provide teachers with the opportunity to have more productive interactions. In this session, explore various strategies to engage all students during teacher-led and student-led small group time.

Renaissance Learning

Wisconsin Rapids, Wisconsin

Henry B. Gonzalez Convention Center Exhibitor Workshop
Theater in Exhibit Hall 3/4

1:30 P.M.–2:45 P.M.

210 BUILD

“HELP! My Students Are Counting on Their Fingers!”: The Truth about Fluency and How to Achieve It

3–5 Workshop

Fingers play a critical role in early numeracy. Are you thinking “Okay, but why are my students STILL using their fingers?” Why do kids get stuck in the finger zone? How can you move them out of it? What is fluency and how is it related to fingers? Learn strategies that emancipate kids from fingers and reveal that there is more to math than counting!

Alison Mello

@alisonmellomath
Foxborough Public Schools, Massachusetts

Henry B. Gonzalez Convention Center, 006A

211 TLC

A Problem of Pace: Tortilla Chips vs. Pic

6–8

Dip into contextualized problems involving estimation, volume, proportional reasoning, and using San Antonio’s very own math manipulatives: tortilla chips. Take part in productive math talk by sharing participants’ strategies. Together, we’ll make decisions and teacher moves behind the design and implementation of such tasks.

Chris Hunter

Surrey Schools, Surrey, British Columbia, Canada

Grand Hyatt San Antonio, Texas Ballroom D

212 BUILD

Beyond Drill and Practice: Games and Rich Tasks to Teach, Engage, and Develop Mathematical Thinking

3–5 Workshop

Has preparation for high stakes testing removed the joy of learning mathematics from your instruction? Let’s look at some of my favorite games and tasks and how to use them incorporating *Principles to Actions*’ effective teaching practices and the CCSSM mathematical practices to get kids excited about doing mathematics (and learning along the way!).

Linda Gojak

@lindagojak

Past President, National Council of Teachers of Mathematics, Reston, Virginia; I Do Math LLC, Willowick, Ohio

Grand Hyatt San Antonio, Texas Ballroom E

213 BUILD

Break It Down: Decomposition across Mathematical Domains

3–5 Workshop

Developing a solid understanding of part-whole relationships is essential to mathematical proficiency. Let’s take a look at this big idea as it progresses throughout multiple domains in grades 3, 4, and 5. Explore with games, activities, and teacher practices that will help strengthen your students’ understanding of decomposition.

Dennis McDonald

Howard County Public School System, Ellicott City, Maryland

Claudia Eckstrom

Howard County Public School System, Ellicott City, Maryland

Grand Hyatt San Antonio, Lonestar Ballroom A

THURSDAY

M The “M” in STEM/STEAM

PROF Professionalism: Learning Together as Teachers

TECH Tools and Technology

TLC Teaching, Learning, & Curriculum

NCTM ANNUAL MEETING & EXPOSITION 2017

April 5-8 | San Antonio



MULTILINGUAL SESSIONS*

PARENT PANEL SESSION

- A Conversation about Mathematics with Latin@ Parents (Conversando con padres y madres)
- Crystal Kalinec-Craig and Marta Civil
- Teachers will learn *from* parents how they can best support students' learning of mathematics. Parents will share their own experiences as doers of mathematics. Padres y madres compartirán consejos con la audiencia sobre como apoyar a sus hijos/as en la escuela así como sus propias experiencias con las matemáticas. The session will include a conversation between the parents and the audience.
- Key Phrases
 - Conversando con padres y madres
 - Talking about mathematics with parents
 - Padres y madres y matemáticas
 - Latin@ parents and mathematics

ELEMENTARY WORKSHOP

- Developing Number Sense in Emergent Bilingual Learners
- Rocío Benedicto and Zaira Falliner
- Anchor Charts, Word Walls, and Sentence Frames are a few strategies that teachers can use to support deep understanding of number sense for K–5 bilingual/ELLs. This session provides educators with an opportunity to learn mathematics in a Spanish bilingual lesson that models highly effective strategies, for Bilingual/ELL's mathematics success, as well as materials that can be used in the classroom on Monday!
- Key phrases:
 - Number sense for the K–5 bilingual/ELL students
 - Strategies for K–5 bilingual/ELL students
 - Making math accessible to every learner in the K–5 classroom
 - ELA strategies in the bilingual math classroom
 - Estrategias Bilingües para la enseñanza de matemáticas
 - Matemáticas en el aula de primaria

MIDDLE/HIGH SCHOOL WORKSHOP

- Las Matemáticas en Nuestras Aulas: Bilingual Strategies in Secondary Classrooms
- M. Alejandra Sorto and Rachel S. Bower
- Experience the use of Spanish and English languages as resources to make mathematics accessible to emerging bilingual students while keeping tasks at a high level of cognitive demand. Las facilitadoras modelarán las estrategias didácticas basadas en ejemplos reales de aulas de clases en temas matemáticos de secundaria como ser razones y proporciones, porcentajes, geometría, entre otros.
- Key phrases:
 - Las Matemáticas en Nuestras Aulas
 - Bilingual strategies
 - Ejemplos reales de aulas de clase
 - Examples of real classrooms
 - Porcentajes
 - Proporciones

*All three of the multilingual sessions are presented by TODOS: Mathematics for ALL, an NCTM Affiliate-At-Large.

Learn more at nctm.org/annual and follow us on      YouTube #NCTMannual

214 A&E**Calculated Change: Social Justice in the Math Classroom****8–10 Workshop**

Would you like to put more activism into your math classroom? We will explore meaningful, relevant questions in math class to impact student learning and create experiences that will follow students throughout their lives. Participants will learn how to help students become equipped to understand the challenges they will face in the future.

Amanda Riske

🐦@akariske

THINK Global School, New York, New York

David Peabody

University Prep Academy, Seattle, Washington

Henry B. Gonzalez Convention Center, 007C

215 BUILD**Crane Crazy with Transformations****6–8 Workshop**

Are your students not remembering the rules you teach them about transformations? Give students ownership to these rules by allowing them the opportunity to investigate, collaborate, and utilize the appropriate tools to experimentally verify the properties of transformations. Come learn how to integrate literacy and origami to teach transformations.

Rebecca Hurst

Olde Towne Middle School, Ridgeland, Mississippi

Chellie Scwhantes

Olde Towne Middle School, Ridgeland, Mississippi

Henry B. Gonzalez Convention Center, 007A

216 TLC**Dare to Dive Into Data****6–8 Workshop**

Dive into activities that provide opportunities to collect, organize, represent, and interpret data. Attendees will engage in hands-on activities that promote understanding of data with an emphasis on data representation and identifying measures of center and variability. Classroom-ready activities will be provided.

Susan Troutman

Rice University, Houston, Texas

Carolyn White

Rice University, Houston, Texas

Henry B. Gonzalez Convention Center, 004

217 BUILD**Deepen Understanding by Connecting Representations****3–5 Workshop**

Let's do math together and identify important mathematical connections between our approaches and representations. Participants will learn practical tips for planning lessons that leverage rich, relevant tasks and the connections among student approaches to solving real-world problems by collaboratively developing an eye for these connections.

Jaimee Massie

🐦@jaimeemassie

Eugene School District 4J, Oregon

Meg Hearn

LearnZillion, Washington, D.C.

Henry B. Gonzalez Convention Center, 217B

218 BUILD**Exploring the Mathematics of Fractals****10–12 Workshop**

The construction of fractals in the classroom is a fun and interesting activity. In this workshop, we will extend the activity to examine mathematics that goes along with these constructions including, length, area, volume, and dimension. We will generate recursive and explicit formulae to help us count observations in the constructions.

Glen Richgels

Bemidji State University, Minnesota

Amber Severson

Southwest Texas Junior College, Eagle Pass

Erin Richgels

St. Croix Prep Academy, Minnesota

Henry B. Gonzalez Convention Center, 217A

219 BUILD**Financial Literacy in the Primary Grades: The Importance of Investing in the Future Early!****Pre-K–2 Workshop**

Financial literacy is an important life skill, yet how are we fostering understanding in our youngest students? Participants will have the opportunity to actively engage in tasks that help build a foundation for financial literacy in the primary classroom through the incorporation of mathematical standards and practices all relating to real life.

Lindsay Gold

 @lindsayanngold

University of Dayton, Ohio

Derek Sturgill

Ohio University, Athens, Ohio

John Ashurst

T3 National Instructor, Baxter, Kentucky

Henry B. Gonzalez Convention Center, 305

220 BUILD**Get Strategic: A Thoughtful Progression of Addition and Subtraction Strategies****Pre-K–2 Workshop**

Understanding computational strategies is essential for students' mathematical development in becoming flexible and efficient thinkers. In this session, participants will learn how the the meaningful progression of strategies allows students to develop new approaches to computation and build a deeper understanding of number.

Susan Jensen

Howard County Public Schools, Ellicott City, Maryland

Deborah Owen

Howard County Public Schools, Ellicott City, Maryland

Henry B. Gonzalez Convention Center, 006C

221 NT**Essential Ingredients for Student Engagement: Environment, Culture, and Math Tasks****Coaches/Leaders/Teacher Educators' Workshop**

Do you ever wonder what you can do to maximize your students' engagement in math? Join us as we explore how you can leverage your classroom environment, culture, and math tasks to bring a joy of math and deep understanding to your students' math learning. Through classroom video and artifacts, we will discuss and reflect on high-impact practices.

Kathy Ernst

Mathematics Consultant and Coach, West Brattleboro, Vermont

Katie Jacobsen

The Prosper Valley School, Pomfret, Vermont

Grand Hyatt San Antonio, Texas Ballroom B

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222 BUILD**Oh, The Places You'll Go—Or Will You?
An Adventure in Probability That Keeps
On Going . . .****6–8 Workshop**

Experience the MoMath Rosenthal Prize lesson; we'll stand together and let coin flips lead us forward or back. See how investigating this Random Walk leads students to deep understanding and fluency with probability. Walk away with a series of lessons that reach each student and that meet the probability and statistics standard, in grades 6–8 and beyond.

Ralph Pantozzi

🐦 @mathillustrated

Kent Place School, Summit, New Jersey

Henry B. Gonzalez Convention Center, 302AB

223 BUILD**Primary Math Games to Excite Learners
Who Are Struggling****3–5 Workshop**

Math games can interest and excite learners who are struggling! This engaging hands-on session focuses on number and operations, algebraic thinking, fractions, geometry, and statistics motivational concept games to increase student participation, understanding, and achievement.

Ted Hull

Consultant/Author, LCM, Texas

Don Balka

Retired, Saint Mary's College, Notre Dame, Indiana

Henry B. Gonzalez Convention Center, 006B

224 A&E**Promoting Equity and Access: Using
Children's Literature to Provide a
Powerful Context for Learning****Pre-K–2 Workshop**

The session highlights the richness that children's literature brings to mathematics instruction. We identify the necessity for equity and access, connect literature to the essential standards, and provide sample lesson plans for meaningful mathematics for all students. We highlight characters that are multicultural, exceptional, and female.

Stefanie Livers

University of Alabama, Tuscaloosa

Karen Karp

Johns Hopkins University, Baltimore, Maryland

Grand Hyatt San Antonio, Texas Ballroom C

225 BUILD**Proportional Reasoning: The Building
Blocks of Linear Thinking****6–8 Workshop**

Not all linear relationships are proportional, but all involve proportionality. What learning contributes to this understanding? Our charge from NCTM is to engage students in making connections among representations to deepen understanding of concepts and procedures. Come explore what that looks like with proportionality related to linearity.

Whitney Evans

🐦 @WhitBaylor

Plano ISD, Texas

Grace Ann McKay

Denton Independent School District, Texas

Henry B. Gonzalez Convention Center, 007B

Be a speaker! Submit
your proposal now for the
2018 Annual Meeting &
Exposition at **NCTM.org/
speak**. Deadline is May 1.



226 BUILD**Raisins, Ropes, and a Whole Lot More: Six Activities to Open the Door!****10–12 Workshop**

During this fast-paced workshop, you will engage in hands-on activities intended to open the door to specific mathematics content and processes. Content spans several core topics in grades 9–12, and we focus on several mathematical teaching practices. Try these activities and take with you ideas to adopt, adapt, and implement in your classroom!

Roger Day

McGraw-Hill Education, Bloomington, Illinois

Tami Martin

Illinois State University, Normal, Illinois

Henry B. Gonzalez Convention Center, 224

227 TLC**Rich Tasks as Landmarks for Students to Use in Navigating Their Mathematical Learning Journey****8–10 Workshop**

Explore how to maximize the value of rich tasks by using them as student reference points in making sense of topics at hand while building connections to the broader math landscape. Examine the creation and curation of public records of student thinking to support students in orienting their learning and charting paths between prior and new understandings.

Peg Cagle

@pegcagle

LAUSD, Los Angeles, California

Henry B. Gonzalez Convention Center, 217C

228 BUILD**Teaching Elementary Math through Game-Based Manipulatives****Pre-K–2 Workshop**

This presentation focuses on a new approach to teaching elementary mathematics through tangible number blocks. Each number block scales in height to represent its value. This simple system for visual comparisons creates a tangible number line where nearly all elementary math problems can be done through exciting games and challenges.

David Skaggs

@sumblox

SumBlox Group, Paradise, Utah

Jennifer Bond

Walled Lake Consolidated Schools, Michigan

Laura Reina

Utah State University, Logan

Grand Hyatt San Antonio, Lonestar Ballroom B

229 BUILD**The Calculus of Corvettes Workshop****10–12 Workshop**

A non-routine calculus task using data from a drag racing facility will be the focus of this problem-solving workshop. Participants will explore how this task provides flexible learning opportunities through mathematical modeling with technology to deepen students' understanding of calculus. Bring Desmos, Excel, and/or a graphing calculator.

Jaclyn Murawska

Saint Xavier University, Chicago, Illinois

Keith Nabb

University of Wisconsin-River Falls

Henry B. Gonzalez Convention Center, 304B

NCTM Central, located in the Exhibit Hall, has activities, lessons, sample journals, information about grant funding, and more—stop by!



230 **TLC****Using Rich Tasks to Develop Problem-Solving Habits of Mind****3–5 Workshop**

Students are often fed a diet of word problems but rarely encounter tasks that develop deep mathematical reasoning and problem-solving habits of mind. In this session, we'll explore rich, non-routine tasks to develop key problem-solving strategies (managing information, working backwards) and habits of mind (monitoring one's emotions, persistence).

Sonal Malpani

Metamorphosis Teaching Learning Communities, New York, New York

Michael Cassaro

Metamorphosis Teaching Learning Communities, New York, New York

Antonia Cameron

Metamorphosis Teaching Learning Communities, New York, New York

Grand Hyatt San Antonio, Texas Ballroom A

231 **BUILD****Visual Tools; When, Where and How to Help Students Achieve Number Sense****Pre-K–2 Workshop**

This hands-on session will unravel the sequence of many teaching tools that can be used to support young students in learning number sense. Activities will be explored as we take a look at a variety of tools including ten-frames, 100s charts, number paths, and lines. The progression is designed to deepen mathematical understanding and reasoning.

Lisa Rogers

[@clakars](#)

Math Solutions, Sausalito, California

Sandra Coulson

Math Solutions, Sausalito, California

Henry B. Gonzalez Convention Center, 005

232 **TECH****Visualizing the Area Formula Dynamically: Why Length Times Width?****3–5 Workshop**

We introduce an innovative way of teaching and learning measurement, one that we call Dynamic Measurement (DYME), which focuses on the relation between area measurement and multiplication. We present tasks designed for engaging students in DYME experiences and discuss how DYME can be used for assisting students in thinking about area multiplicatively.

Debasmita Basu

Montclair State University, New Jersey

Madhavi Vishnubhotla

Montclair State University, New Jersey

Nicole Panorkou

Montclair State University, New Jersey

Henry B. Gonzalez Convention Center, 304A

233 **PROF****What Do You Notice? What You NOTICE Affects How You Teach****Coaches/Leaders/Teacher Educators' Workshop**

As teachers, we only see what we know to look for. What should you pay attention to? How do you really know if students are learning? Where do you look? What do you see? What does it mean? What decisions are made because of what you see? In this session, we will discuss the implications of professional noticing and use video to hone our skills.

Lori Hamada

[@lorihamada](#)

AIMS Center for Math & Science Education, Fresno, California

Richard Thiessen

AIMS Center for Math & Science Education, Fresno, California

Deb Porcarelli


AIMS Center for Math and Science Education, Fresno, California

Henry B. Gonzalez Convention Center, 006D

1:30 P.M.–2:45 P.M.

234 **TLC****Who Thinks, Learns! The Top 5 Strategies Used to Engage High School Students in Critical Thinking****10–12 Workshop**

Critical thinking with high school students is possible! By experiencing rich tasks, we shall explore several strategies that develop the intellectual engagement of our students thru productive struggling. Together we shall create our list of top 5 strategies and implement them in our classrooms next week through the rich tasks that we experienced!

Jules Bonin-Ducharme
 @jboninducharme


CFORP and Ministry of Education of Ontario Canada, Ottawa, Canada

Henry B. Gonzalez Convention Center, 304C

2:00 P.M.–3:00 P.M.

235 **TLC****A Landscape of Learning for Early Geometry and Some Related Sequences for Development****Pre-K–2 Session**

This session presents a learning trajectory for early geometry based on research on infants' early recognition of distance and turns and the ability to discriminate shapes. Classroom video and two instructional sequences will be shared. The sequences were field tested for K–grade 1 and are based on the coordination of navigation and shape recognition.

Susanna Stossel
 @susannastossel

Beauvoir, the National Cathedral Elementary School, Washington, D.C.

Melanie Lago

Beauvoir, the National Cathedral Elementary School, Washington, D.C.

Cathy Fosnot

New Perspectives Online, New London, Connecticut

Henry B. Gonzalez Convention Center, 217D**236** **TLC****Bit by Bit, Putting It Together: Composite Area Activity and Coherent Standards****6–8 Session**

Put your knowledge of composite area together, bit by bit. Participate in this action-packed activity to solve the cost of planting seed in a field. Be motivated to encourage student participation through looking up prices on-line and using a virtual GeoBoard. Learning progressions and standard will be emphasized. Come see our portable IWB.

Deana Deichert

Montgomery County Community College, Pottstown, Pennsylvania

Tashana Howse


Daytona State College, Florida

Mercedes Turner

Full Sail University, Orlando, Florida

Henry B. Gonzalez Convention Center, 214C**237** **PROF****Building Teacher Leadership: A Collaborative Approach****Coaches/Leaders/Teacher Educators' Session**

Creating a culture of learning is an essential component that empowers teachers to examine their instructional practice. Using a data collection tool as a key talking point, this session highlights how a math team transformed their classrooms into a learning environment that created a core shift in daily instruction to include effective strategies.

Sadie Estrella
 @wahedahbug

Illustrative Mathematics, Hana, Hawaii

Judy Keeney

Central District, Rancho Cucamonga, California

Grand Hyatt San Antonio, Lonestar Ballroom D

238 **A&E****Developing a Growth Mindset and a Mathematics Discourse Community in a Primary ELL Classroom****Pre-K–2 Session**

How do you get a primary classroom of ELLs to engage in discourse? How do you get them to recognize what constitutes smartness in mathematics? Through a case study of Mario, you will hear about the strategies and tools that were used to engage ELLs and specifically move Mario from a non-talker to one who proudly shares his “learning mistakes.”

Socorro Tapetillo

Chandler Unified School District, Arizona

Nora Ramirez

TODOS: Mathematics for ALL, Tempe, Arizona

Grand Hyatt San Antonio, Republic ABC

239 **TLC****Differentiating for All Learners through Menus of Challenging Mathematical Tasks****3–5 Session**

Do you struggle with differentiating in math? In this session, we explore Math Menus, collections of high cognitive demand tasks that engage all students in rich mathematics and the Standards for Mathematical Practice. We will discuss how to successfully implement menus in your classroom to apply, deepen, and extend students’ understanding.

Kim Markworth

Western Washington University, Bellingham, Washington

Janie Overman

Bellingham Public Schools, Washington

Grand Hyatt San Antonio, Travis CD

240 **TLC****Exploring Progression of Mathematical Modeling from Elementary to High School****General Interest Session**

Explore the progression of modeling in elementary, middle, and high school grades by engaging in tasks designed to promote the relevance and scope of mathematics. Discover different frameworks for teaching and creating modeling opportunities for K–12 students.

Aline Abassian

University of Central Florida, Orlando

Farshid Safi

University of Central Florida, Orlando

Grand Hyatt San Antonio, Travis AB

241 **“M”****Fostering Computational Thinking Skills through Coding and Digital Making****6–8 Session**

By fostering computational thinking skills, we can help our students to become problem solvers. Join me as we investigate how coding and digital making can help nurture computational thinking skills in our students to enhance their understanding of math ideas.

Lisa Floyd

[@lisaannefloyd](#)

Western University, Thames Valley District School Board, London, Ontario, Canada

Henry B. Gonzalez Convention Center, 214A

242 **ASSESS****Got GAFE? Using Free Google Apps for Education to Increase Students’ Understanding****10–12 Session**

If your school is, or is going to be, a GAFE school, unleash the power of Google to increase students’ understanding every day! Discover how to give every student a voice in the classroom without increasing your workload. Create a formative assessment that grades itself and provides useful, detailed feedback to both the teacher and student.

Sara Edwards

[@sara_sedwards](#)

Webb City R-7 High School, Missouri

Henry B. Gonzalez Convention Center, 207B

243 **TLC****Incredible Math Tasks!—Catalyst for Effective Formative Assessment****General Interest Session**

In this hands-on session, we will explore how to use worthwhile math tasks as catalyst for gathering evidence of learning. Examine student work and videos to explore how tasks, paired with the NCTM Teacher Practices and questions, promote student engagement in the Standards for Mathematical Practice. Leave with 200+ tasks you can use Monday morning!

William Barnes

[@billjbarnes](#)

Howard County Public School System, Ellicott City, Maryland

Jennifer Novak

Howard County Public School System, Ellicott City, Maryland

Henry B. Gonzalez Convention Center, 221

244 **TLC****Inquiry-Based Learning: What Do I Ask Next?****8–10 Session**

Questioning is a powerful tool used as a guide to promote students' mathematical understanding. Inquiry-based learning relies on questioning to advance students' thinking, but teachers are often left with generic questions in pre-designed lesson plans. Questioning strategies that harness the full potential of inquiry will be examined.

Kristin Hartland

Middle Tennessee State University, Murfreesboro

Matthew Duncan

Middle Tennessee State University, Murfreesboro

Melanie Haupt

Smyrna High School, Murfreesboro, Tennessee

Grand Hyatt San Antonio, Texas Ballroom F

245 **BUILD****Jump-Start Your K–2 Math Class with Engaging Number Routines****Pre-K–2 Session**

Students with strong number sense are often able to think and reason about numbers in a more strategic and flexible way. Help students build this sense by giving them opportunities to engage in mathematical discourse daily. Learn how to jump-start your math block with engaging number routines that will strengthen number sense for all learners.

Michele Glenn

[@mathcoachglenn](#)

Howard County Public Schools, Ellicott City, Maryland

Kathleen Carter

Howard County Public Schools, Ellicott City, Maryland

Henry B. Gonzalez Convention Center, 007D

246 **BUILD****Learning Slope via Rate Not Rote****6–8 Session**

Being able to recite the slope formula is not good enough. During this session, we examine concepts of rate, unit rate, and the constant of proportionality as they relate to slope. Specifically, that the slope of a proportional relationship is equal to the unit rate. Further, we will model how to use slope triangles to derive the slope formula.

Stefanie Hassan

[@slopelady](#)

Eureka Math, Washington, D.C.

Henry B. Gonzalez Convention Center, 303

247 **A&E****Let's Engage Elementary Students in Social Justice Issues to Make Mathematics Real!****General Interest Session**

A university professor and participants will share strategies employing social justice contexts such as recycling, poverty, nutrition, lotteries, and crime to teach mathematics to elementary students. Urban and suburban perspectives will be revealed through video, lesson plans, artifacts, and discussion.

James Clayton

Saint Peter's University, Jersey City, New Jersey

Grand Hyatt San Antonio, Lonestar Ballroom F



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mathlearningcenter.org/intervention

248 ASSESS**Let's Raise the Rigor: Questioning Strategies in Mathematics****6–8 Session**

Discover how students can construct a stronger understanding of mathematics through challenging questions and tasks so they will be college and career ready! 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 Williams

University of Tennessee at Martin

Karen DiBella

University of Tennessee at Martin

Henry B. Gonzalez Convention Center, Hemisfair 2**249 TLC****Mathematics Lessons as Stories: Engaging Learners with Plot Twists****3–5 Session**

Teachers regularly observe students' aesthetic reactions to literature, but how often are moments of surprise or intrigue evident in math classrooms? This presentation will explain how the Math Story Framework was used to plan and teach a grade 5 volume lesson with a plot twist. It will show participants how to use it as a planning tool.

Laura Ryan

Shrewsbury Public Schools, Massachusetts

Leslie Dietiker

Boston University, Massachusetts

Grand Hyatt San Antonio, Lonestar Ballroom E**250 TLC****Mathematics Teacher Development in Finland: Lessons Learned from a Joint U.S.-Finnish Workshop****Coaches/Leaders/Teacher Educators' Session**

Mathematics educators from the U.S. and Finland gathered in Helsinki, Finland, for two days to learn about major initiatives and challenges in each countries' educational system and how preservice teacher preparation and in-service/teacher development efforts address or are affected by them. We share insights and learnings from the exchange.

Janine Remillard

@JanineRemillard

University of Pennsylvania, Philadelphia

John Staley

Baltimore County Public School, Towson, Maryland

Katie Hendrickson

Code.org, Seattle, Washington

Henry B. Gonzalez Convention Center, Stars at Night 4**251 BUILD****Middle School Mathematical Misconceptions and How to Help Students****6–8 Session**

Knowing the mathematical misconceptions and common errors middle school students sometimes make may help teachers improve student learning. This interactive session provides suggested actions teachers can use to address selected misconceptions.

Ruth Harbin Miles

Mary Baldwin University, Staunton, Virginia

Lois Williams

Mary Baldwin University, Staunton, Virginia

Henry B. Gonzalez Convention Center, Hemisfair 3

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nctm.org/innov8



252 **TLC**

NCTM (Mathematics Education Trust) Grants and Scholarships: What Do I Need to Do to Be a Recipient?

General Interest Session

The Mathematics Education Trust (MET) supports teachers, schools, and students with funds for materials, lesson development, conference attendance, courses, professional development, technology, 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!

Linda Fulmore

Trustee, MET Board of Trustees

Grand Hyatt San Antonio, Lonestar Ballroom C

253 **BUILD**

Number Sense: Building Flexibility and Fluency

Pre-K–2 Session

Are you looking for some new ideas to update your repertoire of number sense activities? Come explore a variety of quick, low-prep routines and visual tools that will engage students in fun practice while developing flexibility and fluency with numbers. You will leave with activities that can be implemented in your classroom immediately!

Jennifer Davis

Wicomico County Public Schools, Salisbury, Maryland

Henry B. Gonzalez Convention Center, 214B



254 **PROF**

President's Address: Empowerment WITH Access and Equity

General Interest Session

NCTM is embracing the challenge and the work necessary to make

sure its voice, rhetoric, and actions around equity, access, and empowerment better serve students who have been marginalized. This session will address the critical need to shape and broaden the discourse around access and equity, the need for broader collaboration to understand and address these issues, and actions educators can take to challenge structural obstacles and implement equity-based instructional practices.

Matt Larson is the president of the National Council of Teachers of Mathematics. He is a frequent speaker before mathematics education audiences, and he has authored or co-authored several books, including a series on professional learning communities and Common Core Mathematics. Matt is also the author of NCTM's *Administrator's Guide: Interpreting the Common Core State Standards to Improve Mathematics Education*, and he was on the writing team of *Principles to Actions: Ensuring Mathematical Success for All*.

Matt Larson

President, National Council of Teachers of Mathematics, Reston, Virginia; Lincoln Public Schools, Nebraska

Henry B. Gonzalez Convention Center, Stars at Night 2&3

Visit **NCTM Central** and join your peers in the math education community exploring new resources, renew your NCTM **membership**, shop the latest titles in the **Bookstore**, learn about grant funding through the **Mathematics Education Trust**, connect with colleagues in the **Networking Lounge**, and explore fun math activities in the **Math Corner**.



255 BUILD**Proficiency Level of Mathematics Language Comprehension in Word Problems****8–10 Session**

English language is the language of instruction but a second language in Nigeria, and most mathematical terms do not have direct meaning in students' mother tongue. This study focuses on the proficiency level of pupils in the interpretation and application of word problems in mathematics considering their mother tongue.

Cecilia Ekwueme

University of Calabar, Calabar Cross River State, Nigeria

Gladys Charles-Ogan

University of Port Harcourt, Rivers State, Nigeria

Grand Hyatt San Antonio, Crockett CD

256 ASSESS**Taking Action: PtA Tools for High-Leverage Mathematics Teaching in Elementary Education****General Interest Session**

Engage in activities showcasing the effective teaching practices in *Principles to Actions*. This session features the new NCTM book *Taking Action: Implementing Effective Mathematics Teaching Practices in Pre-K–5*. Each high-leverage practice is studied through elementary classroom artifacts, including discussing rich tasks, analyzing narrative and video cases, and analyzing samples of student work.

DeAnn Huinker

University of Wisconsin–Milwaukee

Victoria Bill

University of Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, Hemisfair 1

257 TECH**The Role of Digital Technology in Classrooms across the World: What Can We Learn?****10–12 Session**

Math educators from around the world are using digital technology to innovate mathematics instruction. Attendees at the quadrennial International Congress on Mathematics Education (ICME) in Germany highlight a few of these uses, with special emphasis on the use of mathematics technology internationally and its promise for mathematics teaching.

M. Kathleen Heid

Penn State University, University Park, Pennsylvania

Woong Lim

University of New Mexico, Albuquerque

Tinashe Blanchet

The Learning Laboratory Inc., New Orleans, Louisiana

Henry B. Gonzalez Convention Center, 008AB

258 BUILD**Time's Up on Timed Tests . . . How to Teach Multiplication Facts for Understanding****3–5 Session**

Learn how to develop automaticity and mental math skills with multiplication and division facts. We will explore strategies that assist students in developing their conceptual understanding of these concepts. Participants will leave with activities, games, and assessments that can immediately be implemented into their classroom routines.

Kristin Hilty

Staff Development for Educators, Peterborough, New Hampshire

Eliza Thomas

Staff Development for Educators, Peterborough, New Hampshire

Henry B. Gonzalez Convention Center, 225

Plan now for the
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April 25–28



259 **TECH****Unraveling Whole Numbers and Fractions on the Number Line****3–5 Session**

Learn four strategies to make successful, targeted number line lessons that bridge the gap between concrete and abstract. Use free online tools and cheap household items to build number sense in fractions and whole numbers operations. The presenters have analyzed hundreds of number line activities and will share practical classroom strategies.

Arjan Khalsa

Conceptua Math, San Rafael, California

Julie McNamara

Cal State East Bay, Hayward, California

Henry B. Gonzalez Convention Center, 301

260 **"M"****Using the Poisson Distribution to Make Real-World Decisions****10–12 Session**

Many decision-making contexts in the real-world involve uncertainty about one or more aspects of the decision. Many times, a probability distribution can be used to model this uncertainty. Participants will learn how the Poisson distribution can be used to make real-world decisions that yield the greatest probability of a favorable outcome.

Kenneth Chelst

Wayne State University, Detroit, Michigan

Thomas Edwards

Wayne State University, Detroit, Michigan

S. Asli Ozgun-Koca

Wayne State University, Detroit, Michigan

Grand Hyatt San Antonio, Crockett AB

261 **BUILD****Visual Models to Solve Routine Word and Non-Routine Algebraic Problems: Lessons from Singapore****General Interest Session**

Many students struggle with word problems, whether in elementary grades with a variety of whole number and fraction operations or the middle grades with ratio, proportion, and algebraic problems. This session will demonstrate how visual models help students see mathematical relationships and solve even the most complex problems and applications.

Andrew Clark

[@andywonders](#)

Retired, Portland Public Schools, Oregon

Grand Hyatt San Antonio, Presidio ABC

262 **BUILD****Wait . . . We Didn't Do an Example Like THAT!****10–12 Session**

Students tend to be very good at studying, memorizing steps, and doing rote calculus. But what happens when you ask them to think about a concept they've learned at a much deeper level? I will use specific examples from my own classroom experience that lead to deeper student understanding of critical topics in calculus.

Paul Battaglia

[@PaulBattaglia](#)

Manasquan School District, New Jersey

Henry B. Gonzalez Convention Center, 205

263 **A&E****What Are They Thinking? Individual Diagnosis/ Intervention in Elementary Mathematics****Coaches/Leaders/Teacher Educators' Session**

Longwood University has implemented intensive training in the Individual Assessment for Data Driven Intervention in Mathematics (IADDIM) model for elementary preservice teachers. We will share students' work samples, as well as data that support growth in preservice teachers' content knowledge, PCK, and self-efficacy in teaching mathematics.

Jodie Brinkmann

Longwood University, Farmville, Virginia

Patricia Hastings

Longwood University, Farmville, Virginia

Grand Hyatt San Antonio, Bowie ABC

263.1 **ew****Mathspace—Why You'll Never Grade Math Assignments Again. Seriously. (BYOD!)****General Interest 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 to try award-winning Mathspace live, and ask about a free trial!

Mathspace

New York, New York

Henry B. Gonzalez Convention Center, 206A

263.2 **ew****10 Minutes of Code****General Interest Exhibitor Workshop**

Want to get your students interested in coding? This hands-on session introduces you to the basics of coding on your TI graphing calculator 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 use in class right away.

Texas Instruments

Dallas, Texas

Henry B. Gonzalez Convention Center, 206B

263.3 **ew****AP Calculus Panel: Part 1****10–12 Exhibitor Workshop**

A panel led by chief reader Stephen Davis—and including Ben Hedrick from the College Board and others—will discuss and answer questions about the 2016 reading and the new format for the 2017 exams. A Q&A session will follow. This is the first part of a two-part session; see also the session titled AP Calculus Panel: Part 2.

Bedford, Freeman & Worth Publishers

New York, New York

Henry B. Gonzalez Convention Center, 207A

263.4 **ew****HP Prime: Mathematics Education Technology on All Platforms!****10–12 Exhibitor Workshop**

Get acquainted with HP Prime: the app-based, full-color graphing calculator. HP Prime is also available as software on Mac and PC as well as Android/iOS/Win10 phones/tablets. All versions have multi-touch, gesture-driven user interfaces (for example, pinch to zoom on a graph) and more. You'll receive a free copy of the software after the workshop.

HP Inc.

San Diego, California

Henry B. Gonzalez Convention Center, 212AB

263.5 **ew****Crazy 8s Club: Help Kids Get Fired Up about Math!****3–5 Exhibitor Workshop**

Crazy 8s is a hands-on, after-school math club with awesome activities like Glow-in-the-Dark Geometry and Toilet Paper Olympics. We provide free club kits, with directions and materials needed to run eight weekly sessions for up to sixteen kids in grades K–2 or 3–5. Join us to get hands-on experience running Crazy 8s activities!

Bedtime Math Foundation

Summit, New Jersey

Henry B. Gonzalez Convention Center, 213AB

263.6 **ew****BCA Math 20-60-20 Method: Reaching Each Student in the Classroom****Pre-K–2 Exhibitor Workshop**

Develop solid foundational skills in logics, comprehension, reasoning, and spatial awareness for 21st century learning. Coupled with the 20-60-20 method in whole class guided instruction, these lessons reach each child of all levels. In this workshop, you will find materials for intellectual development for four- and five-year-olds and the program's method of delivery.

Japan Math

Inverness, Illinois

Henry B. Gonzalez Convention Center, Exhibitor Workshop Theater in Exhibit Hall 3/4

2:00 P.M.—3:00 P.M.

263.7 **ew**

**A Math Coach for Every Teacher:
Exploring Math in Practice**

3–5 Exhibitor Workshop

Imagine the power of every elementary teacher having unlimited access to a math coach. Meet Math in Practice: a grade-by-grade professional learning resource written by teachers, for teachers. Learn how this comprehensive series provides key content knowledge, a wealth of classroom-tested activities and centers, formative assessment support, and more

Houghton Mifflin Harcourt
Round Rock, Texas

Henry B. Gonzalez Convention Center, 210AB

3:15 P.M.—4:30 P.M.

264 **BUILD**

**Analyzing Variation Can Help Us to
Make Estimates and Decisions: It's
More Than Just a Random Thing**

8–10 Workshop

The field of statistics arose because there is variability everywhere in our lives—in population characteristics, in measurements, in sampling, whenever and wherever data are produced or collected. Participants will explore patterns in variability in data (both given and that they produce) to make decisions and estimates under uncertainty.

J. Michael Shaughnessy

Past President, National Council of Teachers of Mathematics,
Reston, Virginia; Portland State University, Oregon

Grand Hyatt San Antonio, Lonestar Ballroom A

265 **PROF**

**Building Mathematics Learning
Communities Using NCTM Professional
Development Guides**

Coaches/Leaders/Teacher Educators' Workshop

Participants will learn about the characteristics/stages of a professional learning communities, the Professional Development Guides on the NCTM website, the *Principles to Actions* Professional Development Guide, and the decisions a facilitator needs to make in preparing for a professional learning task.

Chonda Long

National Council of Teachers of Mathematics, Reston, Virginia

Henry B. Gonzalez Convention Center, 007B

266 **BUILD**

**Developing an Understanding of the
Number Line through Measurement
Concepts**

Pre-K–2 Workshop

The number line is a ubiquitous counting tool often used to compare and compute with numbers. In this session, we will consider often overlooked measurement concepts, such as generalized units of volume, mass and length, and how they provide a foundation for the number line critical to its use as a mathematical tool.

Seanyelle Yagi

University of Hawaii at Manoa, Honolulu

Fay Zenigami

University of Hawaii, Curriculum Research & Development Group,
Honolulu

Linda Venenciano

University of Hawaii at Manoa, Honolulu

Grand Hyatt San Antonio, Texas Ballroom D

267 **BUILD**

**Early Number Operations: Important
Understandings for All K–2 Students**

Pre-K–2 Workshop

Situations that help students' build early number operations will be explored. Participants will examine student solution strategies with the goal of understanding how student reasoning of operations progresses.

Kathleen Lynch-Davis

Coastal Carolina University, Wilkesboro, North Carolina

Chrystal Dean

Appalachian State University, Boone, North Carolina

Diana Moss

Appalachian State University, Boone, North Carolina

Henry B. Gonzalez Convention Center, 305

THURSDAY

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Classroom Resources

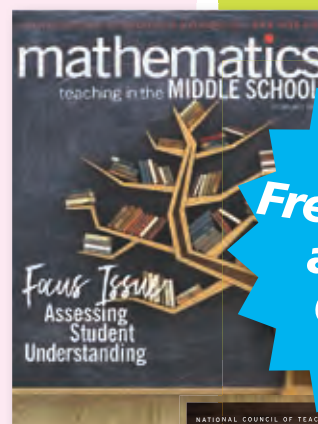
- Take home **classroom-ready activities**
- Try out online **math strategy games**
- Enter the **prize drawing**

Mathematics Education Trust

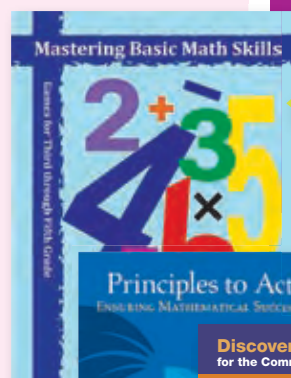
- Learn about **grants and awards** for mathematics educators and students

Networking Lounge

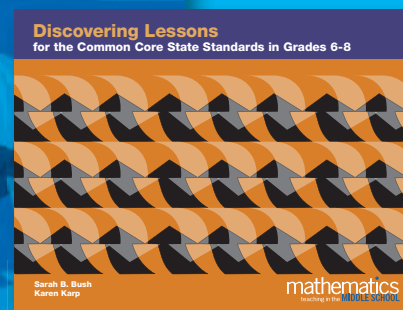
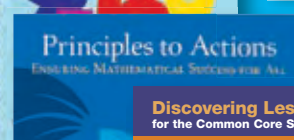
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268 BUILD

Examining the Meaning of Division with Story Contexts, as a Transition from Whole Numbers to Fractions

3–5 Workshop

We will explore various meanings of division and how they are exemplified through the use of story contexts, first with whole numbers, and then we will consider modifications needed to work with fractions. We will examine the connections across the story situation, the number sentences, and a variety of visual representations.

Virginia Bastable

Mount Holyoke College, South Hadley, Massachusetts

Grand Hyatt San Antonio, Lonestar Ballroom B

269 TLC

Executive Function: What Is It? Why Should Mathematics Teachers Care?

Pre-K–2 Workshop

Frustration, disruptive behavior, and shying away from challenges are a few of the harmful side effects when intentional targeting of the development of executive function is absent from PK–3 math instruction. What is EF? What does it look like? How can YOU help students develop these skills? Join us to explore the “how” and “why” of EF!

David Barry

Boston Public Schools, Massachusetts

Karen Anderson

Stonehill College, Easton, Massachusetts

Henry B. Gonzalez Convention Center, 007A

270 BUILD

Food for Thought: Hands-on and Edible Geometry Using Formulas

6–8 Workshop

Deepen students’ knowledge of area, circumference, volume, and surface area with hands-on activities from this session. Some activities even have tasty treats. Use circular paper folding and make pop-up prisms to bridge from two-dimensional to three-dimensional geometry. Leave with many activities to use in your classes on Monday.

Dee Ann Wilson

@DeeAnnMathLady

Expanding Horizons in Education, LLC, Umatilla, Florida

Henry B. Gonzalez Convention Center, 006C

271 A&E

ELLs, Fractions and Lemonade: Do I Have What It Takes?

3–5 Workshop

Experience a lesson that aims to foster critical thinking, collaboration, creativity, and communication in a fifth-grade math classroom. Additionally, you will learn ways to ensure that your culturally and linguistically diverse learners have access to rigorous content instruction as well as opportunities to develop academic language.

Wendy Farr

Arizona State University, Tempe

Silvia Aparicio

Arizona State University, Tempe

Jenni Birrell

Arizona State University, Tempe

Henry B. Gonzalez Convention Center, 006A

NCTM Central, located in the Exhibit Hall, has activities, lessons, sample journals, information about grant funding, and more—stop by!



272 TECH**Incorporating Multiple Tools in Geometric Constructions****8–10 Workshop**

Geometric constructions can be created with a variety of tools and methods to provide a visual representation of geometric concepts. Participants will use a Mira, patty paper, and GeoGebra to construct triangle centers. The incorporation of multiple tools emphasizes the relations among ideas and helps learners understand the concepts.

Ewelina McBroom

Southeast Missouri State University, Cape Girardeau, Maryland

Henry B. Gonzalez Convention Center, 304B

273 A&E**Making It Happen: Engaging All Students, Especially Those Who “Hate” Math****8–10 Workshop**

For too many students, mathematics means confusion, failure, heartache, and feeling like a “dummy.” Rather than risk failure or looking dumb, they simply choose not to “play” the game of school. In this workshop, participants will learn to use strategies of an equity pedagogy framework for engaging all students, especially those who “hate” math.

Pamela Seda

[@pamseda1](#)

DeKalb County School District, Decatur, Georgia

Kasele Mshinda

Atlanta Public Schools, Georgia

Henry B. Gonzalez Convention Center, 302AB

274 BUILD**Making Sense of Addition & Subtraction through Children’s Literature****Pre-K–2 Workshop**

Revisit favorite children’s books and discover new titles with an eye towards addition and subtraction structures. Deepen student understanding of these rich operations by placing them in a variety of familiar contexts and using multiple representations to build connections. Learn strategies for using literature to engage students with mathematics.

Sara Moore

[@saradelanomoore](#)

SDM Learning, Kent, Ohio

William Bintz

Kent State University, Ohio

Henry B. Gonzalez Convention Center, 005

275 TECH**Mathematical Action Technologies: Moving beyond the Hype of Flipping, Clickers, and IWBs****10–12 Workshop**

As described in *Principles to Actions*, mathematical action technologies engage students in “doing” mathematics, building mathematical practices. Participants will explore their potential for transforming the high school mathematics classroom in contexts from algebra, geometry, and statistics. Participants are encouraged to bring their own devices!

W. Gary Martin

[@wgarym](#)

Auburn University, Alabama

Henry B. Gonzalez Convention Center, 007C

New to teaching? Get answers to pivotal questions and to the concerns of new and soon-to-be teachers through the **New Teacher Strand.**



276 BUILD

Minecraft Math: Making Geometry and Measurement Come Alive

6–8 Workshop

Learn how to incorporate the popular game, Minecraft, into volume and surface area lessons the students will enjoy and remember. Participants will be challenged to explore the mathematics of cubes, rectangular prisms, and cylinders using manipulatives and nets. Attendees will leave with templates to bring back to their classrooms.

Kim Moore

Texas A & M University-Corpus Christi

Faye Bruun

Texas A & M University-Corpus Christi

Christine Price

Corpus Christi Independent School District, Texas

Henry B. Gonzalez Convention Center, 217B

277 TLC

Modeling: Teaching It Right!

10–12 Workshop

Modeling, if taught correctly, is one of the most effective tools in student learning. It requires creating “scenarios” that “beg” a problem-solving situation and just the right amount of teacher guidance for students to be successful. Learn hands-on about the nuts-and-bolts of creating, using, and teaching with models that truly help students learn.

David Ewing

University of Central Missouri, Warrensburg, Missouri

Henry B. Gonzalez Convention Center, 224

278 NT

Finding Your Heart for Teaching: What Professionals Do!

Coaches/Leaders/Teacher Educators’ Workshop

Twelve percent of all teachers are in their first or second year of teaching! If that is you, come join this inspirational session! The vision for mathematics is evolving with more rigorous content and practice standards bringing new expectations for K–12 mathematics teachers. Come explore four significant shifts new teachers are expected to make as they join this great profession!

Mona Toncheff

National Council of Supervisors of Mathematics, Phoenix, Arizona

Tim Kanold

The Center for Teaching and Learning Mathematics, Chicago, Illinois

Grand Hyatt San Antonio, Texas Ballroom A

279 “M”

Next Generation Science Standards: Doing the Science Means Doing the Math

6–8 Workshop

A study comparing the expectations of the Next Generation Science Standards and the NAEP Math Framework revealed that the math expectations in the NGSS are greater than expected. In this hands-on session, we will work through sample tasks, explore “math rich” science expectations, and examine implications for middle school STEM collaboration.

Will Johnston

[@wtadj1](#)

American Institutes for Research, Washington, D.C.

Kim Gattis

American Institutes for Research, Washington, D.C.

Alka Arora

American Institutes for Research, Washington, D.C.

Henry B. Gonzalez Convention Center, 004

Thank you to the Program Committee members. Your time and dedication made this year’s Annual Meeting a huge success!



280 TECH**Paper Airplane Meets Technology****6–8 Workshop**

After constructing a paper airplane, participants will estimate the distance flown and time aloft their planes will achieve. They will then fly their planes, recording distance and time aloft, and then use the TI-Nspire navigator system to evaluate their data. Finally, participants will learn how when this lesson is used in the classroom setting learning comes alive.

William Luke

Central Texas College, Fort Hood, Texas

Gregory Luke

Temple High School, Texas

Henry B. Gonzalez Convention Center, 006D

281 BUILD**Partner Games for Perfect Practice: Engaging, Thoughtful, and Productive****Pre-K–2 Workshop**

Participants will engage in game play to learn about meaningful practice and formative assessment provided by games. Participants will see video of children playing and see how they share their thinking and numerical reasoning. Participants will leave with an ideas for effective practice.

Patsy Kanter

Self-Employed, New Orleans, Louisiana

Donna Long

Houghton Mifflin Harcourt, Boston, Massachusetts

Grand Hyatt San Antonio, Texas Ballroom E

282 "M"**Polar, Parametric, and Rectangular Graphs . . . Really See the Connection!****10–12 Workshop**

Making connections between polar, parametric, and rectangular equations can be challenging when only using paper and pencil. In this session, participants explore equators by completing activities using manipulative, calculators, and video clips that prepare students for future math courses. Activities and projects will be shared!

Deedee Henderson

Oxford City Schools, Alabama

Henry B. Gonzalez Convention Center, 217C

283 TLC**Questions, Discourse, and Productive Struggle: Integrating Three Effective Teaching Practices****8–10 Workshop**

Questioning, mathematics discourse, and productive struggle are important components of mathematics classrooms that support reasoning and sense making. In this session, we will use mathematical tasks, video clips, written cases, and student work to investigate how teachers can prepare for and support deep student thinking and engagement.

Mike Steele

@mdsteele47

University of Wisconsin-Milwaukee

Henry B. Gonzalez Convention Center, 217A

284 TLC**Structuring Mathematical Tasks to Engage Students in Productive Struggle****3–5 Workshop**

How do you support students while doing challenging tasks? Do they work hard or give up? We will explore ways to structure tasks to engage your students in productive struggle and deepen their mathematical understanding. Redefine the role that effort and struggle play in learning mathematics and discuss strategies to build student perseverance.

Christine Roberts

@tcoechristine

Tulare County Office of Education, Visalia, California

Nicholas Lopez

Dinuba Unified School District, California

Grand Hyatt San Antonio, Texas Ballroom C

285 BUILD**Students' Understanding of Fractions-- Too Important for Teaching Halfway!****3–5 Workshop**

In this session, participants will engage in a problem-solving activity containing operations on fractions. They will then participate in the share out of these strategies. At the conclusion, participants will be familiar with the trajectory to which students progress in developing understanding of fractions and/or operations on fractions.

Lynne Nielsen

@lynne10nielsen

Louisiana Tech University, Ruston, Louisiana

Henry B. Gonzalez Convention Center, 304C

3:15 P.M.–4:30 P.M.

286 **A&E**

**Las Matemáticas en Nuestras Aulas:
Bilingual Strategies in Secondary
Classrooms**

Coaches/Leaders/Teacher Educators' Workshop

In this workshop, participants will have the opportunity to experience the use of Spanish and English languages as resources to make mathematics accessible to emerging bilingual students while keeping tasks at a high level of cognitive demand. *Las facilitadoras modelarán las estrategias didácticas basadas en ejemplos reales de aulas de clases en temas matemáticos de secundaria como ser razones y proporciones, porcentajes, geometría, entre otros.*

M. Alejandra Sorto

Texas State University, San Marcos

Rachel S. Bower

Texas State University, San Marcos

Grand Hyatt San Antonio, Texas Ballroom B

287 **TECH**

**Virtual Cookies: Free Virtual Resources
to Increase Participation, Discussion,
and Collaboration**

6–8 Workshop

Learn how to use virtual tools that increase participation, discussion, and collaboration in any classroom type or grade level. Virtual Cookies explored include: Poll Everywhere, Kahoot, Quizizz, Socrative, Plickers, Padlet, Wikispaces, Bubbl.us, Desmos, and Google Drive. Bring an electronic device.

Kristy Litster

Utah State University, Logan

Christina Watts

Utah State University, Logan

Henry B. Gonzalez Convention Center, 304A

288 **"M"**

**Weather and Climate Detectives:
Building Decimal Understandings**

3–5 Workshop

Weather and climate are two phenomena often misunderstood by students. By understanding the math communicated in the data, students are better able to interpret the effects of weather and climate. This session will focus on we used operations on decimals, within a science unit, to help students better make sense of weather and climate relationships

Cory Bennett

Idaho State University, Pocatello

Carri Thomason

Pocatello & Chubbuck School District, Idaho

Henry B. Gonzalez Convention Center, 006B

3:30 P.M.–4:30 P.M.

289 **TECH**

**The Winning Equation:
How to Get More
Students to Love Math**

General Interest Session



John Urschel is a 6-foot-3, 305-pound offensive lineman for the Baltimore Ravens and a published mathematician. Join him as he shares his journey of where a love of math has taken him and where it can take your students. Urschel, who is currently pursuing his PhD in applied mathematics at M.I.T., will show how math extends far beyond the confines of the classroom and into everyday life. Get in the game!

John Urschel, the brawny offensive lineman for the Baltimore Ravens, is using his brains to single-handedly crush “dumb jock” stereotypes. He holds a master’s degree in mathematics from Penn State and is currently studying for his PhD in applied mathematics at M.I.T. In 2014, he co-authored a paper entitled “A Cascadic Multigrid Algorithm for Computing the Fiedler Vector of Graph Laplacians” that was published in the *Journal of Computational Mathematics*.

John Urschel

[@JohnCUrschel](#)

Baltimore Ravens, Baltimore, Maryland

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre

THURSDAY

3:30 P.M.—4:30 P.M.

289.1 ew**Use Technology to Support Observational Assessments in K–Grade 5****Coaches/Leaders/Teacher Educators' Exhibitor Workshop**

Have you seen SCOUT? This new observational assessment app lets you Capture! Tag! Find! in real time. Learn how to use this new app to capture performance, make notes, and access assessments to support Ongoing Assessments and Assessment Checklists in Investigations 3.

Pearson Learning Services
Chandler, Arizona

Henry B. Gonzalez Convention Center, 206B

289.2 ew**AP Calculus Panel: Part 2****10–12 Exhibitor Workshop**

A panel led by chief reader Stephen Davis—and including Ben Hedrick from the College Board and others—will discuss and answer questions about the 2016 reading and the new format for the 2017 exams. A Q&A session will follow. This is the second part of a two-part session; see also the session titled AP Calculus Panel: Part 1.

Bedford, Freeman & Worth Publishers
New York, New York

Henry B. Gonzalez Convention Center, 207A

289.3 ew**Numbers Are NOT Letters! Narrowing the Math Achievement Gap Before It Starts****Pre-K–2 Exhibitor Workshop**

As with reading, if students do not master key foundational skills and concepts in mathematics by end of grade 3 they will be at risk in subsequent grades. But how we learn math is not the same as how we learn to read. This presentation will focus on the critical components and effective best practices for K–3 math education.

Houghton Mifflin Harcourt
Round Rock, Texas

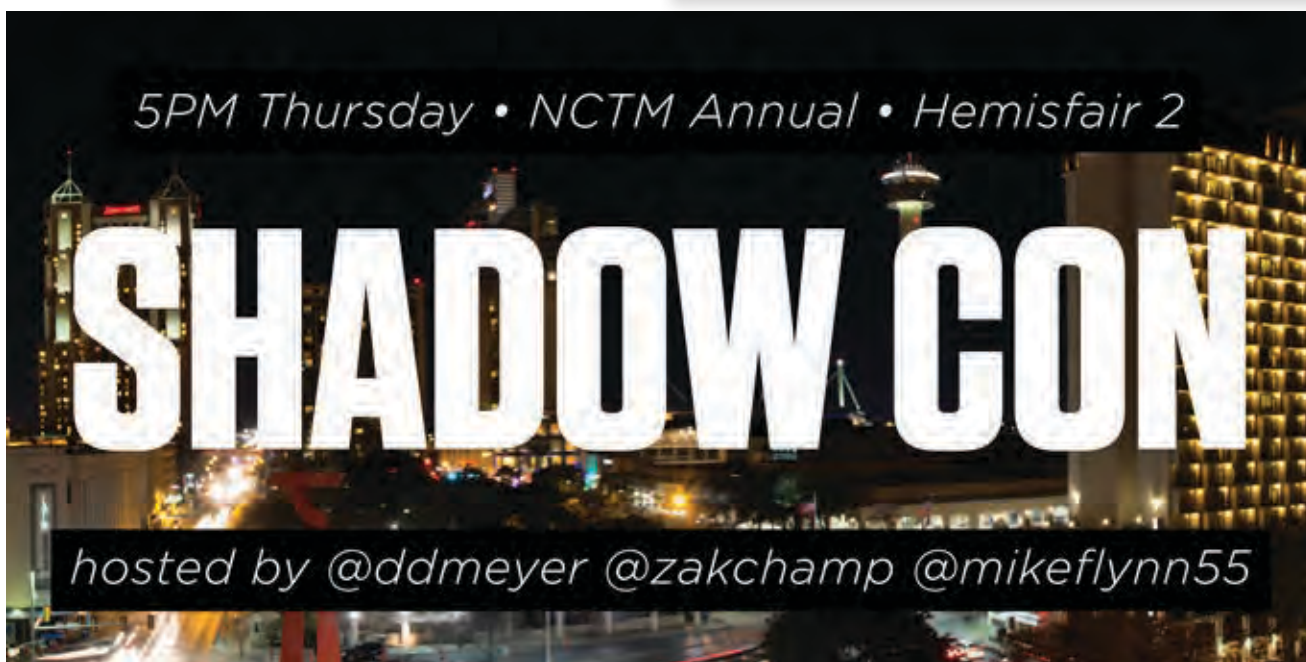
Henry B. Gonzalez Convention Center, 210AB

5:00 P.M.—6:30 P.M.

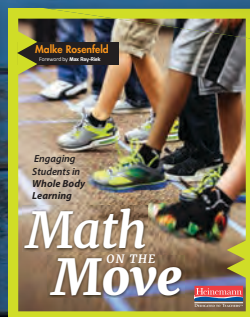
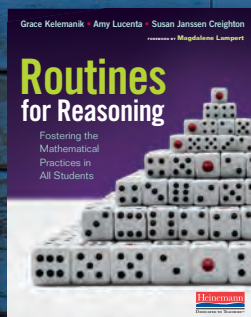
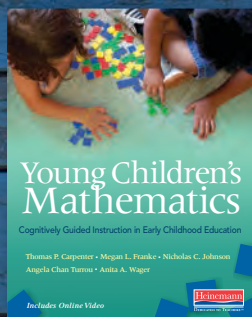
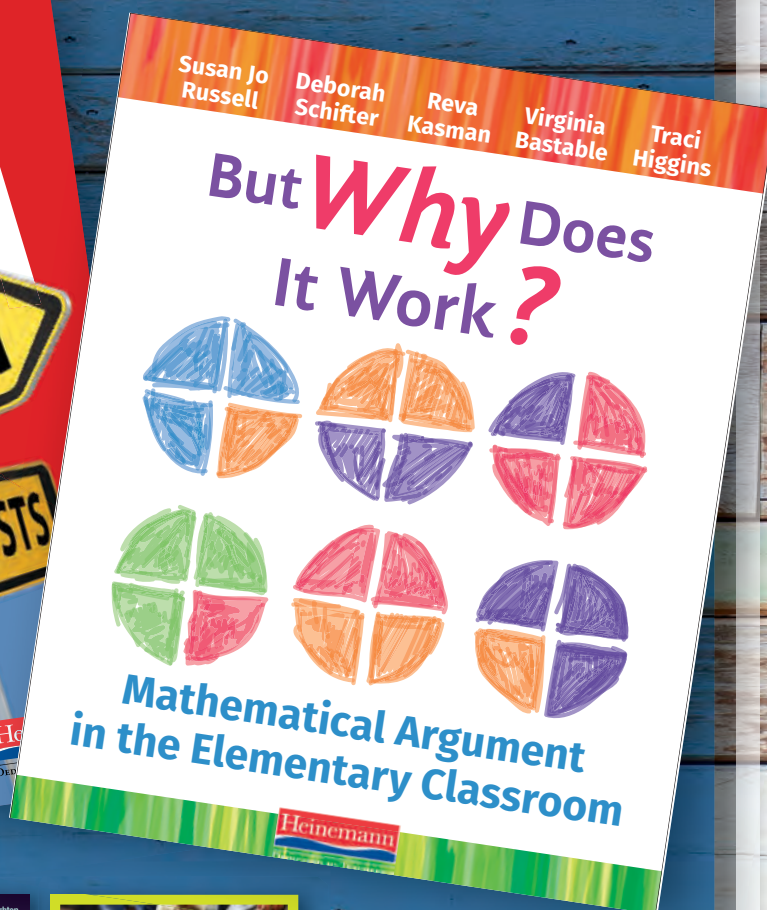
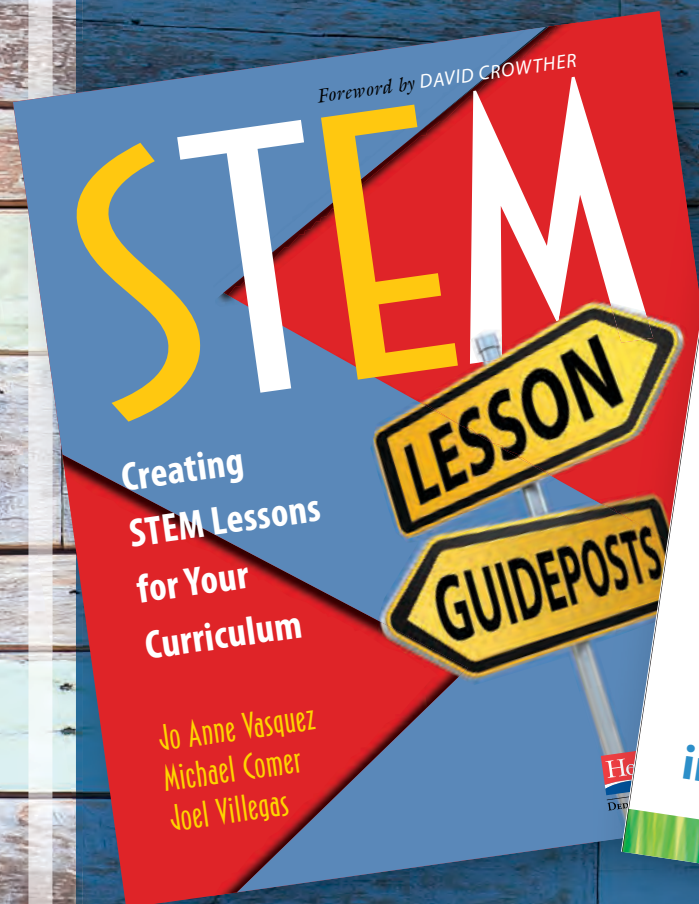
290 TECH**ShadowCon V3.0****General Interest Session**

This year's ShadowCon will once again highlight some of NCTM's best speakers, on topics as diverse as academic language and technological integration. Once again, the goal of ShadowCon is to expand access to and extend your engagement with their ideas. So each speaker's 10-minute talk will serve as a preview for a free ten-week online course. You won't want to miss this kick-off. The event is organized and hosted by Dan Meyer, Mike Flynn, and Zachary Champagne.

Henry B. Gonzalez Convention Center, Hemisfair 2



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Saturday: Noon

Stop by our café (#1125) to sample our math menus, enter a raffle for a chance to win a Chromebook dessert, and take home a doggy bag of classroom activities.

MATH SOLUTIONS SESSION BUFFET

THURSDAY, APRIL 6TH

- 11 AM–12 PM** **LOOKING AT UPSIDE-DOWN CLASSROOMS**
Cathy Seeley, Author
NCTM Exhibitor Workshop Area
- 1:30–2:45 PM** **VISUAL TOOLS: WHEN, WHERE, AND HOW TO HELP STUDENTS ACHIEVE NUMBER SENSE**
Lisa Rogers
Convention Center, 005
- 2–3 PM** **UNRAVELING WHOLE NUMBERS AND FRACTIONS ON THE NUMBER LINE**
Julie McNamara, Author
Convention Center 301

FRIDAY, APRIL 7TH

- 11 AM–12 PM** **MIDDLE SCHOOL NUMBER TALKS: SHIFTING THE CLASSROOM CULTURE**
Sherry Parrish & Ann Dominick, Authors
Convention Center 221
- 12:30–1:30 PM** **THE ANSWER STILL MATTERS**
Cathy Seeley, Author
Bowie A/B/C
- 12:30–1:30 PM** **NOTICING THE NUMBERS: STUDENTS USING COMPUTATION STRATEGIES**
Patty Clark & Mary Mitchell
Convention Center 214B
- 1:30–2:45 PM** **I'M GAME! ARE YOU?**
Diane Reynolds & Sandra Coulson
Convention Center, 305

SATURDAY, APRIL 8TH

- 8–9 AM** **THE HeART OF COACHING: ASKING PURPOSEFUL QUESTIONS**
Mary Mitchell & Brenda Konicke
Grand Hyatt, Lonestar Ballroom F
- 8–9 AM** **MATH WORKSHOP: GUIDED MATH & BEYOND**
Jennifer Lempp, Author
Grand Hyatt, Lonestar Ballroom C
- 11 AM–12 PM** **SET YOUR SIGHTS HIGH: TEACHING ARITHMETIC WITH AN ALGEBRAIC LENS**
Amy Mayfield & LuAnn Weynand
Grand Hyatt, Ballroom F
- 11 AM–12 PM** **I ASKED A QUESTION, NOW WHAT?**
Genni Steele & Mary Mitchell
Convention Center, 301



HIGHLIGHTS

From Arithmetic to Algebra—and Beyond, 302
 A Conversation about Mathematics with Latina/o Parents: *Conversando con padres y madres*, 313
 Visualizing Concepts: The Gateway to Understanding, 314
 Blurring the Lines between Instruction and Assessment, 348
 Even Einstein Struggled: Motivating Students to Learn Math and Science, 357
 Heartprint: Transforming the Power of Teacher Collaboration to Become a Fully Formed Professional!, 359
 Pixar in a Box: Theory and Practice, 363
 What Is Active Learning for Mathematics in Higher Education?, 397
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 Effective Thinking and Creative Puzzle Solving, 580
 Ignite! We'll Enlighten You and We'll Make It Quick, 581

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REGISTRATION HOURS

7:00 a.m.—5:00 p.m.

EXHIBIT HOURS

8:00 a.m.—5:00 p.m.

NCTM CENTRAL HOURS

8:00 a.m.—5:00 p.m.

FIRE CODES

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



291 BUILD**Adopting New Math Books? Start by Selecting an Effect Textbook Analysis Toolkit to Inform Your Work!****General Interest Session**

Explore the recently updated NCSM/NCTM Curriculum Analysis Toolkit for evaluating instructional materials and new supporting resources: Look For guides to focus reviewers on critical textbook features and Textbook Analysis Professional Learning Activities to build a shared vision of effective textbook design among members of review committees.

Valerie Mills

Oakland Schools, Waterford, Michigan

Diane Briars

Past President, National Council of Teachers of Mathematics, Reston, Virginia; Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, 214B

292 TLC**Extracting Rich Mathematical Problems from a Real-World Context****6–8 Session**

In this presentation, you will learn about a milking parlor, a carousel that helps farmers milk cows efficiently. This context provides a wonderful opportunity to explore ideas in geometry, proportional reasoning, and rates. After solving open-ended problems, you will have time to develop additional problems for use in your classroom.

Erin Moss

Millersville University of Pennsylvania

Grand Hyatt San Antonio, Bowie ABC

293 TLC**Algebra: Why It Is Destroying America****General Interest Session**

Students aren't failing algebra. Algebra is failing students! We will discuss how the typical algebra courses are harming not just individual students, but society and the economy as well. We'll share data and discuss ways to make algebra instruction and assessment work for students and society.

Patrick Callahan

Callahan Consulting, Coronado, California

Grand Hyatt San Antonio, Travis CD

294 TLC REFLECTION COVE**All the Things Kids Learn When We're Trying to Teach Them Math****General Interest Session**

Sure, students need to count, convert, and calculate, but we also want them to persevere, use technology, and love math. While we try to do it all, some kids fall behind and think they're not good at math. Let's examine some unintended consequences of instruction, and explore strategies that foster the skills and habits that help students thrive.

Patrick Vennebush

@pvennebush

Discovery Education, Silver Spring, Maryland

Henry B. Gonzalez Convention Center, 301

295 "M"**Changing the Rhythm of Math Class: Using Educational Songs to Cultivate Learning and Community****General Interest Session**

We'll discuss (and demo!) best practices (informed in part by our NSF grants) for creating and using educational songs for grades 8–14 mathematics/statistics. We address perceived barriers and hesitations by sharing low-risk, high bang-for-the-buck strategies, resources, and tips for finding, writing, and using songs aligned to learning objectives.

Lawrence Lesser

University of Texas at El Paso (UTEP), Texas

Dennis Pearl

Pennsylvania State University, University Park

John Weber

Perimeter College at Georgia State University, Clarkston

Henry B. Gonzalez Convention Center, 214C

296 **A&E**

Classroom Structures for Differentiation: Ensuring Deep Mathematical Thinking for All

General Interest Session

Supporting students with diverse backgrounds is challenging. Starting with a broad overview of research, we will explore structures I use to ensure every student can engage with the content and practices. Examples include student-posed problems; low-floor high-ceiling projects; practice, pushing, pondering homework; and standards-based assessments.

Avery Pickford

[@woutgeo](#)

The Nueva School, Hillsborough, California

Grand Hyatt San Antonio, Travis AB

297 **PROF**

Collaboration: The Key to Innovation

Coaches/Leaders/Teacher Educators' Session

How do we hold ourselves and each other accountable for the success of every student? Create collaborative structures, K–12! Collaboration is messy, challenging, and rife with conflict, but it is essential for personal and collective growth! We'll share details of how to create K–12 collaborative structures that empower teachers to learn and lead.

Sarah Caban

[@csarahj](#)

RSU #38, Readfield, Maine

Nancy Harriman

RSU #38, Readfield, Maine

Abby Shink

RSU #38, Readfield, Maine

Grand Hyatt San Antonio, Lonestar Ballroom D

298 **PROF**

Curricular Reasoning: Making Sense of Standards to Improve Student Performance

General Interest Session

Learning happens as students make sense of the content. Before this can happen, teachers must make sense of the curriculum to adapt and supplement to meet students' needs, meet goals, and achieve standards. In this session, teachers will participate in activities that model the processes that will allow them to modify the content they teach.

Mercedes Sotillo Turner

Full Sail University, Winter Park, Florida

Tashana Howse

Georgia Gwinnett College, Lawrenceville

Grand Hyatt San Antonio, Crockett CD

CANCELED



Teachers: give your high school students the opportunity to participate in a real-world, futuristic scholarship competition with driverless cars!

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FRIDAY

299 ASSESS**Dynamic vs. Static Assessment: A Growth-Mindset Perspective****3–5 Session**

Assessment should inform teaching. It should be continuous, pick up data on mathematical growth and development, and provide information about the “zone of proximal development.” This session will examine powerful ways to craft formative assessments to provide teaching implications that ensure resulting positive growth mindsets in learners.

Cathy Fosnot

Professor Emerita CCNY, Catherine Fosnot & Associates: New Perspectives, New London, Connecticut

Janan Hamm

Mathematics in the City, CCNY, New York

Henry B. Gonzalez Convention Center, Hemisfair 1

300 A&E**El Chapo and Geometry: Using Current Events to Teach Proofs****10–12 Session**

What does El Chapo have to do with geometry? You will learn how high school students learned how to write geometry proofs using current events. Teachers will see how students were able to write an argument regarding a current event of their choosing and mimic that process and master writing geometry proofs.

Erin Talley

Cobb County Schools, Marietta, Georgia

Miranda Sanders

Cobb County Schools, Marietta, Georgia

Jennifer Glendenning

Cobb County Schools, Marietta, Georgia

Grand Hyatt San Antonio, Lonestar Ballroom E

301 ASSESS**Five Ways to Integrate Assessment into Instructional Practice****6–8 Session**

This session will share how Illustrative Mathematics has integrated assessments into our grades 6–8 curriculum, which will come out for first use in the 2017–2018 school year. Let’s together take advantage of this era of real-time feedback, innovative frameworks for formative assessment, and tasks that combine content and mathematical practice.

Kristin Umland

Illustrative Mathematics, Tucson, Arizona

Henry B. Gonzalez Convention Center, 214A

302 ASSESS REFLECTION COVE**From Arithmetic to Algebra—and Beyond****General Interest Session**

How can elementary grades teachers prepare students for success in algebra? How can teachers in middle and high school take advantage of those early investments to help their students? In this talk, I’ll share ideas for teaching and assessing the progression from arithmetic to algebra, the central pillar of any college- and career-ready curriculum.

Jason Zimba

Student Achievement Partners, New York, New York

Henry B. Gonzalez Convention Center, Hemisfair 3

303 BUILD**Improving Young Children’s Communication and Representation of Mathematics****Pre-K–2 Session**

What does math communication and representation look like in early childhood? What communication strategies do young learners use when engaging in problem solving? We will examine classroom video and student work to explore teaching moves that advance children’s communication and representation of mathematics.

Stephanie Vega

Washoe County School District, Sparks, Nevada

Heather Crawford-Ferre

Nevada Department of Education, Carson City

Henry B. Gonzalez Convention Center, 008AB

304 BUILD**Investigating Sixth-Grade Students' Conceptions of Geometric Shapes****6–8 Session**

Participants will be engaged in discussing sixth-grade students' (mis)conceptions of polygons by analyzing short videos from a research study. Participants will be asked to reflect on these videos and share how they address these misconceptions in classroom. Later, math activities that were designed during this research project will be shared.

Zulfiye Zeybek

Gazi Osman Pasa University, Turkey

Esra Balgalmis

Gaziosmanpasa University, Turkey

Makbule Gozde Didis

Gaziosmanpasa University, Turkey

Henry B. Gonzalez Convention Center, 303**305 TECH****Linear Equations: New Insights Gained through Dynamic Technology****10–12 Session**

While simple in structure, linear equations have incredibly diverse and powerful uses and interpretations, from pattern description to regression to transformations. Dynamic technology provides “hot” links between representations (graphic, symbolic, tabular) of a linear equation and its defining parameters through sliders can reveal new insights.

Thomas Dick

Oregon State University, Corvallis

Wade Ellis

Retired, West Valley College, San Jose, California

Henry B. Gonzalez Convention Center, 205**306 TLC****Math Talk M.V.P's (Most Valuable Points): Setting the Stage for Successful Math Talk****3–5 Session**

Fostering a safe and productive math talk community in which students are the sense makers and teachers are the facilitators is not always as easy as it sounds. Where does one begin? Utilizing research and best practices with practical elementary experience, you will get practical tips to increase student explaining, questioning, and justifying.

Shannon Kiebler

Empower Consulting, Littleton, Colorado

Henry B. Gonzalez Convention Center, 007D**307 BUILD****On the Money: Integrating Mathematics and Financial Literacy****6–8 Session**

We will share a set of activities that address both goals for mathematics (CCSSM) and financial literacy (Jump\$tart Standards). See how number, algebra, and statistics can support students in building a stronger understanding of financial literacy topics such as savings and credit.

Susan Peters

University of Louisville, Kentucky

Jennifer Bay-Williams

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

Maggie McGatha

University of Louisville, Kentucky

Henry B. Gonzalez Convention Center, 221**308 ASSESS****Promoting the Standards for Mathematical Practice with Effective Questioning Strategies****6–8 Session**

Questioning is an art and “good” questions are the primary tool of effective teachers. How can we promote the Standards for Mathematical Practice through our questioning? In this interactive session, participants will reflect on their own practice and will explore strategies to refine their own questioning.

Judy Buck

@jcurranbuck

Mathematics Education Consultant, Derry, New Hampshire

Grand Hyatt San Antonio, Texas Ballroom F

309 **TLC****Sharing Thinking to Promote Discussion****8–10 Session**

How can different answers, student misconceptions, and errors be used to promote mathematical discussions, exploration, and more in-depth learning? In a student role, participants will explore student thinking and experience ways to help students share their work by modeling the five practices for orchestrating productive mathematics discussions.

Barbara Lynch

 @stelladuma

Lakewood City Schools, Ohio

Grand Hyatt San Antonio, Lonestar Ballroom F

310 **PROF****Surviving and Thriving in Your Math Classroom!****10–12 Session**

John is in his third year of teaching secondary mathematics, while his father, Dan, is in his 35th year. They will share thoughts on how professional growth is a career-long endeavor as well as sharing practical ideas for use in the grades 7–12 classroom.

Daniel Brahier

Bowling Green State University, Ohio

John Brahier


Saint Ursula Academy, Toledo, Ohio

Grand Hyatt San Antonio, Republic ABC

312 **BUILD****The Nimble Number Line: A Sense-Making Tool that Builds Coherence across Grades****8–10 Session**

A number line is a powerful tool that builds coherence. It bridges concepts and procedures, promotes fluency with operations, and increases number sense. When viewed as nimble, the number line makes irrational numbers, the coordinate and the complex plane come alive for students. Are you ready to walk on the wild side of the nimble number line?

Wendy DenBesten

 @denbestenmath

GreatMinds, Washington, D.C.

Grand Hyatt San Antonio, Lonestar Ballroom C

313 **A&E****A Conversation about Mathematics with Latina/o Parents: *Conversando con padres y madres*****General Interest Session**

In this panel, teachers will learn from parents how they can best support students' learning of mathematics. Parents will share their own experiences as doers of mathematics. *Padres y madres compartirán consejos con la audiencia sobre como apoyar a sus hijos/as en la escuela así como sus propias experiencias con las matemáticas.* The session will include a conversation between the parents and the audience.

Crystal Kalinec-Craig

University of Texas at San Antonio

Marta Civil

University of Arizona, Tucson

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre

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CPM EDUCATIONAL PROGRAM

314 BUILD REFLECTION COVE**Visualizing Concepts: The Gateway to Understanding****General Interest Session**

Interactive dynamic images can help students develop a mental image of a mathematical idea and how ideas connect. Visual images establish a foundation for student thinking about topics such as comparing ratios, mean as fair share, “covering” terms to find a solution, linking mobiles to equations and support the transfer of ideas in later contexts.

Gail Burrill

[@gburrill](#)

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

Henry B. Gonzalez Convention Center, 217D

315 BUILD**What Does Domain Have to Do with It?****8–10 Session**

Why is domain important? Why do I have to teach it? Why do students have trouble with this concept? And, then there is the range. The participants in this session will learn some strategies for helping students understand and master this important concept in algebra and beyond. Help your students be masters of the domain (and the range)!

Clifton Wingard

Delta State University, Cleveland, Mississippi

Grand Hyatt San Antonio, Crockett AB

316 BUILD**What Is an Infinite Series and Why Should I Care?****10–12 Session**

What is an infinite series and why are they important? Students work with them, but do they understand what the things ARE? Combine history with arithmetic, analysis, technology, and symbolic representation to develop a visceral understanding of what a series is and why they are ever so cool, including the tricky ideas of error and convergence.

Ruth Miller

[@rm11235813](#)

Greenhills School, Ann Arbor, Michigan

Grand Hyatt San Antonio, Presidio ABC

317 BUILD**Writing to Illuminate Mathematical Thinking****3–5 Session**

How can writing support students’ mathematical thinking? How can we include writing in the math classroom? We will identify different purposes of mathematical writing, along with an assortment of formats. Then we will explore several engaging teaching strategies for classroom implementation and examine samples of students’ work.

Linda Dacey

Lesley University, Cambridge, Massachusetts

Henry B. Gonzalez Convention Center, 225

317.1 BUILD**Young Math Legends****General Interest Session**

Imagine if your students could meet the legends of mathematics—when they were kids themselves. From the creators of *Flatland* and *Flatland 2: Sphereland* comes this exciting new series that will introduce amazing figures including Fibonacci, Gauss, and many more to help motivate students to learn about their discoveries.

Dano Johnson

Sphere World Productions, Austin, Texas

Seth Caplan

Sphere World Productions, Austin, Texas

Henry B. Gonzalez Convention Center, Hemisfair 2

317.2 EW**A Blueprint for Early Learning Success in Math!****Pre-K–2 Exhibitor Workshop**

Discover a true “Blueprint” for early learning success in math. Experience the most engaging online mathematics program ever designed using state-of-the-art technology, research-based instructional methodologies, and captivating songs and animations. Bring your own tablet device, and you too can experience Blueprint’s online world.

Reasoning Mind

Houston, Texas

Henry B. Gonzalez Convention Center, 207A

8:00 A.M.–9:00 A.M.

317.3 **ew**

Making Sense of Mathematics for Teaching: The TQE Process

General Interest Exhibitor Workshop

In this interactive session, Dr. Juli Dixon allows participants to experience how selecting the correct tasks and engaging with them as teams of learners is crucial preparation to make sense of mathematics for teaching. This session is a must for teachers, supervisors, and administrators seeking increased K–12 mathematics achievement.

Houghton Mifflin Harcourt
Round Rock, Texas

Henry B. Gonzalez Convention Center, 210AB

317.4 **ew**

Early Learning Integration: How to Bring the Math Classroom to Life through Literacy

Pre-K–2 Exhibitor Workshop

In this engaging session, you will step into the early childhood classroom and see just how simple it is to teach mathematic concepts through the literacy lens. Alongside talking about the counting principles and relative position of number, you will also be immersed in an environment that welcomes discourse and fun!

ORIGO Education
Earth City, Missouri

Henry B. Gonzalez Convention Center, 212AB

317.5 **ew**

Watertank Math: Adding and Subtracting with a New Visual and Contextual Approach

6–8 Exhibitor Workshop

This session will help educators look at adding and subtracting in a new way. Learn how to visually represent all four operations: addition, subtraction, adding a negative, and subtracting a negative. Watertank Math provides a great scaffolding process to begin as early as kindergarten and to transition through elementary and secondary levels.

Nasco
Fort Atkinson, Wisconsin

Henry B. Gonzalez Convention Center, 213AB

8:00 A.M.–9:15 A.M.

318 **"M"**

A Monumental Task: Connecting Washington, D.C., across the Curriculum

6–8 Workshop

Imagine your students have been contracted by Washington, D.C., officials to design and create a new monument. They will draw on their knowledge of American figures and events to create a proposal that details their vision, rationale, and LEED Certified design drawn using SketchUp, culminating in a narrated Google Earth tour and a constructed scale model.

Kimberly Brandt

[@KimB720](#)

Hawken School, Lyndhurst, Ohio

Anna Delia

Hawken School, Lyndhurst, Ohio

Henry B. Gonzalez Convention Center, 007B

319 **A&E**

Acquiring Math as a Second Language through Reading, Writing, and ELL Strategies

6–8 Workshop

Participants will engage in vocabulary, reading, and writing strategies and activities that promote the idea of math literacy. Using literacy strategies to build comprehension, teachers can create an environment where all students, especially English language learners, can gain a deeper understanding of mathematical concepts.

Rodrigo Portillo

Socorro Independent School District, El Paso, Texas

Henry B. Gonzalez Convention Center, 006D



320 BUILD**Activities to Connect the Mathematical Practices for AP Calculus in Your Classroom****10–12 Workshop**

The redesigned AP Calculus curricular framework puts Mathematical Practices (MPACs) in the forefront. We will focus on connecting concepts, using multiple representations, and communicating mathematical ideas through group activities. Activities will include a search for f' (using f''), honeycomb volume, and a tangent line walk.

Karen Hyers

[@keyhyers](#)

Tartan High School, Oakdale, Minnesota

Grand Hyatt San Antonio, Texas Ballroom D

321 TLC**Algebra in Exercise****8–10 Workshop**

We will discuss the algebra involved in exercise. We will look at maximum heart rates, target heart rate ranges during exercise, and recovery rates after exercise. Participants will work together to determine the type of function, if any, represented by these data, write a corresponding equation, and create graphs to show their conclusions.

Paul Kelley

[@paulrkelley](#)

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

Henry B. Gonzalez Convention Center, 217B

322 A&E**BBA: Appreciating the Masterpiece of Mathematics****8–10 Workshop**

This session will engage participants in meaningful algebra activities involving equations and various types of functions.

Aminah Eddings

Little Rock School District, Arkansas

Tonjuna Iverson

Little Rock School District, Arkansas

Henry B. Gonzalez Convention Center, 006A

323 A&E**Coaching for Equity: Using a Racial Equity Lens to Facilitate Coaching Conversations*****Coaching for Equity: Educators' Workshop**

This session will focus on using a racial equity lens to coaching conversations. Through reflection and dialogue, we will build capacity for having difficult conversations on race and equity in mathematics education. Participants will have the opportunity to practice planning a coaching conversation with an equity lens through mock scenarios.

Rebecca Horwitz

The Level Playing Field Institute, Oakland, California

Geneva Europa

Aspire Public Schools, Oakland, California

Veronica Ernandes

Aspire Public Schools, Los Angeles, California

Grand Hyatt San Antonio, Texas Ballroom E

324 BUILD**Construction Junction, What's Your Function?****8–10 Workshop**

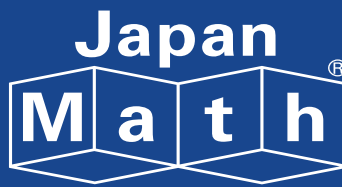
Constructions are the foundation for all geometry, motivate proof schema, and provide rich connections between shapes studied. Experience thought-provoking constructions that move student thinking beyond the basic constructions to deep relationships. Constructions, either low or high tech, are tactile ways for students to develop connections.

Brian Shay

[@MrBrianShay](#)

Canyon Crest Academy, San Dieguito Union High School District, San Diego, California

Henry B. Gonzalez Convention Center, 304B



Math for Life.

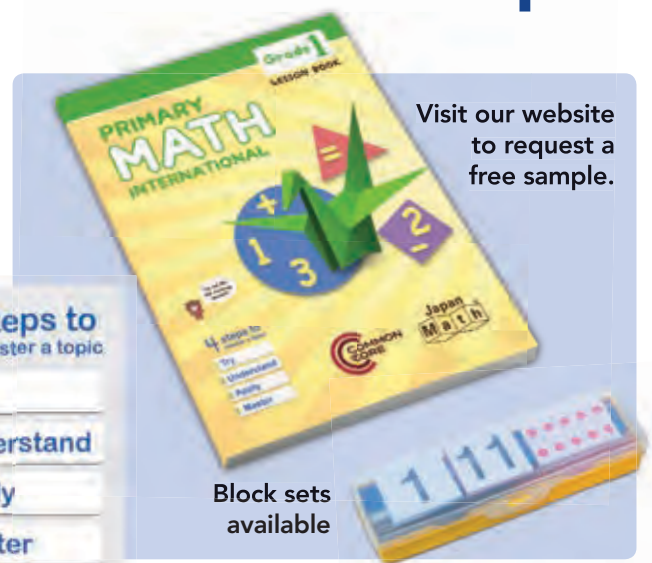
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- **Developing the Will and Skill to Use Math** - Japan Math aims to foster the will and skill to use mathematics in everyday life.



www.japan-math.com

325 PROF**Find Your Inner Author—Write for *Mathematics Teacher*!****10–12 Workshop**

Do you have an idea you'd like to share? An article you'd like to write? Department editors from NCTM's *Mathematics Teacher* have tips to get you started. Discuss your ideas with editors of "Mathematical Lens," "The Back Page," and "Calendar." You can leave this workshop with an outline or rough draft in hand. Don't delay—write today!

Margaret Coffey

Fairfax County Public Schools, Alexandria, Virginia

Ron Lancaster

University of Toronto, Toronto, Ontario, Canada

Roger Day

McGraw-Hill Education, Bloomington, Illinois

Henry B. Gonzalez Convention Center, 302AB

326 BUILD**High-Impact Games and Meaningful Mathematical Dialog****3–5 Workshop**

High-quality games are a powerful way to engage young minds, develop understanding of multiplication, and encourage problem solving and mathematical discourse. Participants play and analyze games designed to deepen students' conceptions related to multiplication and identify strategies leading to meaningful dialog in the classroom.

Elizabeth Cape

University of Illinois at Chicago

Sandra Niemiera

University of Illinois at Chicago

Jennifer Leimberer

University of Illinois at Chicago

Henry B. Gonzalez Convention Center, 004

327 ASSESS**Icons Do It: Using Targeted Feedback on Written Work to Support Student Learning****6–8 Workshop**

Skilled teachers use evidence of students' understanding to inform their decisions and support students' learning. But sometimes this can seem complex or time-consuming. We'll practice using a strategy to rapidly give students written feedback (on homework, exit tickets, etc.) that delivers maximum learning impact with minimum teacher effort.

Sendhil Revuluri

@revuluri

VGA Consulting, Chicago, Illinois

Henry B. Gonzalez Convention Center, 006B

328 BUILD**Improving Discourse in the Classroom While Engaging Children with Literature****Pre-K–2 Workshop**

This workshop will explore five practices that promote mathematical discourse in the elementary classroom. Learning experiences with fractions and measurement will be used to actively engage workshop participants in firsthand use of these practices while modeling teacher and student interaction.

Monique Lynch

Walden University, Leesburg, Virginia

Mel Griffin

Walden University, College Station, Texas

Grand Hyatt San Antonio, Lonestar Ballroom B

329 BUILD**Just Give Me the Facts—But with Understanding Rather Than Gimmicks!****Pre-K–2 Workshop**

Fluency is more than memorization of isolated basic 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 utilize easy-to-make visual aids and games that help students to master the basic addition and subtraction facts—with understanding.

James Burnett

ORIGO Education, St. Charles, Missouri

Henry B. Gonzalez Convention Center, 224

330 **TLC****Let's Get Write to It: Implementing Mathematical Writing****3–5 Workshop**

Are you interested in implementing mathematical writing but unsure of where to start? Come learn about new recommendations for elementary mathematical writing. Partake in hands-on activities and discussions to identify practical ways to implement and support students writing mathematically.

Madelyn Colonnese
University of Connecticut, Storrs
Tutita Casa
University of Connecticut, Storrs

Henry B. Gonzalez Convention Center, 305

331 **BUILD****Making Sense of Cents****Pre-K–2 Workshop**

This session will focus on a specific model for helping students make sense of coin values. First, we will discuss why students struggle when identifying and using coins. Then, we will focus on how to create and use an easy-to-make model for coin values. We will use the model as we explore how to make money concepts more tangible for students.

Lisa Brooks
@drbrooksla
University of Central Florida, Orlando

Grand Hyatt San Antonio, Lonestar Ballroom A

332 **BUILD****Modeling like an Engineer****8–10 Workshop**

The engineering design process is an excellent way to help students work through difficult challenges by breaking it up into small steps to complete. The speaker will address how to engage students into solving their difficult challenge utilizing the engineering design process and model their solution with tables, graphs, and equations.

Thomas Haas
Norwood City School District, Ohio

Henry B. Gonzalez Convention Center, 007A

333 **NT****Teaching Mathematical Behaviors: Successful Classroom Management for Math Teachers****Coaches/Leaders/Teacher Educators' Workshop**

Effective mathematics teachers develop positive participation in class, rather than focus on misbehavior. Engage in strategies to identify, clarify, and teach specific mathematical behaviors that will help you create your classroom where students are productively engaged with mathematics and with each other. Based on NCTM's *Success from the Start*.

Rob Wieman
Rowan University, Glassboro, New Jersey

Grand Hyatt San Antonio, Texas Ballroom A

334 **TLC****Open Educational Resources: Designing a Middle School Curriculum****6–8 Workshop**

Illustrative Mathematics in partnership with the K12 OER Collaborative is writing a complete curriculum for grades 6–8 mathematics. The curriculum is mathematically coherent and attuned the daily classroom needs of teachers. Participants will have a chance to work with the lesson plans and teacher supports.

Katherine Nowak
@k8nowak
Illustrative Mathematics, Charlottesville, Virginia

Ashli Black
Illustrative Mathematics, Tucson, Arizona

Bill McCallum
Illustrative Mathematics, Tucson, Arizona

Henry B. Gonzalez Convention Center, 304A

335 **A&E****Principles to Actions & Interventions: High-Quality Mathematics Education for ALL Students****Pre-K–2 Workshop**

Learn how to establish clear goals and focus learning, use tasks to nurture reasoning and problem solving and help your students make connections among mathematical ideas. Create an intervention environment that facilitates discourse, with genuine questioning and builds fluency through a conceptual understanding. Apply the research, take action!

Pia Hansen
Math Learning Center, Salem, Oregon

Grand Hyatt San Antonio, Texas Ballroom C

336 BUILD**Putting a Positive Spin on Negative Numbers****6–8 Workshop**

No need to fear negative numbers! During this session, a variety of kinesthetic, tactile, and visual games will be shared. Activities include simulated mini golf, Bingo, an integer ops line dance, Jeopardy, Concentration, and a Cauldron card game. Attendees will receive a CD with an electronic version of all activities and more!

Shelley Hunter

Carleton North High School, Florenceville-Bristol, New Brunswick, Canada

Henry B. Gonzalez Convention Center, 217A

337 TLC**Selecting Quality Mathematics Tasks to Mine the Gap in Student Understanding****3–5 Workshop**

Need a task? Just “Google It.” But is it a quality task? In this session, participants will identify the characteristics of high-quality mathematics tasks. Participants will also investigate misconceptions and incomplete understandings that occur when students work with these tasks. Activities and resources will be shared.

John SanGiovanni

[@JohnSanGiovanni](#)

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

Grand Hyatt San Antonio, Texas Ballroom B

338 TLC REFLECTION COVE**Smarter Together! Getting All Students Participating in Challenging Mathematics****3–5 Workshop**

Most classrooms have students who are reluctant to engage in mathematics tasks along with students who are over-eager and tend to take over. In this hands-on session, we will explore tasks and strategies for helping students engage in mathematics tasks in ways that encourages the participation and learning of everyone.

Marcy Wood

University of Arizona, Tucson

Henry B. Gonzalez Convention Center, 217C

339 BUILD**Sticky Situations: Investigating and Understanding the Common Computation Situation Tables****3–5 Workshop**

How can we assist students in cognitively engaging in solving word problems? This session explores the structure of the Common Computation Situations (tables 1 and 2 in CCSSM) by interacting with various tools in processing the 24 situation subtypes. Participants will leave with ideas to help students truly understand the structure of math situations.

Debbie Thompson

Wichita Public Schools, Kansas

Lynette Sharlow

Wichita Public Schools, Kansas

Henry B. Gonzalez Convention Center, 006C

340 BUILD**The Clothesline: The Master Number Sense Maker****8–10 Workshop**

Make student numeracy visible with this dynamic number line. Enhance students’ proportional reasoning, while deepening their conceptual understanding of variables and equations. Represent statistical measures in a whole new way. From ratios and statistics to algebra and geometry, this manipulable tool will blow your mind—I promise.

Chris Shore

[@MathProjects](#)

Temecula Valley USD, California

Henry B. Gonzalez Convention Center, 304C

8:00 A.M.–9:15 A.M.

341 **TECH**

Transformational Geometry via GeoGebra: Animated Explorations

10–12 Workshop

Make transformations come alive with GeoGebra; learn to use sliders, matrices, and complex numbers to demonstrate the concepts of similarity and congruence using animation. Presenters will share premade files and projects to illustrate these ideas in the classroom. Bring your device with GeoGebra to follow the activities.

Roberto Soto

California State University, Fullerton

Armando Martinez-Cruz

California State University, Fullerton

Henry B. Gonzalez Convention Center, 007C

342 **BUILD**

Take a Chance

6–8 Workshop

Come join us as we race plunger horses, play ping-pong, and toss tacks around the room, all in the name of probability. Workshop participants will engage in hands-on activities designed to both introduce and reinforce probability concepts found in CCSSM. Enjoy the activities, then take home classroom-ready materials.

Janet Shiver

Central Washington University, Ellensburg

Teri Willard

Central Washington University, Ellensburg

Henry B. Gonzalez Convention Center, 005

9:30 A.M.–10:30 A.M.

343 **A&E**

Instruction on Algebra-Readiness Topics for Middle School RTI Tier 2 Students with Difficulties

General Interest Session

This session focuses on instruction on algebra-readiness topics for middle school students with mathematics difficulties in Tier 2. Information on instructional design and progress monitoring will be featured. Practices that contribute to misconceptions will be examined with guidance for mathematics teachers on how to avoid “rules that expire.”

Diane Bryant

University of Texas at Austin, The Meadows Center for Preventing Educational Risk

Barbara Dougherty

University of Missouri, Columbia

Karen Karp

Johns Hopkins University, Baltimore, Maryland

Henry B. Gonzalez Convention Center, Hemisfair 3

344 **BUILD**

A Whole New World: Powerful High School Math Talks

8–10 Session

How can we build a classroom environment where high school students can't wait to share their thinking? Learn how math talks can be used in high school with high school content to engage students in thinking and talking about math and to build number sense. Participate in math talks, hear classroom tips, and leave with math talks for your students.

Rayna Krevitsky

Pocatello/Chubbuck School District No. 25, Pocatello, Idaho

Jason Libberton

Idaho Regional Mathematics Centers, Pocatello

Grand Hyatt San Antonio, Travis AB

Don't miss the **Closing Session** on Saturday afternoon with featured speaker Simon Singh, science writer and broadcaster.



FRIDAY

345 BUILD**AMTE's Standards for Preparing Mathematics Teachers: A New Vision for New Teachers****General Interest Session**

The Association of Mathematics Teacher Educators (AMTE) is producing standards for preparing well-started beginning teachers. AMTE President Randy Philipp will share major points from the standards document and lead a discussion about what new teachers need to know about mathematics, about teaching and learning, and about issues of equity.

Randolph Philipp

@jstaley06

San Diego State University, California

Grand Hyatt San Antonio, Presidio ABC

346 TLC**An International Perspective on Modeling: Implications for What We Teach****General Interest Session**

How do you make mathematics more meaningful and relevant for students? Modeling! During this session we will share activities, strategies, and research from around the world on modeling. The session will highlight perspectives from mathematics educators and researchers presented at the 2016 ICME conference in Hamburg, Germany.

John Staley

Baltimore County Public School, Towson, Maryland

Kyndall Brown

University of California, Los Angeles

Katie Hendrickson

Code.org, Seattle, Washington

Henry B. Gonzalez Convention Center, 221

347 A&E REFLECTION COVE**Beyond Caring for the Mathematics: Building Caring Mathematical Relationships with Students****3–5 Session**

Math can produce feelings of anxiety and inadequacy. In focusing on math learning, we often overlook relational dimensions of instruction. The session will support teachers in identifying ways students are framed mathematically, examining classroom interactions, and strategizing ways to build strong relationships with underserved students.

Dan Battey

@DanBattey

Rutgers University, New Brunswick, New Jersey

Henry B. Gonzalez Convention Center, 214B

348 ASSESS REFLECTION COVE**Blurring the Lines between Instruction and Assessment****General Interest Session**

Join us as we explore how assessment and instruction can intersect in the elementary classroom by investigating examples of what formative assessment looks like. We will accomplish this by exploring mathematical ideas as learners as well as viewing video of classrooms where the lines between instruction and assessment are blurred.

Zachary Champagne

@zakchamp

Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM), Tallahassee

Henry B. Gonzalez Convention Center, 205

Explore the
Exhibit Hall
for the latest
educational
resources.



FRIDAY

349 BUILD**Building a STEM-tastic Transdisciplinary Program****3–5 Session**

This session demonstrates how STEM practices directly support Common Core mathematics standards, and it employs transdisciplinary learning using “real world” engineering design challenges and project/problem based learning. This program makes use of informational reading and argumentative writing while taking advantage of collaborative learning opportunities.

Veronica Wilson-Seville

🐦@vseville44

Atlanta Public Schools, Georgia

Bobby Allen

Atlanta Public Schools, Georgia

Winona Jones-Archie

Atlanta Public Schools, Georgia

Henry B. Gonzalez Convention Center, 214C

350 TECH**Personalized Learning in Your Blended Tech Mathematics Classroom****3–5 Session**

Many talented teachers, both new and experienced, are finding themselves empowered by—and excited to use—technology-driven instruction in their classrooms. In this informative session, strategies will be shared with teachers and instructional leaders on how to effectively implement personalized lessons with blended tech in their math classrooms.

Kara Granger

Educational Consultant, Chicago, Illinois

Henry B. Gonzalez Convention Center, 303

351 PROF**Coaching toward the *Principles to Actions* Effective Teaching Practices****Coaches/Leaders/Teacher Educators' Session**

NCTM's *Principles to Actions* describes eight effective teaching practices. This session will explore a collection of tools and strategies that coaches can use to support teachers in making connections between effective teaching practices and students' opportunities to demonstrate the CCSS Standards for Mathematical Practice.

Maggie McGatha

🐦@mcgatha

University of Louisville, Kentucky

Grand Hyatt San Antonio, Lonestar Ballroom C

352 PROF**Coaching with Intention****Coaches/Leaders/Teacher Educators' Session**

Participants will analyze a coach-teacher discussion and name moves used to engage in a deep and specific conversation of mathematics and pedagogy. Assuming the role of coach, teacher, and observer, participants will make use of the coaching moves in discussing and planning a lesson.

Victoria Bill

University of Pittsburgh, Gibsonia, Pennsylvania

Laurie Speranzo

Institute for Learning, Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, 214A

353 TLC**Creating a Language-Rich Math Class****3–5 Session**

A language-rich math class is an exciting place. Students describe their thinking, defend answers, and discuss math ideas. Join this interactive session as we examine practical strategies for building a language-rich math class. Particular attention will be given to introducing language and to structuring activities to make them language-rich.

Sandy Atkins

🐦@creatingahas

Creating AHAs, LLC, Saint Petersburg, Florida

Grand Hyatt San Antonio, Crockett AB

354 **TLC****Cultivating Mathematical Affections through Service Learning****10–12 Session**

This session will examine the benefits of service-learning projects in mathematics. Service-learning projects engage students in integrating their conceptual understanding of math with the practical functioning of their local community. Ultimately students gain deeper content knowledge and a deeper appreciation for the role math plays in society

Joshua Wilkerson

[@josh_wilkerson](#)

Regents School of Austin, Texas

Grand Hyatt San Antonio, Crockett CD

355 **TLC****Equal Opportunities for All Students in Mathematics: Choosing a Curriculum****Coaches/Leaders/Teacher Educators' Session**

Curriculum materials play a key role in how classroom instruction is enacted. Selection of a strong program is critical for ensuring consistent, equitable access to quality learning opportunities. We share a district's strategy for engaging stakeholders (parents, classroom and resource teachers, administrators) in a curriculum selection process.

Julie Kreizel

Lincoln Public Schools, Nebraska

Delise Andrews

Lincoln Public Schools, Nebraska

Grand Hyatt San Antonio, Bowie ABC

356 **A&E****Equity and Computer-Assisted Instruction in High School Mathematics****10–12 Session**

We share how five high school mathematics leaders view computer-assisted instruction (CAI) and its use to promote equity at diverse schools in their district. While CAI has historically been used for credit recovery and interventions for struggling learners, pilot studies are now underway in the district to use CAI to promote mathematical learning.

Richard Kitchen

University of Denver, Colorado

Ken Jensen

Aurora Public Schools, Colorado

Henry B. Gonzalez Convention Center, 301

**357** **ASSESS****REFLECTION COVE****Even Einstein Struggled: Motivating Students to Learn Math and Science****General Interest Session**

Reasons for difference in academic performance range from school resources to social cognitive ability. Recent research suggests that students' understanding of how to succeed provides powerful explanation for this variation. I will discuss how high school students can succeed by learning about the struggles and failed experiments of great scientists.

Xiaodong Lin is a professor at Teachers College, Columbia University, where she studies the impact of different learning environments, instructional activities, and new media on students' motivation to learn and solve challenging problems. Her work has also earned her several awards, including being selected as the Carnegie Scholar by the Carnegie Corporation of New York and receiving the American Educational Research Association (AERA) Early Career and Outstanding Research awards. She has been named the Yellow River Scholar by the Chinese government, and she is currently serving on the expert advisory board of the Organization of Economic Cooperation and Development (OECD) for the EDUCATION 2030 Initiative.

Xiaodong Lin-Siegler

Teachers College, Columbia University, New York, New York

Henry B. Gonzalez Convention Center, 225

358 BUILD**FUNDamentals of Inverse FUNctions****10–12 Session**

Come explore inverse functions. Develop the concept of inverses through hands-on activities and Desmos Activity Builder. Teachers will actively participate in lessons on inverse functions while focusing on using the Standards for Mathematical Practice. Experience inquiry-based, learner-centered, collaborative activities.

Christine Larson

🐦 @CLL2718

South Dakota State University, Brookings

Sharon Vestal

South Dakota State University, Brookings

Henry B. Gonzalez Convention Center, 008AB

359 PROF REFLECTION COVE**Heartprint: Transforming the Power of Teacher Collaboration to Become a Fully Formed Professional!****General Interest Session**

Your heartprint is the distinctive impression and marked impact you leave on others—your students and colleagues, as seasons unfold. Words such as love, warmth, wisdom, equity, unity, and covenantal relationships become relevant. Fully formed teachers are open to influence, and become relationally intelligent—every day! It's heart check time!

Timothy Kanold

🐦 @tkanold

Center for Mathematics Teaching and Learning, Chicago, Illinois

Henry B. Gonzalez Convention Center, Hemisfair 2

360 ASSESS**Leveraging Rich Math Tasks as Opportunities for Assessment****Pre-K–2 Session**

Rich tasks are an authentic alternative to the traditional “stop and assess” approach to assessment. As a result of rich tasks having multiple entry points, many misconceptions can be surfaced. Learn to capitalize on this approach. Analyze a case study, and participate in a rich task to explore a process for narrowing the focus for data collection.

Tawny Malone

🐦 @tawny_malone

Evergreen Public Schools, Vancouver, Washington

Sarah Marshall

Henry County Board of Education, McDonough, Georgia

Grand Hyatt San Antonio, Texas Ballroom F

361 BUILD**More, Fewer: Add or Subtract? I Am So Confused!****Pre-K–2 Session**

Young students continue to struggle with story problems. If students are encouraged to visually represent the context rather than directly choosing a corresponding operation, they will be more successful in solving problems. In this session, you will learn how to help students construct models to make sense of different contextual situations.

Jana Estes

Boise State University, Idaho

Amber Van Vooren

Boise State University, Idaho

Grand Hyatt San Antonio, Lonestar Ballroom F

362 ASSESS**Organizing & Compiling a Usable Assessment Database in the Classroom: Paperless Daily Assessment****General Interest Session**

Formative and summative classroom assessment is equally important for both teachers and students. This session will teach participants how to create, maintain, analyze, and provide useful data for teachers and productive feedback to students. In the technology age we live in, the session will focus on utilizing TI-Navigator and other wireless technologies.

Jeremy Zekowski

University of Alabama, Tuscaloosa

Henry B. Gonzalez Convention Center, 207B



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

FEATURED CLASSROOM RESOURCES

NCTM knows that teachers are busy, and finding the perfect resource to improve your lesson can be frustrating. That's why we search our archives of journal articles, Illuminations lessons and interactives, Math Forum Problems of the Week, and the many other member benefits to bring you topical featured resources in your grade band each month.

Learn about new resources, tips, and ideas to share with each and every one of your students. We'll keep you informed in your member-only e-newsletter, *Summing Up*, and social media. Be sure to join the conversation using #NCTMresources in your posts so that we can collaborate and learn from one another.

Make the most of your NCTM membership! Visit nctm.org/crcc today for tomorrow's engaging math lesson.



Learn more at nctm.org/crcc and follow us on      YouTube #NCTMresources

**363 TECH****REFLECTION COVE****Pixar in a Box: Theory and Practice****General Interest Session**

Pixar in a Box (pixarinabox.org) is a collaboration between Pixar Animation Studios and Khan Academy. It is a free online resource intended to show students how concepts they are learning in school play a crucial role in the creation of Pixar movies. Each Pixar in a Box lesson focuses on a creative challenge faced by Pixar artists and then shows how math, science, art, and humanities concepts are used to address that challenge. In this talk, we will demonstrate how PIAB is structured to engage middle to high school students using interactive lessons that they can do in or outside of the classroom. We will also discuss our partnership with Khan Academy and the development principles we used to inspire students to discover their creative potential. Educator William Gowsell will share his experience of using PIAB in the classroom and the feedback he has received from his students.

Tony DeRose

Senior Scientist, Pixar Animation Studios

William Gowsell

Teacher and Math Lead, Catholic District School Board of Eastern Ontario

Henry B. Gonzalez Convention Center, Hemisfair 1**364 TLC****Productive Math Discussions Don't Happen by Accident!****General Interest Session**

There is an art to organizing productive math discussions. We will analyze two sequences of student work that could be used during a math discussion and consider how each sequence of work could be used to "problematize" the discussion. We will analyze how problematizing the discussion advances student learning toward the mathematical goals.

Laurie Speranzo

Institute for Learning, University of Pittsburgh, Quincy, Massachusetts

Kristin Klingensmith

University of Pittsburgh, Pennsylvania

Grand Hyatt San Antonio, Republic ABC**365 ASSESS****Reflections from the Redesigned SAT Test Development Committee****General Interest Session**

March 2016 was the first administration of a redesigned SAT. Subject matter experts in mathematics began reviewing new questions in 2013 and continue to review hundreds of new questions yearly. In this presentation, SMEs will share their experiences and impressions from their participation as reviewers for the College Board. There will be time for questions and answers at the end of the presentation.

William Trapp

College Board, New York, New York

Luke Wilcox

Kentwood Public Schools, Michigan

Grand Hyatt San Antonio, Travis CD**366 TECH****Reimagining Curriculum-Based Mathematics Tasks with Technology****8–10 Session**

Technology can transform mathematics teaching and learning. But where do you find tasks to fit your mathematical goals, or the time to add them to your lesson? One option is to start with the tasks you are already using! Bring your digital devices and join along as we use technology to re-envision tasks from printed curriculum materials.

Amanda Thomas

University of Nebraska–Lincoln

Alden Edson

Michigan State University, East Lansing

Henry B. Gonzalez Convention Center, 217D**367 TLC****Student Errors, Mistakes, Wrong Answers—OPPORTUNITY RETHINK!****10–12 Session**

Student errors in your class? Though our brains grow from making errors, how can teachers help students embrace errors as powerful ways to enable explicit refinements in thinking? This presentation offers insights and practical strategies for teachers that want to turn errors into great opportunities for student learning.

Vicki Lyons

Lone Peak High School, Highland, Utah

Grand Hyatt San Antonio, Lonestar Ballroom E

368 **A&E****Talk Number to Me: The Ratio Table****3–5 Session**

The ratio table is a powerful tool for young students to shift from additive thinking to multiplicative, master the distributive property, partial products/quotients, and proportional reasoning by exploring real-world problems, crafting multiple solutions within contexts, and providing proofs of students' own thinking.

Christina Lincoln-Moore

🐦 @virtuouscm

LAUSD, Los Angeles, California

Grand Hyatt San Antonio, Lonestar Ballroom D

369 **"M"****Think, Sketch, Print: 3D Printing in Algebra and Geometry****8–10 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 geometric relationships while building STEM interest. Project ideas and software options will be presented.

Tiffany Sakaguchi

🐦 @hinksktchprint

TenMarks, Burlingame, California

Henry B. Gonzalez Convention Center, 007D

369.1 **ew****Formative Assessment and Hands-On Instruction for RTI Success!****General Interest Exhibitor Workshop**

Moving with Math Pre-K–12 Solutions integrate the essential elements of RTI: screening, decision making, explicit instruction, and progress monitoring. Using concrete manipulatives within the CRA pedagogy, participants will engage in hands-on lessons and games. Teachers and administrators love the ease of use and improved results.

Math Teachers Press

Minneapolis, Minnesota

Henry B. Gonzalez Convention Center, 206A

369.2 **ew****Cipher Solvers: Math and the Cryptic Missive****General Interest Exhibitor Workshop**

A puzzling note and a dusty copy of an Edgar Allan Poe book lead you to discover that there is a buried treasure. Use algebra, geometry, and cryptology to decipher the cryptic message to find it. Engage your students by weaving the application of systems of equations and the construction of a circumcenter into an exciting adventure.

Texas Instruments

Dallas, Texas

Henry B. Gonzalez Convention Center, 206B

369.3 **ew****Unleash the Power of Game-Based Learning with Mangahigh****Coaches/Leaders/Teacher Educators' Exhibitor Workshop**

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

Mangahigh

London, United Kingdom

Henry B. Gonzalez Convention Center, 207A

369.4 **ew****Making *Principles to Actions* Come Alive with CPM Mathematics****8–10 Exhibitor Workshop**

Let CPM show you how we incorporate the eight Mathematics Teaching Practices in your classroom. CPM provides rich mathematics curricula that are student centered and problem solving based. Experience multiple rich tasks, opportunities for student discourse, and concrete ways to build fluency from conceptual understanding that are embedded within the materials.

CPM Educational Program

Elk Grove, California

Henry B. Gonzalez Convention Center, 210AB

9:30 A.M.–10:30 A.M.

369.5 **ew**

What's New with Version 2! A First Look at ORIGO's Stepping Stones 2.0

3–5 Exhibitor Workshop

ORIGO's innovative program has been made even better! Learn how these enhancements are helping teachers to foster students' thinking/reasoning skills, differentiate instruction, and engage student learning through embedded digital teaching tools. This enlightening workshop is a must for anyone in K–5 education looking for a smarter approach to teaching math.

ORIGO Education
Earth City, Missouri

Henry B. Gonzalez Convention Center, 212AB

369.6 **ew**

Promoting Success on the AP Exam with *The Practice of Statistics*

Exhibitor Workshop

The AP Statistics exam is a month away. How can you use *The Practice of Statistics* to help students succeed on this exam? In this session, authors Daren Starnes and Josh Tabor will discuss specific exam-preparation resources from TPS 5e, including exam tips and common errors, flash cards, FRAPPYs, and the *Strive for a 5 Guide*. Samples will be provided.

Bedford, Freeman & Worth Publishers
New York, New York

Henry B. Gonzalez Convention Center, 213AB

369.7 **ew**

Japanese Approach for Establishing the Foundation of CCSSM Mathematical Practices in K and 1

Pre-K–2 Exhibitor Workshop

International studies have pointed out the Japanese curriculum is focused, coherent and rigorous. In this workshop, we will explore selected examples from Japanese curriculum to help the participants gain insights into the features of the Japanese curriculum that supports students establish the foundation for becoming mathematical problem solvers.

Japan Math
Inverness, Illinois

**Henry B. Gonzalez Convention Center, Exhibitor Workshop
Theater in Exhibit Hall 3/4**

9:45 A.M.–11:00 A.M.

370 **A&E**

BBA: Going Against the Tide of Contemporary Mathematics!

8–10 Workshop

This session consist of hands-on, student-centered activities and strategies that are geared toward diversity and equity in the mathematics classroom. Participants will leave with many free resources that can be readily implemented in the classroom.

Michelle Edwards
Parkview Arts and Science Magnet High School, Little Rock, Arkansas
Karen Rivers
Parkview Arts and Science Magnet High School, Little Rock, Arkansas

Grand Hyatt San Antonio, Texas Ballroom B

371 **BUILD**

Develop Meaning by Connecting Multiple Strategies

Pre-K–2 Workshop

Students may have multiple strategies, but do they understand how various strategies relate or know when using each is best and most efficient? Learn how to support students in making connections among multiple addition and subtraction strategies so they become flexible, strategic problem solvers.

Jennifer Leimberer
University of Illinois at Chicago
Elizabeth Cape
University of Illinois at Chicago
Sandra Niemiera
University of Illinois at Chicago

Grand Hyatt San Antonio, Texas Ballroom E

FRIDAY

372 BUILD

Early Elementary Algebraic Reasoning Development for Students Receiving Intervention Support

Pre-K–2 Workshop

This workshop's objective is for participants to discuss struggling K–2 students' learning progressions when engaging in inversion and compensation tasks. Discussion will center on students' algebraic reasoning as related to number development. Participant engagement with these tasks and video analysis of students will connect to student learning.

Beth MacDonald

Utah State University, Logan

Jill Ashby

Utah State University, Logan

Kristy Litster

Utah State University, Logan

Henry B. Gonzalez Convention Center, 305

373 TLC

Empowering Students through Formative Assessment Lessons

Cooperative Educators' Workshop

During this session, participants will engage in a formative assessment lesson and share five strategies of formative assessment from the work of Dylan Wiliam, as well as the 5 practices for effective classroom discussions from Margaret Smith and Mary Kay Stein and the connections to NCTM's *Principles to Actions*.

Robin Hill

Kentucky Department of Education, Frankfort

Grand Hyatt San Antonio, Lonestar Ballroom B

374 "M"

Excited to Think! Interactive, Inquiry-Based STEM Activities to Engage Students

8–10 Workshop

Try some hands-on, inquiry-based STEM activities! We will launch a ball, model the bounce with an equation, predict where to place a baseball glove to catch the ball, and try it! Bring your singing voices, as we will use an oscilloscope to discover properties of sinusoidal curves. Learn to integrate coding (Lego Mindstorms, Sphero, etc.) with math.

Katherin O'Hara

@KatherinOHara

Thames Valley District School Board, London, Ontario, Canada

Henry B. Gonzalez Convention Center, 217C

375 BUILD

Fractions on a Number Line: Making Sense of Strategic Benchmarks

3–5 Workshop

We will share number line tasks that we have developed over the last four years asking students to extend and reinforce key ideas of fractions as a number. This session will share student work and the research-based touchpoints that help third and fourth graders make sense of the unit, partitioning and equivalence on the number line.

Debbie Monson

University of St. Thomas, Minneapolis, Minnesota

Sue Ahrendt

University of Wisconsin-River Falls

Terry Wybert

University of Minnesota, Minneapolis

Henry B. Gonzalez Convention Center, 006B

Create your personal schedule using the **online conference planner** by visiting **nctm.org/planner**



FRIDAY

376 **"M"****Investigating Pre-Geometry Skills through Art and Shapes Using Processing.org****6–8 Workshop**

In this session, you will be introduced to Processing, a free and intuitive programming language, used to build basic geometric diagrams in less than twelve commands. To make the most of the workshop download the software at processing.org. Our six-class-period middle school pre-geometry unit will be shared as will recent student work.

Susan Fisher

Meadowbrook School of Weston, Massachusetts

Sarah Albertyn

Meadowbrook School of Weston, Massachusetts

Henry B. Gonzalez Convention Center, 007B

377 **PROF****Lesson Study Processes and Tools That Support Teacher Learning****Coaches/Leaders/Teacher Educators' Workshop**

This session provides an overview of our approach to lesson studies focused on deepening students' mathematical understanding and discourse. We describe the process, tools, and techniques that supported teacher learning. Participants analyze artifacts from a lesson study cycle and discuss ideas for capacity-building and sustainability for the work.

Nicole Rigelman

[@nrigelman](https://twitter.com/nrigelman)

Portland State University, Portland, Oregon

Amy McQueen

David Douglas School District, Portland, Oregon

Karen Prigodich

Centennial School District, Portland, Oregon

Grand Hyatt San Antonio, Texas Ballroom D

378 **TLC****Let's Give Them Something to Talk About****Pre-K–2 Workshop**

To support the mathematics learning of all students, effective teachers establish an environment where students regularly engage in productive mathematics talk (discourse). Attend this workshop to learn strategies to help students present and explain ideas, reasoning, and explanations in varied settings to facilitate productive mathematics talk.

Latrenda Knighten

[@LatrendaK](https://twitter.com/LatrendaK)

East Baton Rouge Parish School System, Louisiana

Henry B. Gonzalez Convention Center, 006C

379 **BUILD****Let's Play Number Sense Games for K–Grade 2!****Pre-K–2 Workshop**

In this session, teachers of K–grade 2 will play a variety of math games. These games are designed to help children develop a sense of whole numbers and represent and use them in flexible ways. Teachers will receive a packet of twenty games for developing number and operation sense, place value, basic facts, and whole number comparison and computation.

Marvin Harrell

Emporia State University, Kansas

Nancy Smith

Emporia State University, Kansas

Tiffany Hill

Emporia State University, Kansas

Henry B. Gonzalez Convention Center, 005

380 **BUILD****Measuring in the Round: A Concrete Introduction to Radians****10–12 Workshop**

Participants will work in groups to construct a measuring tape whose unit is one radius of their chosen circle. They will use their tape to mark angles of various sizes around a circle whose center is at the origin on graph paper. Then using the tape and the marked circle they will construct graphs of the sine, cosine, and tangent functions.

Diane Resek

San Francisco State University, California

Henry B. Gonzalez Convention Center, 224

381 **NT****Creating a Motivating and Engaging Classroom Culture: Supporting All Students to Learn Mathematics****Coaches/Leaders/Teacher Educators' Workshop**

What are five essential, research-based elements of a mathematics classroom climate that can motivate and engage all students? We will engage teachers in thinking through how to apply these strategies to their classrooms, including drafting Rights of Learners that support students' engagement and learning.

Amanda Jansen

University of Delaware, Newark

James Middleton

Arizona State University, Tempe

Grand Hyatt San Antonio, Texas Ballroom C

382 **BUILD****Pattern Blocks: The Forgotten Tool In Middle School!****6–8 Workshop**

Join us for explorations in middle school geometric concepts! We will use pattern blocks to dig deeper into understanding relationships among angles, lines, and dilations. This session will include lesson plans for immediate implementation.

Jennifer Moffett

[@jarguelovesmath](https://twitter.com/jarguelovesmath)

CMAT/Private Consultant, Porter Ranch, California

Jennifer Hagman

CMAT, Porter Ranch, California

Silvia Llamas-Flores

CMAT, Porter Ranch, California

Henry B. Gonzalez Convention Center, 217B

383 **BUILD****Playing to Deeper Thinking: Creating a Maker-Space Mentality (Algebra I to Precalculus)****8–10 Workshop**

Stitching together low- and high-tech activities allows us to create maker-space experiences for students where play engages them in a deep thinking search for the why before practicing the how. Experience hands-on activities from rulers, Post-it notes, popcorn, and play dough to Python, Scratch, and Desmos. Take away resources that you can use now.

Barbara Filler

The Steward School, Richmond, Virginia

Karen Hudson

The Steward School, Richmond, Virginia

Henry B. Gonzalez Convention Center, 006D

Master of Science for Teachers (MST) Program

June 22 – July 28, 2017

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**University of
New Hampshire**
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FRIDAY

384 BUILD**Rekenreks as Tools for Building Number Sense****Pre-K–2 Workshop**

In this workshop, participants will use 10-bead, 20-bead, and 100-bead rekenreks to develop these key ideas in the K–3 number strand: subitizing; counting; composing and decomposing numbers; place value; meanings of the operations; and mental math strategies for addition, subtraction, multiplication, and division.

Nirmala Nutakki

SUNY Buffalo State College, New York

Donna Lillis

Cheektowaga Central School District, New York

Grand Hyatt San Antonio, Texas Ballroom A

385 A&E**Revolutionize Your Math Class One Open-Ended Question at a Time!****6–8 Workshop**

Participants will walk out of my session with engaging resources that will help them change their classroom. A classroom where students ask most of the great open-ended higher level questions of each other. A classroom where productive struggle, critical thinking, problem-solving, and math practices are used by ALL student populations daily.

Steven Krolikowski

[@skteach27](#)

Downey Unified School District, California

Henry B. Gonzalez Convention Center, 217A

386 "M"**STEAM Lab RTI: Interventions through Making with Math****3–5 Workshop**

RTI provides a framework in which data informs resource distribution and drives instructional moves. Math competence during the elementary grades is key to later learning success. Follow the journey of three RTI students as they navigate a STEAM Lab makerspace. Could the Maker Movement be the key to math RTI?

Richard Cox

[@OldMillSTEAM](#)

Bullitt County Public Schools, Mount Washington, Kentucky

Henry B. Gonzalez Convention Center, 304B

387 BUILD**Taking Trig to Task****10–12 Workshop**

The transition from the static perspective of right triangle trig ratios to the dynamic perspective of circular trig functions, and from measuring angles in degrees to measuring angles in radians, can generate roadblocks and misconceptions. In this session, we will examine a sequence of tasks that reveal, rather than obscure, trigonometric ideas.

Scott Hendrickson

Brigham Young University, Provo, Utah

Henry B. Gonzalez Convention Center, 006A

388 TLC**The Power of Rehearsal: Practice Making Decisions That Empower ALL Students****8–10 Workshop**

Experience and participate in a coached rehearsal of an algebraic instructional routine designed to engage students in rich discussions about mathematics. See how formative assessment practices embedded within the routine help classrooms come alive by positioning ALL students as capable of doing mathematics.

Sara Toguchi

[@stoguchi](#)

New Visions for Public Schools, New York, New York

Elizabeth Ramirez

New Visions for Public Schools, New York, New York

David Wees

New Visions for Public Schools, New York, New York

Henry B. Gonzalez Convention Center, 302AB

389 BUILD**Thumb Drives and Cheese: Building Geometric Understanding****6–8 Workshop**

Imagery with understanding is not only the heart of geometry, but also all of mathematics. In this hands-on workshop to solidify middle school geometric ideas with their algebraic equations, you will build prisms, create nets, and draw visual representations to package thumb drives and cheese. You will leave with ideas to implement immediately.

Keith Krone

Boise State University, Idaho

Jonathan Brendefur

Boise State University, Idaho

Grand Hyatt San Antonio, Lonestar Ballroom A

390 TLC**Transforming Ordinary into Extraordinary: Motivate, Engage, and Challenge Every Student****8–10 Workshop**

Are you tired of the same classroom routine? Join us to learn 10 ways to transform ordinary assignments into engaging activities. Receive examples, instructions, and templates to create your own versions of Lucky Buckets, One & Why, Fix the Flaw & Fly, Can You?, and Topic Triominos. Get your students moving, talking, and thinking mathematically.

Lori Keleher

[@L_Keleher](#)

Huron School District, South Dakota

Lindsey Brewer

Huron School District, South Dakota

Henry B. Gonzalez Convention Center, 304C

391 TECH**Using GeoGebra to Support Student Learning During Problem-Solving Tasks****10–12 Workshop**

Did you know you can create GeoGebra applets on your smartphone? Come learn how to design problem-solving tasks that use GeoGebra to scaffold student learning! Workshop participants will design their own task and create a dynamic GeoGebra applet they can use with students. Bring your own smartphone, tablet, or laptop.

Amdeberhan Tessema

Middle Tennessee State University, Murfreesboro

Jeremy Strayer

Middle Tennessee State University, Murfreesboro

Lucy Watson

Middle Tennessee State University, Murfreesboro

Henry B. Gonzalez Convention Center, 007C

392 TECH**Using Technology to Engage in Whole-Class Mathematical Inquiry****10–12 Workshop**

Together we will explore strategies for using a variety of technologies to facilitate whole-class mathematics discussions—discussions in which students are motivated and positioned to engage in making sense of mathematics. Bring your laptop, tablet, calculator, smartphone, or just yourself and join in the fun.

Keith Leatham

Brigham Young University, Provo, Utah

Henry B. Gonzalez Convention Center, 304A

393 TLC**We're in This Together! Supporting Students' Collaborative Learning in the Mathematics Classroom****6–8 Workshop**

Why do collaborative math lessons fall apart? This workshop is designed to introduce participants to classroom norms and task design principles that support students' collaborative participation and persistence in the math classroom. The audience will use complex instruction design principles to adapt tasks they can take back to their classroom.

Sandra Crespo

[@SMCrespo66](#)

Michigan State University, East Lansing

Henry B. Gonzalez Convention Center, 004

9:45 A.M.–11:00 A.M.

394 BUILD

**What's the Angle (Measure)?
Appreciating the Protractor**

3–5 Workshop

How do you develop understanding of an angle, its measure, and a protractor? This hands-on session includes activities for measuring angles with nonstandard and standard units of measure. Come create and use a wax paper angle measuring tool along with a standard protractor to measure, estimate, sketch, and construct angles on paper and with objects.

Sami Briceno

[@SamiBriceno_CLI](#)

Carnegie Learning, Inc., Pittsburgh, Pennsylvania

Sue Hamilton

Carnegie Learning Inc., Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, 007A

11:00 A.M.–12:00 P.M.

395 TECH

**Animate, Illustrate, Captivate: Create
Mathematics Concept Videos with
Digital Tools**

3–5 Session

Digital animations bring math concepts to life! Capture concrete and pictorial models of numeracy, algebraic thinking, measurement, and more for students to see processes in math! Participants will access sample animations, including measuring with a protractor and creating patterns for algebraic rules. I will share how to create and animate.

Mary Kemper

[@MrsKemper](#)

Coppell ISD, Coppell, Texas

Henry B. Gonzalez Convention Center, 008AB

396 ASSESS

**Are Worksheets Getting You Down? Go
Sheetless!**

8–10 Session

Worksheets: we all use them, and they provide quick and valuable feedback; but are you (and your students) tired of giving the same worksheets day after day? Transform that boring worksheet into a fun and engaging activity to assess for learning with immediate feedback, with or without the help of technology through this hands-on session.

Stephanie Ryon

[@stephanieryon](#)

College Station ISD, Texas

Jessica Caviness

Coppell ISD, Coppell, Texas

Henry B. Gonzalez Convention Center, 205

397 TLC REFLECTION COVE

**What Is Active Learning for
Mathematics in Higher Education?**

General Interest Session

A quickly growing number of college math courses are using active learning. What does this look like in practice? How does this impact K–12 students and teachers? I will describe various active learning environments and discuss preparing K–12 students for active learning college courses, with connections to the Standards for Mathematical Practice.

Benjamin Braun

University of Kentucky, Lexington

Henry B. Gonzalez Convention Center, Hemisfair 2

FRIDAY

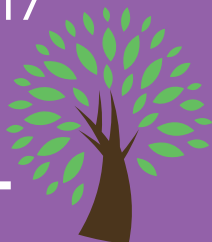


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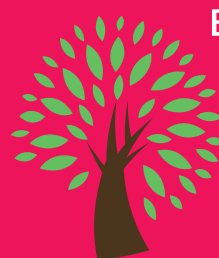
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398 PROF**Changing Teacher Practices:
Transforming Teaching 101 to PD 101****Coaches/Leaders/Teacher Educators' Session**

How can we use best practices in teaching to inform our professional development design? What elements form effective professional development, and how do they relate to lesson planning, formative assessments, and human nature? Come join us as we learn together and leave with a plan of action for your future professional development design.

Audrey Mendivil

@Audrey_Mendivil

San Diego County Office of Education, California

Grand Hyatt San Antonio, Republic ABC**399 BUILD****Conceptualizing Polynomials****10–12 Session**

Spending too many weeks on factoring? Frustrated that students go out to the garden when you ask them to find roots? Come learn how students have collaborated to go beyond procedures to conceptually understanding how data, equations, roots, factoring, complex numbers, and more can actually connect together as one mathematical reality.

Jennifer North Morris

Marana High School, Tucson, Arizona

Grand Hyatt San Antonio, Presidio ABC**400 "M"****Creating Communities of Learners:
Math in Art, Technology, and History****10–12 Session**

We will discuss a math in art, technology, and history class designed for students who desire something other than the typical math path. The class explores mathematics through units such as the Golden Ratio, music, tessellations, architecture, fractals, origami, and the history of numbers and counting, the Rubik's Cube—the fun things you've always wanted to teach!

David Peabody

@davidmpeabody

University Prep Academy, Seattle, Washington

Grand Hyatt San Antonio, Crockett AB**401 BUILD****Developing Conceptual Understanding
of Fractions****3–5 Session**

Fractions are typically a difficult concept for students. However, with the use of visual models, hands-on activities, communication, and problem solving, students learn to develop a deep understanding of fractions. Come learn about activities that develop conceptual understanding of fractions through modeling, reasoning, and problem solving.

Ellen Edmonds

W.H. Sadlier, Charlotte, North Carolina

Henry B. Gonzalez Convention Center, 007D**402 TLC****Effective Teaching Practices That
Support Students with SMPs****6–8 Session**

How can teachers support students to enact the Standards for Mathematical Practice? In this session, we focus on three Effective Teaching Practices from NCTM's *Principles to Actions* publication and how they support students to engage in SMPs. Teachers will have the opportunity to explore these teaching practices and connect them to the SMPs.

Katie Salguero

WestEd, Redwood City, California

Angela Knotts

WestEd, Redwood City, California

Grand Hyatt San Antonio, Lonestar Ballroom E

403 BUILD**Integrating Algebraic Thinking in Elementary Math: The Power of a Routine****3–5 Session**

Using CGI research, learn how a 15-minute routine helps develop deep understanding in algebraic thinking while engaging ALL students. In this session, we will share classroom-tested routines and the power of recording student thinking in order to support students and make mathematical connections through their explorations with numbers.

Melissa Canham

🐦 @Melissa_Canham

Downey Unified School District, California

Glenda Martinez

Downey Unified School District, California

Henry B. Gonzalez Convention Center, 207B

**404 A&E****REFLECTION COVE****Iris M. Carl Equity Address: Have You Ever Felt or Been Erased in the Mathematics Classroom?****General Interest Session**

Who participates in the mathematics classroom? Why? How? What role do our beliefs about who can do mathematics play in how we organize classroom discussions? What language do we use to talk about students and their parents? I explore these questions with a focus on the voices of students and parents whose mathematical ideas tend to go unnoticed.

Marta Civil is a professor of mathematics education and the Roy F. Graesser Chair in Mathematics at the University of Arizona. Her research looks at cultural, social, and language aspects in the teaching and learning of mathematics, including parental engagement and the connections between mathematics in and out of school. She has led several funded projects in mathematics education, with a focus on developing culturally responsive learning environments, particularly with Latina/o communities. In 2013 she received the TODOS Iris M. Carl Equity and Leadership Award from TODOS: Mathematics for ALL.

Marta Civil

University of Arizona, Tucson

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre

405 PROF**K–8 Teacher Preparation: What Are the Unchangeables?****Higher Education Session**

If the K–8 mathematics curriculum is based on Common Core or another trend, teacher preparation continues. What are the constants in a program that allow flexible prospective teachers with enough knowledgeable to teach effectively while preparing for future changes? Two different perspectives are offered with foci on content and methodology.

Johnny Lott

Past President, National Council of Teachers of Mathematics, Reston, Virginia; Retired, Oxford, Mississippi

Rebecca Nance

University of Mississippi, Oxford

Henry B. Gonzalez Convention Center, 225

406 TLC**Making Space to Explore: Teaching Area with Coherence****6–8 Session**

Engage in experiences designed to develop a deeper understanding of teaching area with coherence. Make sense of the progression of area through elementary and middle grades by exploring tasks as learners. Area formulas for quadrilaterals and the circle will be of focus. Connect your experience to students through authentic classroom video.

Heidi Eisenreich

Georgia Southern University, Statesboro

Juli Dixon

University of Central Florida, Orlando

Janet Andreasen

University of Central Florida, Orlando

Grand Hyatt San Antonio, Bowie ABC

407 **TLC****Math during Recess: Strengthening Number Sense through Teacher-Guided Play****Pre-K–2 Session**

Children love to play and they LOVE when the teacher joins in! Teacher-guided play at recess provides children with a comfortable, non-threatening environment to participate in genuine applications of math concepts outside the classroom. Ideas for games to play and engaging learners during recess are shared during this hour of play!

Ryan Higgins

Coker College, Hartsville, South Carolina

John Byrd

Student, Hartsville, South Carolina

Grand Hyatt San Antonio, Travis CD

408 **TLC** **REFLECTION COVE****Middle School Number Talks: Shifting the Classroom Culture****6–8 Session**

Number talks as a vehicle for changing the middle school classroom culture will be discussed. We will look at how this routine impacts student engagement, discourse, and mathematical mindsets. Video of middle school classrooms number talks will be used to analyze number talk strings and shifts in the classroom culture.

Sherry Parrish

[@numbertalks](#)

Parrish and Associates, Inc., Birmingham, Alabama

Henry B. Gonzalez Convention Center, 221

409 **TECH****Principles to Actions with Dynamic Math Tech****Coaches/Leaders/Teacher Educators' Session**

“Mathematical action technology influences not only how we teach but also what we are able to teach.” With this statement from NCTM, we now must dig into what features of the technology specifically influence teaching and learning. Come to learn how and why to use tech for specific learning goals.

Scott Farrar

[@farrarscott](#)

GeoGebra Institute, Oakland, California

Henry B. Gonzalez Convention Center, 214A

410 **TLC****Promoting Productive Discourse = Deeper Mathematics Learning****General Interest Session**

Participants will engage in activities that promote mathematical discourse and discuss how these support deeper learning for all students. Resources for tasks that support discourse and ideas for classroom discourse norms will be shared.

Mark Ellis

[@ellismathed](#)

California State University, Fullerton

Cathery Yeh

Chapman University, Orange, California

Carolee Koehn-Hurtado

University of California, Los Angeles

Grand Hyatt San Antonio, Lonestar Ballroom F

411 **ASSESS****Taking Action in Middle School: Implementing Effective Mathematics Teaching Practices****General Interest Session**

This session will engage teachers in activities that support the development of the *Principles to Actions* Effective Mathematics Teaching Practices in the middle school. These activities will include engaging in rich mathematical tasks, discussing cases of teaching, and analyzing classroom artifacts including student work. Activities are drawn from the new NCTM publication *Taking Action: Implementing Effective Mathematics Teaching Practices in Grades 6–8*.

Margaret (Peg) Smith

University of Pittsburgh, Pennsylvania

Michael Steele

University of Wisconsin–Milwaukee

Henry B. Gonzalez Convention Center, Hemisfair 1

412 BUILD**Rigor vs. Play in Early Mathematics: A False (and Risky) Choice****Pre-K–2 Session**

This session will address the types of math experiences that are most effective for building young children's foundational mathematical concepts, skills, and dispositions. Participants will discuss current context and trends in early math education and how best practices in early math mesh with best practices in early childhood more generally.

Debbie Leslie

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

Grand Hyatt San Antonio, Travis AB

413 TLC**Strategies to Support Purposeful and Intentional Student Math Talk****Pre-K–2 Session**

Explore strategies for structuring and guiding young learners in discourse with children's literature as the springboard. Participants will examine strategies such as, PEER, Wh-prompts, CROWD, and a Reader's Guide to engage young children in purposeful and intentional "math-talk" discussions to reflect the CCSS mathematical practices.

Lynn Columba

Lehigh University, Bethlehem, Pennsylvania

Grand Hyatt San Antonio, Crockett CD

414 BUILD**Tactical Escape: A Great Math Challenge****8–10 Session**

We will discuss our involvement in two Mathematics Partnership Grants collaborating with mathematics teachers in Wisconsin. We will showcase how we used an escape room challenge to engage students, emphasize the Standards for Mathematical Practice, and promote mathematical discourse. Examples from the escape rooms and student work will be included.

Ashlee LeGear

Hudson School District, Wisconsin

Erick Hofacker

University of Wisconsin-River Falls

Kathryn Ernie

University of Wisconsin-River Falls

Grand Hyatt San Antonio, Lonestar Ballroom C

415 A&E**Teaching Math for Social Justice in the Elementary Classroom****3–5 Session**

How do you infuse teaching for social justice in the elementary math classroom? We provide examples of cross-curricular lessons (social studies and science) that were taught in two bilingual classrooms (second and fifth grade) around critical water access. Participants will receive examples of the problems and activities developed for these lessons.

Luz Maldonado

Texas State University, San Marcos

Melissa Adams

Austin ISD, Texas

Henry B. Gonzalez Convention Center, 214B

416 BUILD REFLECTION COVE**The New Basics: Arithmetic and Algebra with 21st-Century Tools****General Interest Session**

It's easy to get digital tools to drill students on their facts, at the very same time that these tools make fact memorization less valuable. What do students need to know about arithmetic and algebra, and how can digital tools support them learning it? This session provides some answers and classroom-ready examples.

Christopher Danielson

@Trianglemancsd

Desmos, Inc., St. Paul, Minnesota

Henry B. Gonzalez Convention Center, 301

417 BUILD**The Progression of Geometry in the Common Core from Grade 8 to High School****8–10 Session**

We will illuminate the recently published Geometry Progression for the Common Core State Standards, illustrating it with examples of geometric reasoning based on rigid motions and similarity transformations and of modeling with geometry.

Bill McCallum


@wgmcclallum

Illustrative Mathematics, Tucson, Arizona

Henry B. Gonzalez Convention Center, Hemisfair 3

418 BUILD**Understanding the Progression of Fractions in K–8 Mathematics****Coaches/Leaders/Teacher Educators' Session**

In this presentation, we will discuss the progression of fractions from early elementary to middle school mathematics, and we will highlight ways in which students can use their previous understandings of fractions to make sense of harder fraction topics. Classroom video illustrating fraction connections across grade levels will be shared.

Jennifer Tobias
 @tobimath3

Illinois State University, Normal

Lisa Brooks

University of Central Florida, Orlando

Grand Hyatt San Antonio, Lonestar Ballroom D**420 BUILD****Using Tape Diagrams to Solve Ratio/Proportion Problems****6–8 Session**

See how tape diagrams can be used to foster algebraic thinking. We will examine and illustrate how tape diagrams can be used to develop and support proportional and algebraic reasoning. Tape diagram solutions will be compared to traditional solutions to illuminate the usefulness of this tool.

Connie Laughlin

Great Minds, Washington, D.C.

Krysta Gibbs

Great Minds, Washington, D.C.

Henry B. Gonzalez Convention Center, 214C**421 BUILD****What's the Probability I Can Draw That?****6–8 Session**

Simple and compound probability can be easily represented and understood using visual models. Visual representations lead to a more intuitive and deeper conceptual understanding; drawings and diagrams help students describe probability as fractions and percentages. Come explore probability problems and ways to determine sample spaces in context.

Janet Tomlinson


Carnegie Learning, Inc, Pittsburgh, Pennsylvania

Kelly Edenfield

Carnegie Learning, Inc, Pittsburgh, Pennsylvania

Grand Hyatt San Antonio, Texas Ballroom F**422 TECH REFLECTION COVE****Technology to Visualize Senior Mathematics Concepts: Tools to Transform Learning****10–12 Session**

Mathematical action technologies, as referenced in *Principles to Actions*, offer us rich opportunities for reasoning and sense making to develop conceptual understanding through visualization and making connections. Bring a device and let's explore what this can look like in the classroom, and also consider the implications for assessment.

Marc Garneau
 @314Piman

Surrey School District, Surrey, British Columbia, Canada

Henry B. Gonzalez Convention Center, 217D

422.1 ew**Mathspace—Why You'll Never Grade Math Assignments Again. Seriously. (BYOD!)****General Interest 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 to try award-winning Mathspace live, and ask about a free trial!

Mathspace
New York, New York

Henry B. Gonzalez Convention Center, 206A

422.2 ew**STEM behind Sports: Field Goal for the Win****General Interest Exhibitor Workshop**

The kick is up . . . and it's good! Get your students fired up about math with interactive lessons that model a game-winning field goal. Learn how technology can be used to engage your students in challenging mathematics that they experience every day. Get free resources for middle grades through precalculus that can be used in your classroom right away.

Texas Instruments
Dallas, Texas

Henry B. Gonzalez Convention Center, 206B

422.3 ew**Bridges Intervention: Delivering Clear and Systematic Instruction****General Interest Exhibitor Workshop**

Searching for an effective K–5 intervention resource with built-in assessments and frequent progress monitoring? Discover how Bridges Intervention uses the power of visual models to reach struggling students. Organized by content rather than grade, each session includes warm-ups, lessons, and practice pages focused on key standards.

The Math Learning Center
Salem, Oregon

Henry B. Gonzalez Convention Center, 207A

422.4 ew**A Fresh Look at Proofs in Geometry****10–12 Exhibitor Workshop**

Explore multiple strategies that empower students to independently solve proof problems and build crucial deductive reasoning skills. You will hear how teachers are using CanFigureIt® Geometry to create a more engaging learning environment while supporting their students' individual needs. Bring a laptop for a lively hands-on session!

CanFigureIt
New York, New York

Henry B. Gonzalez Convention Center, 210AB

422.5 ew**What's the Problem? Supporting Student Success in Solving Problem****3–5 Exhibitor Workshop**

During this interactive workshop, participants will discover several effective strategies for problem solving while exploring how the use of language and discourse, visual models, and strategy/thinking games can foster reasoning skills and develop deeper understanding of concepts.

ORIGO Education
Earth City, Missouri

Henry B. Gonzalez Convention Center, 212AB

422.6 ew**A New Approach to On-Level Statistics: Statistics and Probability with Applications****10–12 Exhibitor Workshop**

Teaching an on-level statistics course or thinking about it? Come find out about a uniquely designed textbook, written for high-school students by high school teachers. During this session, authors Daren Starnes and Josh Tabor will highlight the student- and teacher-friendly features of their new text, including teacher resources. Samples will be provided.

Bedford, Freeman & Worth Publishers
New York, New York

Henry B. Gonzalez Convention Center, 213AB



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Thursday, April 6, 9:30 – 10:30 am
Exhibit Hall Theater Workshop Area

Visit us at Booth 909 to enter for a chance to win a Chromebook™.



423 BUILD**Building Conceptual and Procedural Understanding in Middle School Mathematics****6–8 Workshop**

Using resources from the *Principles to Actions* Toolkit, participants will explore ways of building conceptual and procedural understanding of two important middle school topics (proportional reasoning, rate of change) and ways of enacting the Effective Mathematics Teaching Practices more broadly.

Melissa Boston

Duquesne University, Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, 302AB

424 PROF**BYOSW: How Bring Your Own Student Work Can Revolutionize Teacher Collaboration****3–5 Workshop**

Principles to Actions encourages us to use student thinking to inform instruction. Before NCTM's annual meeting we'll post a task on this session's page at meetings.nctm.org; during the session we'll analyze our own students' work on the task; and afterwards implement instruction we plan together. Participate in any or all parts of this ongoing PD.

Max Ray-Riek

[@maxmathforum](https://twitter.com/maxmathforum)

The Math Forum at NCTM, Reston, Virginia

Henry B. Gonzalez Convention Center, 304A

425 BUILD**Coaching for Conceptual Understanding: Making Mathematical Reasoning Visible in K–5 Classrooms****Coaches/Leaders/Teachers' Workshop**

As we moved to the CCSSM, we shifted in practice. Participating in mathematics allowed students to learn content and mathematical practices while building the identity of mathematicians. See how our K–5 classrooms increased intellectual engagement, participation in math discourse, and justifying thinking and reasoning.

Jana Sanchez

[@jsanchezmath](https://twitter.com/jsanchezmath)

Everett Public Schools, Washington

Henry B. Gonzalez Convention Center, 224

426 BUILD**Cuisenaire Rods across the Curriculum****Coaches/Leaders/Teacher Educators' Workshop**

Cuisenaire rods are engaging manipulatives that can be used for fractions and beyond. In this session, participants will engage in hands-on activities using Cuisenaire rods that support many different grade level standards. This session is ideal for math specialists and coaches who support students and teachers in many different grade levels.

Heather Dyer

Howard County Public School System, Ellicott City, Maryland

Grand Hyatt San Antonio, Texas Ballroom E

427 BUILD**Discovering Rules: Making Sense of Fractions through Investigations****3–5 Workshop**

While we may have studied fractions as a series of rules, we recognize that just memorizing those rules does not mean that our students are proficient with fractions. Through hands-on explorations, we will explore investigations that help our students discover the rules for themselves and build an understanding of why they work.

Sue OConnell

[@SueOConnellMath](https://twitter.com/SueOConnellMath)

Quality Teacher Development, Millersville, Maryland

Grand Hyatt San Antonio, Texas Ballroom A

428 BUILD**Division: Let's Help Students Make Sense of It****3–5 Workshop**

Division is often troublesome for both teachers and students. This session will develop way to address both partitive and quotative division situations with understanding so that proficiency towards with the standard, traditional U.S. algorithm is enhanced with connections between whole number division and division with fractional quantities.

Robert Preston

Chico Unified School District, California

Henry B. Gonzalez Convention Center, 305

429 A&E**Engaging Families through Math Nights****6–8 Workshop**

Learn the secrets to our success engaging families through Math Nights. Participants should be prepared to participate in an actual Math Night session with a warm up, group game and featured activity. You will leave with access to many of our activities and plans on how to successfully implement your own Math Night.

Sally Wood

Estacada Middle School, Oregon

Elizabeth Warren

Estacada Middle School, Oregon

Grand Hyatt San Antonio, Lonestar Ballroom B

430 A&E**Equitable Mathematics: Integrating Language and Mathematics Instruction****Coaches/Leaders/Teacher Educators' Workshop**

This session provides an overview of our approach to teacher professional learning focused on mathematics content and pedagogy and explicit language instruction. We describe the process, tools, and techniques that support teacher learning. Participants analyze student artifacts and discuss ideas for classroom implementation.

Amy McQueen

David Douglas School District, Portland, Oregon

Steve Vancil

David Douglas School District, Portland, Oregon

Grand Hyatt San Antonio, Lonestar Ballroom A

431 BUILD**Flexing Your Math Muscles! Student Understanding That Connects Concepts through Representations****8–10 Workshop**

Engage in tasks and activities for supporting students to move among and between procedural and conceptual ideas. What are activity characteristics that promote an environment for connections through representations? We will explore these while examining manipulatives and technology that aid in developing flexibility in connecting concepts.

Trena Wilkerson

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

Erica Amos

Baylor University, Waco, Texas

Henry B. Gonzalez Convention Center, 217A

Attending the meeting is just the beginning! Engage with featured speakers, access additional material, network with peers, and much more on the extended meeting experience website at meetings.nctm.org.



432 **TLC****Further beyond Sudoku: Using Logic Puzzles to Develop Mathematical Reasoning****10–12 Workshop**

Logic puzzles are an engaging and accessible way to introduce students to deductive reasoning. Participants will break down the process of proof-writing, connect the rules of logic puzzles to axiomatic proof systems, make conjectures, write “because statements” and develop their ideas into simple proofs, modeling how to use these ideas with students.

Breedeem Pickford-Murray

[@btwnthenumbers](#)

The Bay School of San Francisco, California

Henry B. Gonzalez Convention Center, 007A

433 **BUILD****Igniting Connections: Educating Your Parent Community****3–5 Workshop**

Ignite parents’ depth of understanding of the CCSSM Content Standards and eight mathematical practices with informational meetings, parent coffees, and student-led math nights. Receive ready-to-use resources to spark constructive partnerships with parents.

Kimberly Kelly

[@HiMsKelly](#)

San Luis Coastal Unified School District, California

Barbara Blanke

Cal Poly State University, San Luis Obispo

Henry B. Gonzalez Convention Center, 006B

434 **TLC****Mathematical Practices Go to the Movies: High-Level Box Office Activities****8–10 Workshop**

A movie’s box office performance over time and the relative performances of different genres of movies provide engaging contexts for mathematical practices. Using real data, but doing more than just statistics, this session presents examples of modeling, problem solving, and arguing and critiquing reasoning. Digital tools welcome.

Samuel Otten

[@ottensam](#)

University of Missouri, Columbia

Henry B. Gonzalez Convention Center, 007B

435 **TLC****Name That Polygon: A Higher Order Thinking Algebra Activity****8–10 Workshop**

Name That Polygon is a higher order thinking activity that integrates linear algebra and coordinate geometry. Participants will have the opportunity to walk through the linear algebra topics of slope, distance formula, the Cartesian coordinate plane, and polygons in a two-day classroom activity.

Lesa Covington Clarkson

University of Minnesota, St Paul

Grand Hyatt San Antonio, Texas Ballroom D

436 **BUILD****Nix the Tricks****6–8 Workshop**

Being a mathematics student is about critical thinking, justification, and using tools of past experiences to solve new problems. Students who approach every topic as a series of steps to memorize are not learning math. In this session we will explore how to replace some popular tricks with teaching for understanding.

Tina Cardone

[@crstn85](#)

Salem High School, Salem, Massachusetts

Ashli Black

Illustrative Mathematics, Tucson, Arizona

Henry B. Gonzalez Convention Center, 006A

437 **TLC****Pinterest Pitfalls with Preservice Teachers****Coaches/Leaders/Teacher Educators' Workshop**

Preservice teachers rely on the Internet as one source for lesson ideas. Without a filter for what is research-based, “cute” activities are chosen instead of ones that are mathematically sound. We share how we use these activities in methods class to foster analysis and revisions to support preservice teachers in effectively teaching mathematics.

Victoria Miller Bennett

Bellarmine University, Louisville, Kentucky

Stefanie Livers

University of Alabama, Tuscaloosa

Henry B. Gonzalez Convention Center, 006C

438 **TLC****Promoting Higher Level Depth of Knowledge in High School Math****10–12 Workshop**

Come explore strategies and tasks that inspire students to develop deeper conceptual understanding in high school mathematics. In particular, we will examine strategies to provoke discourse and bump up the Depth of Knowledge in algebra, functions, and geometry through the integration of analysis tasks, open questions, and open middle problems.

Mishaal Surti

[@MrSurti](#)

Thames Valley District School Board, London, Ontario, Canada

Henry B. Gonzalez Convention Center, 304B

439 **ASSESS****Proportional Reasoning in the Common Core: Tasks and a Diagnostic Test for Teacher Use****6–8 Workshop**

Participants will engage in proportional reasoning tasks with a focus on the use of models (e.g., unifix cubes, pictures, tape diagram, number line) to tap into students' informal knowledge and bridge them to more formal understandings. Next we will provide an overview of open-source proportional reasoning diagnostic assessments for teachers' use.

Michele Carney

Boise State University, Idaho

Henry B. Gonzalez Convention Center, 217C

440 **BUILD****Proportional Reasoning vs. Using Proportions: What Is the Difference?****6–8 Workshop**

There is a difference between using proportions to solve problems and having proportional reasoning. This session will introduce participants to the levels of proportional reasoning and provide participants the opportunity to create activities that lead to the development of proportional reasoning.

Lois Williams

College of William and Mary, Williamsburg, Virginia

Ruth Harbin Miles

Mary Baldwin College, Staunton, Virginia

Henry B. Gonzalez Convention Center, 304C

441 **BUILD****Recursive and Explicit Relationships using Algebra Tiles****3–5 Workshop**

Participants will build algebraic reasoning through connections between recursive and explicit descriptions of patterns explored through hands-on tasks with algebra tiles. Considerations of student thinking through examples of student work will be included in the presentation.

Alyson Lischka

Middle Tennessee State University, Murfreesboro

Lucy Watson

Middle Tennessee State University, Murfreesboro

Amber Matuszewski

Rutherford County, Murfreesboro, Tennessee

Henry B. Gonzalez Convention Center, 005

442 "M"

Simple Machines: It's That Simple

Pre-K–2 Workshop

These lessons show how simple it is to infuse STEM concepts into curriculum, and it is so simple that kindergartners and even preschoolers can learn and do STEM. The attendees will leave the session with lesson plans for the entire simple machines unit. Participants will engage on one of the lessons during the session.

Melissa Sheffer

Student, Millersville University, Pennsylvania

Aneshka Szczesny

Student, Millersville University, Pennsylvania

Jason Petula

Millersville University, Pennsylvania

Henry B. Gonzalez Convention Center, 007C

443 "M"

Tea, Guinness, & Crop Yields: The Many Faces of Statistics

10–12 Workshop

Statistics has worn many faces throughout history. Framing statistics within a historical and contextual perspective provides new opportunities in which students can read about and investigate topics. Participants will walk away with a series of online resources to use as well as authentic STEAM integrations taken from a well-known piece of literature.

Tammy Jones

[@TLJCG](#)

TLJ Consulting Group, Lebanon, Tennessee

Mary Martin

Middle Tennessee State University, Murfreesboro

Henry B. Gonzalez Convention Center, 006D

444 BUILD

The Power of Unit-Fraction Quantities for Building Children's Understanding

3–5 Workshop

Unit fractions ($1/n$) lie at the heart of the mathematics of fractions. Story problems involving these quantities build children's understanding of relationships between a unit fraction and 1. Come explore children's understandings by viewing and discussing children solving problems and consider how these problems enhance fraction instruction.

D'Anna Pynes

University of Texas at Austin

Gladys Krause

University of Texas at Austin

Susan Empson

University of Missouri, Columbia

Henry B. Gonzalez Convention Center, 004

445 BUILD

Wacky & Wild Workstations for Prekindergarten–Grade 2

Pre-K–2 Workshop

Learn how to incorporate low prep/cost, engaging standards-based workstations related to number relationships, operations, and algebraic reasoning. While incorporating thinking, problem solving, student accountability, and fun, participants will interact with a variety of activities and games from a student perspective. A QR code and link will be provided.

Alison Lentz

[@alilentz](#)

ESC Region 11, White Settlement, Texas

Jennifer Jones

Round Rock ISD, Texas

Grand Hyatt San Antonio, Texas Ballroom B

Check out the **Reflection Coves** on the second and third floors of the Convention Center to discuss topics of interest with featured speakers, board members, Affiliate Relations Committee members, as well as the President and Immediate Past President.



11:30 A.M.–12:45 P.M.

446 BUILD

Wait! What Do I Find—Surface Area or Volume?

8–10 Workshop

We will explore student misconceptions as we take a look at their conceptual learning journey, elementary grades through geometry. We will discuss effective teaching strategies as well as provide lesson ideas, resources, and activities that will help students to differentiate surface area and volume problems.

Patty McGraw

Prince William County Schools, Woodbridge, Virginia

Lisa Sill

Prince William County School, Woodbridge, Virginia

Grand Hyatt San Antonio, Texas Ballroom C

447 BUILD

Young Mathematicians: Powerful Strategies for Building K–2 Number Sense

Pre-K–2 Workshop

Number sense is within the reach of young children! The number sense pathway allows teachers to select and offer children rich, meaningful, and appropriate experiences. Join us for engaging activities, videos, and discussions, and leave with exemplar activities and a useful framework of understanding how to build a strong foundation of number.

Amanda Confer

Camino Nuevo Charter Academy, Los Angeles, California

Christine Confer

Associates for Educational Success, Tucson, Arizona

Henry B. Gonzalez Convention Center, 217B

12:30 P.M.–1:30 P.M.

448 A&E

Mathematical Argumentation Lessons: Engaging All Students

6–8 Session

Researchers (Herbel-Eisenmann et al. 2012) report that students of color need increased access to mathematically based discourse, including argumentation. Working with teachers, we developed online instructional activities and improvisational “games” particularly supportive of culturally and linguistically diverse students engaging in argumentation.

Harriette Stevens

Mathematics Education Group, San Francisco, California

Jennifer Knudsen

SRI Education, Austin, Texas

Teresa Lara-Meloy

SRI International, Menlo Park, California

Grand Hyatt San Antonio, Lonestar Ballroom C

449 ASSESS

“I Got an 86. What Does That Mean?”

10–12 Session

Why do we grade? Is a single number meaningful? When evaluating student work, we have an opportunity to guide students forward with feedback. Instead of identifying mistakes and subtracting points to determine a numerical grade, let’s give evaluations dimension, depth, and character by answering the question, “What is my student struggling with?”

Brian Abend

[@mrabend](#)

Worcester Academy, Massachusetts

Grand Hyatt San Antonio, Lonestar Ballroom D

Don’t miss featured speaker **Ed Burger’s** session on Friday, April 7 at 4:45 p.m. followed by **IGNITE** at 6:30 p.m.



FRIDAY

450 **TLC****3 Parts to a K–5 Student-Centered Intervention Program****3–5 Session**

Are you stuck using an intervention program that you and your students don't find engaging? We found a way to make intervention engaging and student centered. Come learn how we incorporated the use of number talks/strings, story problems, and games during intervention time and how each is backed by research.

Donna Wommack

Genesee School District, Idaho

Christina Tondevoid

Mathematically Minded, Orofino, Idaho

Grand Hyatt San Antonio, Republic ABC

451 **BUILD** **REFLECTION COVE****Algebra Tasks That Promote Reasoning and Problem Solving****8–10 Session**

This session will provide participants the opportunity to experience three approaches for adapting tasks, to adapt concrete tasks for their classrooms, and to give feedback on tasks that have been adapted. The focus of the session will be on adapting everyday algebra 1 and algebra 2 tasks to promote reasoning and sense making.

Benjamin Sinwell

Pendleton High School, South Carolina

Henry B. Gonzalez Convention Center, 214C

452 **BUILD****Building Concepts in Ratios and Proportional Reasoning****6–8 Session**

The presenters will use Interactive dynamic action/consequence applets that display ratios in ratio tables, diagrams, double number lines, and as points on a line to discuss ratios and proportional reasoning from the perspective of the Progressions documents associated with the coherent, consistent Common Core State Standards for Mathematics.

Wade Ellis

Retired, West Valley College, San Jose, California

Thomas Dick

Oregon State University, Corvallis

Henry B. Gonzalez Convention Center, 214A

453 **TLC****Classroom-Tested Activities That Promote Reasoning, Sense Making, and Proof in High School Geometry****8–10 Session**

Learn how to implement four multiday lessons that afford students opportunities for productive struggle and purposeful discourse. Content includes points of concurrency, bisectors, parabolas, coordinate geometry, constructions, and proof. Leave with access to editable documents to differentiate and scaffold these activities for your students.

Wayne Nirode

Troy City Schools, Ohio

Henry B. Gonzalez Convention Center, 007D

454 **BUILD****Don't Be Quick to Count-On: Building Procedures from Conceptual Understanding****Pre-K–2 Session**

Children solving addition problems are commonly taught the strategy of counting-on. When is this another empty procedure and when is it supported by conceptual understanding? Participants will leave with a progression of student counting concepts and research-supported activities to promote the movement through the progression.

Beverly Ford

AIMS Center for Math and Science, Fresno, California

Darrell Blanks

Fresno Pacific University, Fresno, California

Tiffany Friesen

AIMS Center for Math and Science Education, Fresno, California

Grand Hyatt San Antonio, Lonestar Ballroom F

455 BUILD REFLECTION COVE**Fluency and Conceptual Understanding: Student Thinking and Completing the Square****8–10 Session**

Be part of a lesson on completing the square that models using evidence of student thinking to adjust instruction and to assess student progress and asking productive questions. You will work with different ways to complete the square and to connect the methods to create procedural fluency with conceptual understanding.

Fred Dillon

[@fdizzle1955](#)

Ideastream/PBS, Strongsville, Ohio

Henry B. Gonzalez Convention Center, 225

456 BUILD**In Your Interest: Integrating Mathematics and Financial Literacy****8–10 Session**

We will share a set of activities that address both goals for mathematics (CCSSM) and financial literacy (Jump\$tart Standards). See how algebra/functions, data analysis/statistics, and modeling can support students in building a stronger understanding of financial literacy topics such as savings, investing, credit, and debt.

Sherri Martinie

Kansas State University, Manhattan

Susan Peters

University of Louisville, Kentucky

Grand Hyatt San Antonio, Travis CD

457 A&E**Language Effects in K–2 ESL Students Receiving Mathematics Intervention Support****Pre-K–2 Session**

This presentation will discuss the effects of a mathematics intervention support on young English language learners' (ELLs) abilities to operationalize number. In particular, we will discuss the relationship between language instruction and algebraic reasoning development.

Marialuisa Di Stefano

Utah State University, Logan

Kristy Litster

Utah State University, Logan

Beth MacDonald

Utah State University, Logan

Henry B. Gonzalez Convention Center, Hemisfair 3

458 TECH**Looking Forward: What'll Be Possible in Math Ed in a Decade?****8–10 Session**

Technology is evolving rapidly. Every year, devices get cheaper and better. Every year, wifi access improves. What do these trends imply for the future? What will be possible in a decade that isn't possible today? We'll look at the best tech, from pencils on up to the Internet, and see how future possibilities can inform our classrooms today.

Eli Luberoff

[@eluberoff](#)

Desmos Inc, San Francisco, California

Henry B. Gonzalez Convention Center, 301

459 "M"**Math as Telescope: Applying Concepts to Explore Our World****8–10 Session**

What's the fairest way for cities to raise revenue? Is there an upside to having a bad day? Like a telescope, math is a powerful tool that allows us to better understand the world. In this presentation, we'll model real-world lessons in which students apply concepts such as linear functions and integer operations to explore how the world works.

Karim Ani

[@karimkai](#)

Mathalicious, Austin, Texas

Henry B. Gonzalez Convention Center, 221

460 **PROF****My Coaching Journey through Fractions: From Frustrating to Yet Empowering**

Educators' Session

As educators, many of us teach fractions procedurally. Take a glimpse into several of my coaching journeys along with our coach, as we established goals, planned, implemented, and analyzed evidence of student thinking. Participants will learn how teachers built learning experiences through book talks, social media, and lesson studies in a PLC.

Emily Paschall

Limestone County Schools, Athens, Alabama

Sheila Holt

University of Alabama/Huntsville AMSTI, Huntsville

Henry B. Gonzalez Convention Center, 008AB**461** **BUILD****Noticing the Numbers: Students Using Computation Strategies Based on Reasoning**

3–5 Session

Research indicates that engagement with multiple computation strategies increases conceptual understanding and student achievement. But how do we move students toward efficient use of strategies? In this session, participants consider instructional decisions that move students toward efficiency based on reasoning about the numbers at hand.

Patricia Clark

@pclark_patty

Math Solutions, Sausalito, California

Mary Mitchell

Math Solutions, Sausalito, California

Henry B. Gonzalez Convention Center, 214B**462** **TECH****Number Sense Fun with Game-Based Early Childhood Apps**

Pre-K–2 Session

Game-based apps provide enriching opportunities for children to learn number sense. Research suggests that developing a good foundation of number sense skills in children promotes successful math achievement in future mathematics courses. The importance of number instruction for pre-K students and a collection of apps will be shared and discussed.

Amy Adkins

University of Nevada, Las Vegas

Dawn Lockett

Clark County School District, Las Vegas, Nevada

Lina DeVaul

University of Nevada, Las Vegas

Henry B. Gonzalez Convention Center, 207B**463** **TLC** **REFLECTION COVE****Rich Real-World Problems**

6–8 Session

These engaging problems provide a context you can use to introduce a math topic and make conceptual understanding more tangible. We'll do a problem together and discuss how to help students articulate their mathematical thinking in writing. Finally we'll cover options for assessing their work and sources of free problems from kindergarten through high school.

Robert Kaplinsky

@robertkaplinsky

Downey USD, Long Beach, California

Henry B. Gonzalez Convention Center, Hemisfair 1

Check for updates and for full or cancelled sessions through the **conference app** or **program updates screens** located in the lobbies of the convention center and the Grand Hyatt.



464 ASSESS

Smarter Balanced: Lessons Learned from Writing Performance Tasks

General Interest Session

As a classroom teacher, nothing informed my assessment writing more than developing items for Smarter Balanced. Come hear about the lessons I learned regarding rigor, expectations, and instructional implications. Whether you're a classroom teacher or a supporter of teachers, you'll be able to help students better understand performance tasks!

Jessica Balli

[@JessicaMurk13](#)

Callahan Consulting, Santa Rosa, California

Grand Hyatt San Antonio, Presidio ABC

465 A&E

Strategies for Including Students with Disabilities in Computational Thinking

Research Session

This presentation highlights research and practical solutions for teaching computational thinking to students at risk for academic failure. Data on teacher implementation and student outcomes related to persistence, adaptive help seeking, and collaborative problem solving will be shared as well as implications for special ed teacher education.

Cheryl Moran

University of Chicago, Illinois

Maya Isreal

University of Illinois at Urbana-Champaign

Quentin Wherfel

University of Illinois at Urbana-Champaign

Grand Hyatt San Antonio, Crockett CD

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466 **A&E****Strengthening Girls' Math Identity: Best Practices Learned****General Interest Session**

From an early age, girls are taught that math success is an innate ability that they lack and being feminine and good at math are mutually exclusive. Focusing on girls in grades 4–8, the critical years of transition from elementary to middle to high school, this presentation will review programs and strategies that strengthen girls' math identity.

Lorraine Howard

Wilkes University, Wilkes-Barre, Pennsylvania

Grand Hyatt San Antonio, Texas Ballroom F

468 **A&E****Teaching Is Tough, But What Makes it Complex? Implementing Complex Instruction****General Interest Session**

Complex instruction (CI) is one way to realize equity goals in mathematics education. It is a strengths-based pedagogical approach that embraces student diversity and provides all students to access challenging mathematics, use their strengths to help their group attain a mathematical goal, and see each other as resources for learning new content.

Nicole Wessman-Enzinger

[@DrEnzinger](#)

George Fox University, Newberg, Oregon

Sararose Lynch

Westminster College, New Wilmington, Pennsylvania

Barbara Swartz

McDaniel College, Westminster, Maryland

Grand Hyatt San Antonio, Travis AB

469 **TLC****Teaching Mathematics Powerfully with Rich Tasks****10–12 Session**

You've tried Investigations (3-act tasks, modeling) lessons. Making these tasks work well is not trivial. I'll share some delivery principles that help teachers make the most of rich mathematical inquiry lessons and resulting class discussions. We'll talk about pacing, questioning, choosing who shares, and other important considerations.

Pamela Harris

[@pwharris](#)

University of Texas at Austin, Kyle

Henry B. Gonzalez Convention Center, 303

470 **TECH****Technology Makeovers: Finding Digital Approaches to Your Favorite Lessons****10–12 Session**

A precalculus and calculus session that will demonstrate how to utilize technology tools, like Desmos, that offer new opportunities for your favorite classroom activities. Come experience how small digital additions can be quickly implemented into your lesson, helping you expand the bridge of what students know to what you want them to learn.

Luke Walsh

[@lukeseifwalker](#)

Catawba Valley Community College, Hickory, North Carolina

James Martin

Wake Technical CC, Raleigh, North Carolina

Henry B. Gonzalez Convention Center, 205

Visit the **NCTM Bookstore** and **save 25% off the list price** of all publications and specialty items.



471 **TLC****The Answer Still Matters . . . Eventually****General Interest Session**

Effective teachers engage students in productive struggle as a way to develop mathematical thinking and learn new content. We sometimes say, “It’s not the answer that matters, it’s the process.” But the answer does matter, even as we focus on the struggle. How can we slow down the race to answers and use the journey as a vehicle for learning?

Cathy Seeley

🐦 @cathyseeley

Past President, National Council of Teachers of Mathematics, Reston, Virginia; Consultant, Austin, Texas

Grand Hyatt San Antonio, Bowie ABC

472 **A&E** **REFLECTION COVE****This Is Not A Test: Math, Equity, and What’s Not Adding Up****General Interest Session**

How can we best serve our children of color as math teachers? We will discuss possible solutions and methodologies for teaching math for all children, and why equity matters in the daily work we do as math teachers.

José Vilson

🐦 @thejlv

NYC Department of Education, New York, New York

Henry B. Gonzalez Convention Center, Hemisfair 2

473 **BUILD****This Math Was Made for Talking: Targeting Math Discussions in the K–6 Classroom****General Interest Session**

Number talks are powerful tools for building students’ mathematical thinking, fluency, and discourse, but there’s more to them than just show and tell. Leverage your talks: analyze and use student strategies shared during number talks to plan and lead targeted follow-up discussions that reengage students in their mathematical thinking.

Christine Newell

🐦 @MrsNewell22

Stanislaus County Office of Education, Modesto, California

Grand Hyatt San Antonio, Crockett AB

474 **TECH****Using the Desmos Calculator to Analyze Student Photographs and Pictures****6–8 Session**

Most students enjoy taking photographs of their friends and the world around them. Additionally, many are budding artists. But, how often do they analyze the mathematics behind their images? Participants will learn how to use the Desmos calculator to analyze the underlying equations and geometric figures.

Stephanie Cooperman

School District of the Chathams, Chatham, New Jersey

Neil Cooperman

Millburn High School, New Jersey

Henry B. Gonzalez Convention Center, 217D

475 **TLC****Which One Doesn't Belong?****General Interest Session**

Come explore thought-provoking mathematical puzzles for K–12 students. Each has a set of four shapes, numbers, or graphs with a reason why each one doesn't belong. As you work through problems and create your own, you will see how WODB helps construct possible arguments and critique the reasoning of others.

Mary Bourassa

🐦 @MaryBourassa

West Carleton Secondary School, Dunrobin, Ontario, Canada

Chris Hunter

Surrey Schools, British Columbia, Canada

Grand Hyatt San Antonio, Lonestar Ballroom E

476 **ASSESS** **REFLECTION COVE****Why Formative Assessment Should Be a Priority for Every School****General Interest Session**

Increased use of formative assessment raises student achievement, but too often implementation focuses on the least effective form of formative assessment analysis of student data. This presentation explains why, in order to maximize impact on student achievement, formative assessment requires changing classroom practice, minute by minute and day by day.

Dylan Wiliam

🐦 @dylanwiliam

Learning Sciences International, Starke, Florida

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre

476.1 **ew****Motivating Students through High-Level Problem Solving Using Models in a Collaborative Setting****3–5 Exhibitor Workshop**

Sarah Schaefer will explain how to use models and other strategies to solve challenging word problems from the original Singapore Math® program: Primary Mathematics. Workshop participants will learn how to increase student achievement while persevering and making connections between mathematical content and NCTM's Mathematics Teaching Practices.

Singapore Math

Tualatin, Oregon

Henry B. Gonzalez Convention Center, 206A

476.2 **ew****Introducing *Financial Algebra* 2nd Edition: Raising Interest, Raising Competence, Raising Confidence****10–12 Exhibitor Workshop**

Learn how to implement the most successful financial algebra course in the country, *Advanced Algebra with Financial Applications Using Financial Applications*, 2nd Ed. (Cengage 2018). Ideal as a third- or fourth-year course for all students. Various pathways may be created depending on student ability level. Sample copies will be distributed to all attendees.

National Geographic/Cengage

Boston, Massachusetts

Henry B. Gonzalez Convention Center, 206B

476.3 **ew****What Is the Role of Practice to Build Mastery?****General Interest Exhibitor Workshop**

Through collaborative, hands-on activities and conversation, we will explore your ideas about mastery and how practice can support its development. Your insights will help inform future development of Renaissance products. In appreciation, all participants will receive a free math T-shirt!

Renaissance Learning

Wisconsin Rapids, Wisconsin

Henry B. Gonzalez Convention Center, 207A

12:30 P.M.–1:30 P.M.

476.4 **ew**

Sustaining Student Effort, Cognitive Demand, and Perseverance during Instruction!

General Interest Exhibitor Workshop

In this inspiring session, Dr. Timothy Kanold provides four essential teacher actions that can cause students to sustain their effort and persevere in and through the mathematics during a lesson. Participants will evaluate their current practices against an effective teaching strategies “Test” to see how they rate on the Causing Student Perseverance scale.

Houghton Mifflin Harcourt
Round Rock, Texas

Henry B. Gonzalez Convention Center, 210AB

476.5 **ew**

Procedural Fluency in a Box . . . of Facts.

Coaches/Leaders/Teacher Educators’ Exhibitor Workshop

Developing procedural fluency from conceptual understanding can be found using the visual models from ORIGO’s Box of Facts. Come explore and engage in the thinking strategies for the four operations and leave with a broader, more balanced view of concepts and procedures in developing flexible thinking.

ORIGO Education
Earth City, Missouri

Henry B. Gonzalez Convention Center, 212AB

476.6

NCTM Business Meeting

General Interest Session

Join NCTM leadership for an overview of recent activities and strategic priorities for the coming year.

Matt Larson
President, National Council of Teachers of Mathematics, Reston, Virginia; Lincoln Public Schools, Nebraska

Grand Hyatt San Antonio, Bonham B

1:30 P.M.–2:45 P.M.

477 **ASSESS**

Closure: Beyond the Exit Ticket

Pre-K–2 Workshop

Lesson closure is a premier time for students to transfer learning from their working memory to their long-term memory. Participants will explore the research and importance behind lesson closure and engage in closure activities for engagement and assessment. Experiences and data from K–5 classrooms where closure is a focus will also be shared.

Molly Caroland
Howard County Public Schools, Ellicott City, Maryland
Kristen Mangus
Howard County Public Schools, Ellicott City, Maryland

Grand Hyatt San Antonio, Texas Ballroom C

478 **BUILD**

Addition and Subtraction—More Than “Add To” and “Take Away”

Pre-K–2 Workshop

What are the various problem types expected in K–2? How do we support students beyond basic problem types? We’ll identify and distinguish between problem types. Then, we’ll explore strategies to support explicit instruction in various types. Participants will leave with lesson ideas, planning suggestions, and resources for problems of varied types.

Gina Kilday
Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; Exeter-West Greenwich Regional School District, Rhode Island

Henry B. Gonzalez Convention Center, 302AB

FRIDAY

479 BUILD**Algebra Experiments: Engaging Students through Exciting Applications of Exponential Functions****8–10 Workshop**

Are you looking for some hands-on activities to help your algebra students understand exponential functions? Come to this workshop and engage in experiments that simulate real-world situations. You will collect data, convert the data into multiple representations, and analyze the results. Questions that promote student discourse will be considered.

Amy Herman

Math Solutions, Sausalito, California

Connie Horgan

Math Solutions, Sausalito, California

Grand Hyatt San Antonio, Texas Ballroom D

480 TECH**AP Calculus Framework: Discovering Integral Defined Functions and FTC Using Technology****10–12 Workshop**

Analysis of functions defined by integrals is a learning objective of the calculus framework. The connections between these functions and their derivatives will be explored using paper and pencil and technology activities. Hands-on investigations designed to help students improve their conceptual understanding of AP problems involving FTC will be included.

Mike Koehler

Blue Valley North High School, Kansas City, Missouri

Grand Hyatt San Antonio, Lonestar Ballroom A

481 BUILD**Building Connections: Algebraic Reasoning and Sense Making in the Elementary Grades****3–5 Workshop**

This session will explore aspects of algebraic thinking and sense making appropriate for the elementary grades. Connections to fractions and proportional reasoning will be made. Participants will engage in activities that incorporate several of the mathematical practices to help students build confidence and strong conceptual understanding.

Karen Graham

University of New Hampshire, Durham

Henry B. Gonzalez Convention Center, 006B

482 BUILD**Conics—the Ugly Duckling of Algebra 2****10–12 Workshop**

Do you dread teaching conics to your algebra 2 classes? Do you skip them entirely because they don't seem that important? Come rediscover conics in this interactive workshop that uses paperfolding, simulations, and graphing calculator technology to engage even the most reluctant of learners.

Denise Young

Blue Valley West High School, Overland Park, Kansas

Tracey Zak-Johnson

Bearcat Tutoring, Aledo, Texas

Henry B. Gonzalez Convention Center, 224

483 "M"**Connect Four: How Integration Builds Proficiency with the SMPs****Pre-K–2 Workshop**

Integration is key to helping students be mathematically proficient. The connections between math and other disciplines are easily made in the Standards for Mathematical Practice. This session will focus on the connections between the four content areas and four SMPs. Participants will take away ideas and tasks to help their students Connect Four.

Suzette Gilbert

Middle Tennessee State University, Murfreesboro

Jeremy Winters

Middle Tennessee State University, Murfreesboro

Tracey Huddleston

Middle Tennessee State University, Murfreesboro

Henry B. Gonzalez Convention Center, 005

484 **TLC****Create an Environment Where Collaboration, Sense Making, Modeling, and Perseverance Thrive****10–12 Workshop**

Well-structured collaborative groups working on modeling problems worthy of student effort facilitates the mathematical practices. Collaborate on one of three problems and discuss how assessing your students' knowledge and anticipating their problem-solving approach can inform group formation. Also discuss worthy problems, monitoring, and regrouping.

Allan Bellman

[@abellman17](#)

University of Mississippi, Oxford

Kayton Hosket

University of Mississippi, Oxford

Henry B. Gonzalez Convention Center, 304B

485 **TLC****Engaging Students in Meaningful Math through Games****3–5 Workshop**

Games are an effective way to engage students in learning. In this workshop, participants will experience how to support the development of pre-adolescent mathematicians through purposeful play. The focus will be on the CCSS mathematical practices and the content domain of Number and Operations associated with Fractions.

David Coffey

[@delta_dc](#)

Grand Valley State University, Allendale, Michigan

Kathryn Coffey

Grand Valley State University, Allendale, Michigan

Grand Hyatt San Antonio, Texas Ballroom E

486 **BUILD****Engaging Students with Great Questions, Fun Simulations, and Free Technology****10–12 Workshop**

Is it possible to smell Parkinson's disease? Is flipping a coin really a fair way to decide which team gets to be on offense first? Participants will answer these questions with simulations that allow students to make sense of statistical inference. Hands-on physical simulations are introduced first, followed by simulations with (free!) technology.

Douglas Tyson

[@tyson_doug](#)

Central York School District, York, Pennsylvania

Jason Molesky

Lakeville Area Public Schools, Lakeville, Minnesota

Henry B. Gonzalez Convention Center, 007A

487 **TECH****Evaluating Students' Digital Work: Same as Print?****3–5 Workshop**

Educators have spent decades learning how to evaluate student work in a print environment with physical manipulatives. As classrooms turn more to digital environments, teachers must learn how to interpret and evaluate students' digital artifacts. BYOD and join us to examine how student work changes in response to their use of digital manipulatives.

Mary Dairyko

University of Chicago, Illinois

Catherine Donaldson

McGraw-Hill Education, Chicago, Illinois

Carla Strickland

[@CisforCarla](#)

UChicago CEMSE, Chicago, Illinois

Henry B. Gonzalez Convention Center, 304A

Check out the **Reflection Covers** on the second and third floors of the Convention Center to discuss topics of interest with featured speakers, board members, Affiliate Relations Committee members, as well as the President and Immediate Past President.



488 **TLC****I DID IT! Combining Representation & Purposeful Questions to Promote Perseverance in Problem Solving****6–8 Workshop**

How do we help students move forward when they are stuck? This session will engage participants in several problem-solving activities and model research-based processes to identify questions that enable and extend students' thinking and help students make mathematical connections. We will highlight practices from the *Principles to Actions* document.

Jane Wilburne

[@JaneMWilburne](#)

Penn State Harrisburg, Hershey

Tara Russo

PaTTAN Harrisburg, Harrisburg, Pennsylvania

Grand Hyatt San Antonio, Texas Ballroom A

489 **BUILD****I'm Game! Are You?****3–5 Workshop**

Helping students construct meaning, develop strategies, and incorporate reasoning and discourse can be challenging. Games have proven to be an effective way to teach concepts while engaging students and differentiating instruction. Join us to learn more: I'm game! Are you?

Diane Reynolds

Math Solutions, Sausalito, California

Sandra Coulson

Math Solutions, Sausalito, California

Henry B. Gonzalez Convention Center, 305

490 **BUILD****Interesting Ideas, Manipulatives, and Activities for Teaching Geometry****8–10 Workshop**

Participants will use hinged mirrors, rubber bands, patty paper, paper plates, and other manipulatives, as well as investigations to develop geometry concepts such as similarity and triangle congruence, transformations, central angles, polygons, area, and more.

Christine Mikles

CPM Educational Program, Elk Grove, California

Karen Wootton

CPM Educational Program, Elk Grove, California

Henry B. Gonzalez Convention Center, 004

491 **BUILD****Lessons on Adding and Subtracting Integers: Developing Understanding through Context****6–8 Workshop**

Do you find it difficult to teach students how to add and subtract integers without jumping right into rules and procedures? Do you wish you had a way to build students' conceptual understanding instead? We will present a series of classroom-tested lessons designed to develop students' reasoning and sense making around these integer operations.

Delise Andrews

[@deliseandrews](#)

Lincoln Public Schools, Nebraska

Julie Kreizel

Lincoln Public Schools, Nebraska

Anne Schmidt

Lincoln Public Schools, Nebraska

Henry B. Gonzalez Convention Center, 006A

492 **BUILD****MathLab™: Building Conceptual Understanding of Exponential Functions in Algebra 1****8–10 Workshop**

Building a conceptual foundation of exponential functions can be engaging and informative. Starting with a simulation of the spread of a disease, participants will collect, graph, and make predictions from data; compare linear, doubling, and tripling models; and culminate the workshop with analyzing actual data from the 2014 Ebola epidemic.

Katherine Kanim

New Mexico State University, Las Cruces

Regina Watson

New Mexico State University, Las Cruces

Henry B. Gonzalez Convention Center, 304C

493 **"M"****Modeling: A New Pathway for High School Students****10–12 Workshop**

This talk presents a new pathway for students who have completed algebra and geometry. On this path as juniors and seniors, students engage in modeling that involves proportion and difference equations, that connects mathematical concepts, that links to the larger world, and that leverages mathematical action technologies, thinking, and discourse.

Gregory Foley

Ohio University, Athens

Stephen Phelps

Madeira High School, Cincinnati, Ohio

Henry B. Gonzalez Convention Center, 006D

494 **NT****NCTM Resources for New and Early Career Teachers****Coaches/Leaders/Teacher Educators' Workshop**

Along with key journal articles, NCTM offers a range of resources, lessons, tools, and tips that can be helpful for those training to be teachers and those early in their careers. Find out how your NCTM membership can help you even more!

Chonda Long

National Council of Teachers of Mathematics, Reston, Virginia

Kristin Keith

National Council of Teachers of Mathematics, Reston, Virginia

Grand Hyatt San Antonio, Texas Ballroom B

495 **"M"****Parachuting into Practices: An Integrated Elementary STEM Lesson****3–5 Workshop**

Come be an aerospace engineer and use your math and science knowledge to design a parachute that will land on another planet! Find out how an integrated elementary math, science, and engineering lesson can foster student engagement, meet many of the CCSS mathematical practices, and lead to a meaningful learning experience.

Chantal Balesdent

Museum of Science, Boston, Massachusetts

Henry B. Gonzalez Convention Center, 007C

496 **BUILD** **REFLECTION COVE****Pathways to Procedural Fluency****3–5 Workshop**

This session zooms in on the PtA Teaching Practice “Build procedural fluency from conceptual understanding” taking a look at research and connecting that research to instructional strategies that provide pathways to procedural fluency.

Jennifer Bay-Williams

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

Henry B. Gonzalez Convention Center, 217C

497 **TECH****Rethinking Expressions & Equations: Implications for Our Classrooms****6–8 Workshop**

How are one- and two-variable expressions, one- and two-variable equations, and the standard form of a line connected in a powerful way? How might this progression support student learning of these “tough-to-teach/tough-to-learn” ideas? Explore the underlying theme that unifies these seemingly disparate topics using a technology-leveraged approach.

Michelle Rinehart

[@HowWeTeach](#)

Region 18 Education Service Center, Midland, Texas

Gail Burrill

Michigan State University, East Lansing

Henry B. Gonzalez Convention Center, 007B

498 **A&E****Six Reasoning Mini-Lessons to Revitalize Early Childhood Routines****Pre-K–2 Workshop**

In early childhood, routines are one of the best ways to develop students' mathematical reasoning, listening, and social skills and ability to communicate with clarity. Often, because teachers do not know how to adapt them, routines become boring. In this session, we will explore reasoning routines that will keep all students challenged and engaged.

Antonia Cameron

Metamorphosis Teaching Learning Communities, New York, New York

Jenn Costanzo

Metamorphosis Teaching Learning Communities, New York, New York

Michael Cassaro

Metamorphosis Teaching Learning Communities, New York, New York

Henry B. Gonzalez Convention Center, 217A

499 **TLC****Supporting Algebra Learners through Modeling Investigations of the (Extra) ordinary****8–10 Workshop**

Come investigate mathematics with burger basket liners, odd-shaped containers, and other everyday contexts. Modeling can help make algebra accessible to a range of students. Multiple representations, varied solution methods, and class discourse will be discussed as ways to support student understanding beyond formulas and exercises.

Fay Zenigami

University of Hawaii at Manoa, Curriculum Research & Development Group, Honolulu

Linda Venenciano

University of Hawaii at Manoa, Honolulu

Seanyelle Yagi

University of Hawaii at Manoa, Honolulu

Grand Hyatt San Antonio, Lonestar Ballroom B

500 **BUILD****Teaching Fractions without Reteaching Fractions: How Can Coherence Be Used to Support All Learners?****3–5 Workshop**

Have you ever had to reteach content to support students' work with fractions? Traditional reteaching guidance often falls short of illustrating critical connections between fractions and students' earlier work with whole numbers. This session uses fraction tasks to highlight important but often overlooked connections that support differentiation.

Shelbi Cole

Student Achievement Partners, Palm Harbor, Florida

Barbara Beske

Student Achievement Partners, Mullica Hill, New Jersey

Henry B. Gonzalez Convention Center, 006C

501 **BUILD****When O.A. and My BFF, the Number Line, Met in Kindergarten****Pre-K–2 Workshop**

Come learn how my BFF, the number line and O.A. met and work together. Learn how to integrate manipulatives to develop a conceptual understanding of the O.A. standards while using a number line. Participants will learn how to address all K-2 O.A. standards. Everything is hands-on! Come ready to play with my BFF and O.A.

Keysha McIntyre

[@moldingminds2](https://twitter.com/moldingminds2)

Fulton County B.O.E., Atlanta, Georgia

Henry B. Gonzalez Convention Center, 217B

502 **TLC****Assessing the Mathematical Mindsets of Prospective Teachers****Higher Education Session**

Mindset has been identified as playing a significant role in how individuals respond and persevere when faced with challenging tasks. Survey instruments commonly used to identify mindsets have proven problematic for us in the context of math courses for teachers. This session shares our current endeavors and invites discussion on the topic.

LouAnn Lovin

James Madison University, Harrisonburg, Virginia

Rich Busi

James Madison University, Harrisonburg, Virginia

Chris Willingham

James Madison University, Harrisonburg, Virginia

Grand Hyatt San Antonio, Presidio ABC

503 **ASSESS****Best Practices in Writing and Using Assessments****10–12 Session**

Math assessments are used for a variety of purposes, both inside and outside the classroom. To make the most of these assessments, it is essential that test writers (including classroom teachers) follow best practices to ensure the fairness and validity of their tests. Come hear about best practices for measuring what students know and can do.

Robin O'Callaghan

Educational Testing Service, Princeton, New Jersey

Daniel Klag

Educational Testing Service, Princeton, New Jersey

Grand Hyatt San Antonio, Travis CD

504 **BUILD****Communicating with Parents About Math Instruction—Information, Assessment System, and Math Nights****3–5 Session**

This session will share strategies to successfully communicate with parents about changes in the way mathematics is taught. Learn about an assessment system that is effective in communicating student performance. Finally, strategies that have been used to implement over 30 successful family math nights will be shared to get parents on your side.

Elizabeth Jacobbe

PK Yonge Developmental Research School, Gainesville, Florida

Tim Jacobbe

University of Florida, Gainesville

Henry B. Gonzalez Convention Center, 205

505 **A&E****Divergent Thinking and Creativity in High School Geometry****8–10 Session**

Research will be presented on promoting divergent thinking and creativity in a geometry classroom. Participants will explore multiple approaches to problem solving that encourages all students to share their ideas.

Nikita Patterson

[@drkita2002](https://twitter.com/drkita2002)

Gordon State College, Barnesville, Georgia

Darryl Corey

Radford University, Virginia

Grand Hyatt San Antonio, Lonestar Ballroom E

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educational
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NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENT

NCTM ANNUAL MEETING & EXPOSITION 2017

April 5-8 | San Antonio



FOCUS STRAND: ACCESS AND EQUITY

In this strand, sessions will focus on instructional practices and strategies that meet the needs of each and every student while participants consider their own beliefs, biases, assumptions, and dispositions.

Examples of practices and strategies may include:

- Response to Intervention (RTI)/Multi-Tiered Systems of Supports (MTSS)
- Universal Design for Learning (UDL)
- culturally responsive pedagogy (CRP)
- social justice
- inclusion
- differentiation

Sessions may also address practices and strategies that target specific student populations such as:

- English language learners (ELL)
- gifted students
- students with special needs
- students who struggle in the classroom



Learn more at nctm.org/annual and follow us on      YouTube [#NCTMannual](https://twitter.com/NCTMannual)

506 **TLC****Engaging 3–5 Students in Productive Struggle****3–5 Session**

In this session, we will explore problem-solving tasks that provide students opportunities to grapple with mathematical concepts. This session will also allow participants to reflect on instructional strategies designed to support all students in productive struggle as outlined in NCTM's publication *Principles to Actions*.

Jennifer Kosiak

University of Wisconsin-La Crosse

Kim Markworth

Western Washington University, Bellingham

Jenni McCool

University of Wisconsin-La Crosse

Henry B. Gonzalez Convention Center, 007D

507 **BUILD****Fascinating Sets of Numbers: Nurturing Number Sense through Number Enjoyment****6–8 Session**

This session will focus on work with a variety of fascinating sets of numbers, including abundant, deficient, perfect, semiperfect, friendly, weird, happy, vampire, untouchable, lazy caterer, narcissistic, and McNugget numbers. Session participants will share ideas for incorporating number enjoyment into standards-based lessons.

William Lacefield

Mercer University, Atlanta, Georgia

Grand Hyatt San Antonio, Texas Ballroom F

508 **BUILD****Get a Move On: Movement-Infused Math for Preschool and Kindergarten****Pre-K–2 Session**

Kids learn best when their brains and bodies are active. Integrating movement with math subtracts stress, adds fun, and maximizes brain function. Join us to learn the research behind movement in the classroom and over twenty games and activities to pump up the movement in your math lessons.

Carrie Cutler

[@DrCarriecutler](#)

University of Houston, The Woodlands, Texas

Henry B. Gonzalez Convention Center, 214B

509 **PROF** **REFLECTION COVE****Get to Know the Research Companion to Principles to Actions****General Interest Session**

We will provide an overview of the newly released research companion to *Principles to Actions*. The thirteen chapters were co-authored by practitioners and researchers, and they lend insight into the research base behind *Principles to Actions* as well as providing classroom applications.

Denise Spangler

[@dspangler811](#)

Board of Directors, National Council of Teachers of Mathematics, Reston, Virginia; University of Georgia, Athens

Henry B. Gonzalez Convention Center, 221

510 **PROF****I Spy with My Little Eyes, Effective Teaching Practices & Mathematical Practices****8–10 Session**

So let it be written, so let it be done! Well, that is much easier said than done. We often find ourselves wanting to incorporate the vision of great teaching provided by NCTM. However, it can be difficult to know what exactly “it looks like.” We will watch video and identify quality practices in the clips we examine.

Travis Lemon

[@TravisLemon](#)

Mathematics Vision Project (MVP), Lehi, Utah

Janet Sutorius


Mathematics Vision Project (MVP), Lehi, Utah

Grand Hyatt San Antonio, Lonestar Ballroom D

511 **PROF** **REFLECTION COVE****Leading School-Based Math Labs:
How Principal-Coach Teams Make a
Difference for Teacher Learning****Coaches/Leaders/Teacher Educators' Session**

Creating strong and equitable learning communities for students necessitates having strong learning communities for teachers. We show how different schools have used Math Labs to launch and sustain job-embedded professional learning opportunities with a special focus on the work of principal-coach teams.

Elham Kazemi

 @ekazemi

University of Washington, Seattle

Rebecca Lewis

University of Washington, Seattle

Ruth Balf

University of Washington, Seattle

Henry B. Gonzalez Convention Center, Hemisfair 2

512 **A&E****Lesson Study: Building Effective
Lessons for Mathematics and Social
Justice Learning****General Interest Session**

Lesson study is a dynamic professional development activity resulting in students developing deeper understanding about mathematics and social justice. Effective lesson design, classroom observation protocols, and rubrics are all part of this interactive session. Participants will develop rich, mathematics tasks and social justice learning goals.

Linda Fulmore

Solution Tree, Bloomington, Indiana

Grand Hyatt San Antonio, Crockett CD

513 **TLC****Mathematical Modeling: Making Sense
of the World through Mathematics****6–8 Session**

Are you struggling to find ways for your students to engage in mathematical modeling? This session will examine applications of mathematical modeling across the middle grades. Mathematical tasks along with classroom videos that are designed to provide opportunities for rich discourse and student engagement will be shared.

Janet Andreassen

University of Central Florida, Orlando

Erhan Haciomeroglu

University of Central Florida, Orlando

George Roy

University of South Carolina, Columbia

Henry B. Gonzalez Convention Center, Hemisfair 3

514 **BUILD****Number Sense: Bring It Back through
Strategy Sharing!****Coaches/Leaders/Teacher Educators' Session**

Do you find a lack of number sense to be the leading concern of teachers? Our math specialist team will share how we've utilized the book *Making Number Talks Matter* by Cathy Humphreys and Ruth Parker to bring number sense back to the classroom. Learn what number talks are and how to implement them to build and strengthen students' number sense.

Alissa Murray

Madison County School District, Ridgeland, Mississippi

Jennifer Fillingim

Madison County School District, Ridgeland, Mississippi

Elizabeth Wells

Madison County School District, Ridgeland, Mississippi

Henry B. Gonzalez Convention Center, 217D

515 PROF**Our Story: Math/Special Ed Learning Labs = Content Progressions + Instructional Practice**

6–8

Micro-experience in a 7–8 team for student and teacher growth. Share in the 7–8 team of math, special ed co-teachers, and instructional practices as they foster learning opportunities for students and for/from all teachers. Bonus: authenticating a common understanding of content progression and instructional practices

Norma Gordon

@normabgordon

Public Schools of Brookline, Massachusetts

Lynsey Gibbons

Boston University School of Education, Massachusetts

Grand Hyatt San Antonio, Crockett AB**516 ASSESS****Taking Action in High School: Implementing Effective Mathematics Teaching Practices****General Interest Session**

The session will engage teachers in activities that support the development of the *Principles to Actions* Effective Mathematics Teaching Practices in high school. These activities will include engaging in rich mathematical tasks, discussing cases of teaching, and analyzing classroom artifacts including student work. Activities are drawn from the new NCTM publication *Taking Action: Implementing Effective Mathematics Teaching Practices in Grades 9–12*.

Melissa Boston

Duquesne University, Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, Hemisfair 1**517 BUILD****Puzzles: The Poetry of Logical Ideas****General Interest Session**

If you are a lover of logic, come in. We will engage in a series of logic puzzles to demonstrate the mathematical practices embedded within. Multiple math strategies will be uncovered as we deconstruct Kakuro, KenKen, and a variety of other logic puzzles. Puzzles have the power to transform your classroom in a fun and entertaining way. Come and play!

Monica Tienda

@matienda

Key Elementary, Oak Park, Michigan

Grand Hyatt San Antonio, Travis AB**518 A&E****By Any Means Necessary: Creative Insubordination, Risk Taking, and Reclaiming the Profession****General Interest Session**

Given the pressure to attend to parents, districts, states, and national policies, mathematics teachers face many tensions in their teaching. This session focuses on mathematics teachers who align their teaching with their own values. I highlight the kinds of risks they have taken and the extent to which they have met with success.

Rochelle Gutiérrez

University of Illinois at Urbana-Champaign

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre**518.1****How the NCTM Journals Changed My Life****General Interest Session**

Join your fellow readers, authors, department editors and editorial panel members as they share examples of how the NCTM journals impacted their professional lives. Learn how you too can get involved as a manuscript referee, use article ideas in your classroom and improve your writing.

Representatives of *TCM*, *MTMS* and *MT***Grand Hyatt San Antonio, Bonham B**

519 **TECH****Self-Paced Flipped Model: A Twist on Flipped Mastery****10–12 Session**

This presentation encourages people to amend the usual method for a flipped classroom. We will explain why our self-paced twist on flipped mastery is changing how students learn and provide information for this method. Our units consist of target dates, stations, and applications that are done within our classroom, and we will provide an example unit.

Kyle Wilhelm

Lake Forest High School, Illinois

Shelly Lindsey

Lake Forest High School, Illinois

Henry B. Gonzalez Convention Center, 214A**520** **ASSESS****Student Portfolios in Mathematics****10–12 Session**

Portfolios have been part of my classes for more than 25 years. Although the prompts and structure have evolved, my belief in their overall value endures. Portfolios allow a teacher to provide a range of opportunities and offer students a way to express their strengths, weaknesses, and feelings about math.

Donita Robinson

North Carolina School of Science and Mathematics, Durham

Grand Hyatt San Antonio, Lonestar Ballroom C**520.1****Productive Strategies to Support Students' Engagement in Productive Struggle****General Interest Session**

Engaging students in tasks that involve reasoning and problem solving is essential for developing the conceptual understanding, procedural fluency, and productive habits of mind they need for their futures. In this session, we'll investigate strategies to increase students' willingness to engage in challenging tasks and to use these tasks to advance the learning of the entire class. We'll also identify common pitfalls to avoid.

Diane Briars

Past President, National Council of Teachers of Mathematics, Reston, Virginia; Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, Stars at Night 2&3**521** **TLC****Coherence Across K–16 Mathematics: Enriching Vertical Learning Progressions****Coaches/Leaders/Teacher Educators' Session**

Advanced mathematics topics usually reserved for college can be weaved into both high school and middle school curricula to help students see mathematics as a unified body of knowledge. Participants will experience four investigative problems that highlight interdisciplinary connections as well as encourage discourse and productive struggle.

Keith Nabb

Moraine Valley Community College, Palos Hills, Illinois

Jaclyn Murawska

Saint Xavier University, Chicago, Illinois

Henry B. Gonzalez Convention Center, 214C**522** **TLC****Students Take the Lead: Promoting a Culture of Peer-to-Peer Accountability****8–10 Session**

How can our students become our greatest assets? What parts of teaching should we entrust to students, and how can passing the baton to our students help them achieve the NCTM Process Standards? Come learn how one teacher's journey to make his students become teachers revolutionized his classroom community.

Benjamin Walker

@bwalkerq

Walter Payton College Prep High School, Chicago, Illinois

Grand Hyatt San Antonio, Bowie ABC**523** **PROF****Supporting the High School Mathematics Teacher: Four Cues for Coaching****Coaches/Leaders/Teacher Educators' Session**

It's time to turn the focus to high school teaching. Many high school teachers know how to correctly respond to mathematical tasks, but some struggle on how to help their students do the same. Explore a model for coaching mathematics teachers to instill problem solving strategies in their students and make sense of mathematics for teaching.

Edward Nolan

@ed_nolan

Towson University, Maryland

Grand Hyatt San Antonio, Republic ABC

524 A&E**The Math Practices! Objectively Speaking, Writing Math IEPs Using the Math Practices****Coaches/Leaders/Teacher Educators' Session**

How are needs of struggling learners and students with IEPs addressed in math classrooms? Howard County, Maryland, schools use a transformative tool created in partnership with math and special education teachers and leaders. Learn how one tool has shifted IEP goals from low-level skills to high-cognitive-demand processes. Finally, a tool that unites us!

Joyce Agness

Howard County Public Schools, Columbia, Maryland

William Barnes

Howard County Public School System, Ellicott City, Maryland

Kym Craig

Howard County Public Schools, Columbia, Maryland

Henry B. Gonzalez Convention Center, 225

525 TLC**The Probabilities of "Wheel of Fortune": A Contestant's Perspective****General Interest Session**

How does a contestant's expected value change from spin to spin? How does English language letter frequency affect player strategy? How many "safe" spins can one expect to make before going bankrupt or losing a turn? Come explore, play, and simulate with a recent Wheel contestant.

Mike Reiners

@Tresio

Christ's Household of Faith School, Saint Paul, Minnesota

Henry B. Gonzalez Convention Center, 008AB

526 ASSESS**The Use of Video from One-on-One Assessments to Create a Portrait of Student Understanding****Pre-K–2 Session**

This session will explore the use of video to record one-on-one assessment interviews with students to gain insight on the understanding and strategies of an individual student. Participants will watch video of students working to solve a variety of mathematical problems and will examine the understanding of each student based on the video.

Michael Busch

United States Math Recovery Council, Laramie, Wyoming

Grand Hyatt San Antonio, Lonestar Ballroom F

527 "M" REFLECTION COVE**Transformations at the Heart of Connections and Creativity in STEAM****General Interest Session**

Transformations play a central role in modern mathematics, though they are sometimes tucked into a relatively isolated corner of the K–12 curriculum. Through a sequence of "snapshots" we will offer examples of tasks, questions, and suggestions for encountering transformations at a range of levels and a variety of contexts.

Carl Lee

University of Kentucky, Lexington

Henry B. Gonzalez Convention Center, 207B

528 BUILD**Understanding Sampling Variability****10–12 Session**

Statistics students often confuse the sample standard deviation and the standard deviation of the sample mean. This can lead to serious errors in reasoning. This session explores some of these errors and looks at examples and activities designed to eliminate this confusion and help students develop their understanding of sampling variability.

Roxy Peck


Cal Poly, San Luis Obispo

Henry B. Gonzalez Convention Center, 303

529 **TECH** **REFLECTION COVE****Using Digital Tools to Give Every Student a Voice****6–8 Workshop**

Simply put, we value student thinking. Technology tools that help us gather, examine, and share students' mathematical thinking inform our instruction and help create a growth-mindset classroom culture. Bring a tablet or laptop, and be ready to wear your "teacher hat" and "student hat" as you experience strategies to try in your own classroom.

Cathy Yenca

 @mathycathy

Eanes Independent School District, Austin, Texas

Henry B. Gonzalez Convention Center, 301

529.1 **ew****Mathspace—Why You'll Never Grade Math Assignments Again. Seriously. (BYOD!)****General Interest 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 to try award-winning Mathspace live, and ask about a free trial!

Mathspace

New York, New York

Henry B. Gonzalez Convention Center, 206A

529.2 **ew****Hands-On Operations: Using Manipulatives for Understanding of ALL Four Operations****3–5 Exhibitor Workshop**

Come use place-value manipulatives to understand and practice addition, subtraction, multi-digit multiplication, and long division algorithms for whole numbers and decimals. Learn how to help all learners master the move from concrete to the representation to the ultimate abstract algorithm with a deep understanding of regrouping and place value.

Singapore Math

Tualatin, Oregon

Henry B. Gonzalez Convention Center, 206B

529.3 **ew****Make Math Move with Dinah Zike****General Interest Exhibitor Workshop**

In this hands-on session, Dinah Zike shares some of her favorite Notebook Foldables, Vocabulary VKV Strategies, and new K–12 Foldable Math Manipulatives. Visual-kinesthetic graphic organizers help students retain and understand complex concepts and content-laden vocabulary by organizing information in moveable, recallable ways. Materials provided.

McGraw-Hill Education

Columbus, Ohio

Henry B. Gonzalez Convention Center, 207A

529.4 **ew****Flipping Classrooms into Dynamic and Impactful Learning Spaces with Videos****General Interest Exhibitor Workshop**

Dr. Ed Burger will share how GO Math! videos transform classrooms into dynamic learning environments, in which students will joyfully cheer, "GO MATH!"

Houghton Mifflin Harcourt

Round Rock, Texas

Henry B. Gonzalez Convention Center, 210AB

529.5 **ew****Real Steps to Teaching Fractions****3–5 Exhibitor Workshop**

There is no doubt that the teaching and learning of fractions is challenging. But as educators dig deeper into the research, a pattern of common conclusions begins to emerge. During this session we will share how the ORIGO Stepping Stones instructional approach to teaching fractions was developed based on key research findings.

ORIGO Education

Earth City, Missouri

Henry B. Gonzalez Convention Center, 212AB

2:00 P.M.—3:00 P.M.

529.6 **ew**

Building Number Sense: Creating a Playground of Numbers in the K–5 Classroom

3–5 Exhibitor Workshop

Build a playground of numbers using standards-based games and stories designed to enhance MP standards and support and excite all learners.

Nasco

Fort Atkinson, Wisconsin

Henry B. Gonzalez Convention Center, 213AB

529.7 **ew**

Using Assessment Data to Improve Elementary Math Instruction

Pre-K–2 Exhibitor Workshop

Empower teachers with quality assessments and proven activities that build conceptual understanding of early math concepts. Kathy Richardson's *Assessing Math Concepts* and *Developing Number Concepts* materials, coupled with online recording and reporting, have helped teachers and students across the country. Come and see how these powerful resources can impact teaching and learning in your classroom.

Didax

Rowley, Massachusetts

Henry B. Gonzalez Convention Center, Exhibitor Workshop Theater in Exhibit Hall 3/4

3:15 P.M.—4:30 P.M.

530 **ASSESS**

Beyond Right or Wrong: Uncover More with Student Work Analysis

Pre-K–2 Workshop

Have you ever wondered where to start when looking at student work? In this session participants will analyze student work to determine strengths and weaknesses. Participants will collaborate to develop a remediation plan that focuses on using effective models that move students across the concrete-representational-abstract continuum.

Beth Barnes

Great Minds, Washington, New York

Colleen Sheeron

Great Minds, Washington, D.C.

Grand Hyatt San Antonio, Texas Ballroom E

531 **BUILD**

Build Fluency During Intervention with a Powerful Pair: Visual Representations and Discourse

Pre-K–2 Workshop

Representations help build a deeper understanding of math concepts and procedures. Our goal is to get students to switch to the abstract fluently. This session will show the power of engaging students in mathematical discourse and instructional strategies to build fluency.

Dina Mendola

US Math Recovery Council, Oak Creek, Wisconsin

Grand Hyatt San Antonio, Texas Ballroom A

532 **BUILD**

Closing the Gap: Fraction Equivalence and Comparison

3–5 Workshop

Have your students said, “I think $\frac{3}{4}$ and $\frac{6}{7}$ are equal because each is one piece from a whole?” Gap thinking is one of many misconceptions that cause students to struggle with fraction equivalence and comparison. This session will highlight a variety of strategies/activities for fraction comparison that will address misconceptions about fractions.

Joann Barnett

Missouri State University, Springfield

Patrick Sullivan

Missouri State University, Springfield

Ann McCoy

University of Central Missouri, Warrensburg

Grand Hyatt San Antonio, Lonestar Ballroom B

533 **“M”**

Connecting the “M” in STEM

8–10 Workshop

Love the idea of STEM, but don't know how to make it relevant to your mathematics classroom? In today's classroom, teachers must find creative ways to integrate STEM while engaging their students with relevant content. In this session, participants will engage in classroom ready, hands-on, authentic STEM activities that have a mathematical focus.

Margaret Mohr-Schroeder

University of Kentucky, Lexington

Christa Jackson

Iowa State University, Ames

Craig Schroeder

Fayette County Public Schools, Lexington, Kentucky

Henry B. Gonzalez Convention Center, 302AB

534 BUILD

Embracing Messy Mathematics: Strengthening Reasoning through Hands-On Geometry Problems

6–8 Workshop

Too often, students see math as a large set of facts, formulas, and procedures to memorize. Through manipulating concrete objects and ensuing discussions, students can be creative and are supported in developing reasoning skills and conceptual understanding. Participants will engage in hands-on tasks that they can take back into their classrooms.

Peter Clark

Sir Wilfrid Laurier School Board, Rosemère, Quebec, Canada

Saba Din

McGill University, Montreal, Vermont

Henry B. Gonzalez Convention Center, 217A

535 BUILD

Experimental Design and Simulation-Based Inference

10–12 Workshop

Does caffeine affect pulse rate? Can you visualize success? In this session, we will discuss the principles of experimental design and when we can make inferences about cause and effect. Then, using hands-on simulations and technology, we will determine if the results of an experiment are significant—and how these topics connect to the Common Core.

Josh Tabor

Canyon del Oro High School, Oro Valley, Arizona

Daren Starnes

The Lawrenceville School, Lawrenceville, New Jersey

Henry B. Gonzalez Convention Center, 217C

536 BUILD

Got Division? Building Procedural Fluency from Conceptual Understanding

3–5 Workshop

This session focuses on the teaching of division in grades 3–5 and spotlights building procedural fluency through conceptual understanding. We will explore strategies based on place value, properties of operations, and the relationship between division and multiplication. We will also explore rectangular arrays and area models.

Sorsha-Maria Mulroe

Howard County Public Schools, Columbia, Maryland

Kelly Healey

Howard County Public Schools, Columbia, Maryland

Claudia Eckstrom

Howard County Public School System, Ellicott City, Maryland

Henry B. Gonzalez Convention Center, 006C

537 TECH

Intro to Coding: Learn Scratch Coding with Activities for Algebra, Geometry, & Precalculus Classes

8–10 Workshop

This workshop offers an introductory block-based coding experience for math using Scratch. Attendees will work through lessons in algebra, geometry, and precalculus, which can later be used as with students. Bring your own device (laptop, tablet, iPad, etc.) and either download Scratch or code online from <https://scratch.mit.edu>.

Martin Funk

New Trier High School, Winnetka, Illinois

Henry B. Gonzalez Convention Center, 007B

Don't miss featured speaker **Ed Burger's** session on Friday, April 7 at 4:45 p.m. followed by **IGNITE** at 6:30 p.m.



NCTM Regional Conferences & Expositions 2017

ORLANDO | OCTOBER 18-20
CHICAGO | NOV 29-DEC 1

Registration
Opens
April 17

PREMIER MATH EDUCATION EVENTS

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538 **TLC**

Let's Talk! Assisting Struggling Learners to Successfully Engage in Mathematical Communication!

3–5 Workshop

Learn practical activities for K–8 that assist struggling learners to communicate their thinking and deepen their understanding and enjoyment of math. Explore how you can foster communication through strategies that develop math vocabulary and build student confidence with mathematical discourse. All activities are ready to implement for Monday!

Cathy Marks Krpan

University of Toronto, Ontario, Canada

Henry B. Gonzalez Convention Center, 304C

539 **TLC**

Making an IMPACT on the Journey of Learning

Pre-K–2 Workshop

ROAD TRIP: A journey in reasoning and problem solving! Join us and explore how students “CONSTRUCT” mathematical ideas. Explore interdisciplinary tasks and instructional strategies that support students’ ability to reach their mathematical destination! CAUTION: This session will be full of adventures that you can take back to engage students!

Kelli Shrewsberry

Teaching & Learning Collaborative, Worthington, Ohio

Renee Snyder

Teaching & Learning Collaborative, Worthington, Ohio

Joan Smith

Teaching & Learning Collaborative, Worthington, Ohio

Henry B. Gonzalez Convention Center, 224

540 **TLC**

Understanding Division of Fractions through Models, Language, and Structure

3–5 Workshop

Fraction understanding is critical for students in helping them make sense of mathematics, but can be difficult to build. Participants will leave with ideas for tasks and practice items to use with students that build on their fraction sense to understand division of fractions, and allow for connections to proportional reasoning in later grades.

Jacquelyn Ismail

Boise State University, Idaho

Sam Strother

Boise State University, Idaho

Grand Hyatt San Antonio, Texas Ballroom C

541 **“M”**

NASA’s Scale of Discovery: Applications for Ratios, Conversions, and Scale

6–8 Workshop

Come explore the applications of ratios, fractions, conversions, and scale with hands-on, standards-aligned STEM activities. Engage with examples from aeronautics, space, and our universe as you apply scale to distance, time, size, and models. Learn how problem-solving skills get a spacecraft from the planning stages to its destination.

Barbie Buckner

[@bbuckner](#)

NASA Armstrong Flight Research Center, Palmdale, California

Sue Nichols

Ohio University, Ironton

Henry B. Gonzalez Convention Center, 004

542 PROF**New Teacher Celebration****Coaches/Leaders/Teacher Educators' Workshop**

Come celebrate the progress and possibilities as new teachers, those still in training, and seasoned leaders work together in a fun and interesting challenge! Learn a little, laugh a lot, and meet great folks. And win wonderful prizes. Come celebrate with us. We'll have refreshments, too. Come when you can and join in!

David Barnes

National Council of Teachers of Mathematics, Reston, Virginia

Grand Hyatt San Antonio, Texas Ballroom B

543 A&E**From Fraction Frustration to Fraction Fluency with Deep Understanding****3–5 Workshop**

The speaker will actively engage workshop participants with strategies and tools to develop deep understanding of fractions, with a focus on fractions as numbers, equivalent fractions, operations with fractions, and decimal notation. She will engage attendees with real-world fraction problem solving and effective questioning strategies.

Donna L. Knoell

Consultant, Shawnee Mission, Kansas

Henry B. Gonzalez Convention Center, 304A

544 BUILD**Polar Coordinates—Insights and Applications****10–12 Workshop**

By using a rotating number line, not the traditional ray, students make sense of a point (r, θ) with a negative value of r . You can enhance this knowledge using pencil and paper on accurately plotted graphs, and using technology to generate polar graphs dynamically. Students learn why two polar graphs can cross each other but not “intersect!”

Paul Foerster

Alamo Heights ISD (Emeritus), San Antonio, Texas

Henry B. Gonzalez Convention Center, 007A

545 PROF**Powerful, Active, and Engaged Mathematics Professional Learning!****Coaches/Leaders/Teacher Educators' 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 Kobett

Stevenson University, Baltimore, Maryland

Delise Andrews

Lincoln Public Schools, Nebraska

Grand Hyatt San Antonio, Lonestar Ballroom A

546 A&E**Rethinking Groupwork: How Groupworthy Tasks Truly Promote Collaborative Learning****3–5 Workshop**

Groupwork provides opportunities to learn communication and collaboration skills, but how can we ensure all students are engaging with the content during groupwork? Groupworthy tasks provide structures needed for students to participate equally with the content and practice such social skills. Learn how to incorporate them in your instruction!

Barbara Swartz

McDaniel College, Westminster, Maryland

Sararose Lynch

Westminster College, New Wilmington, Pennsylvania

Grand Hyatt San Antonio, Texas Ballroom D

547 **"M"**

So That's How it Works! Math and Robotics Work Together in the Classroom

6–8 Workshop

Learn the building blocks for using robotics in the classroom to integrate math with engineering, science, and the latest technology. Design, build, and program best-in-class robotics solutions for hands-on mathematical learning.

Dee Wallace

LEAP teacher with LEGO Education, Houston, Texas

Henry B. Gonzalez Convention Center, 006D

548 **"M"**

STEM Integration: Math, Meet Biology!

3–5 Workshop

Join us for two hands-on, inquiry-based activities integrating mathematics in a biological context. Sort a set of images using the powers of ten and design a scale model of an E. coli's DNA. Art, science, and math intersect in an activity merging coordinate geometry, symmetry, and biotechnology skills. NGSS practice standards will be demonstrated.

Lindsey Herlehy

@IMSA_

Illinois Mathematics and Science Academy, Aurora

Karen Togliatti

Illinois Mathematics and Science Academy, Aurora

Henry B. Gonzalez Convention Center, 006A

549 **"M"**

Teaching about Population and the Environment with Mathematical Models

6–8 Workshop

In this interdisciplinary workshop, discover how mathematical models can be used to bring current events and top global challenges into the math classroom. Explore population growth models and probabilistic projections, create cartograms and use models to illustrate carbon emissions over time.

Christine Moseley

Retired, Brady, Texas

Henry B. Gonzalez Convention Center, 217B

550 **TLC**

Teaching Logic & Proofs through Games & Number Theory

10–12 Workshop

Discover the underlying structure of mathematical concepts through a highly engaging hands-on activity to teach the essentials of the mathematical process of investigative discovery and metacognition: observation, conjectures, analysis, revision, proof. We use this activity amongst many others to teach mathematical reasoning and proof writing.

Andrea Kung

Urban Academy Laboratory High School, New York, New York

Gabriella Weisberg

Humanities Preparatory Academy, New York, New York

Henry B. Gonzalez Convention Center, 006B

551 **BUILD**

The Path to Place Value and Beyond

Pre-K–2 Workshop

Come and join us as we engage in activities that can be taken back and used in your classroom on Monday to strengthen your students' understanding of place value. We will also explore how this understanding can be used by students to develop strategies for adding and subtracting two-digit numbers and explaining their thinking.

Lori Price

St. Johns County Schools, St. Augustine, Florida

Henry B. Gonzalez Convention Center, 005

552 **TECH**

Transformations: Making Sense in the CCSS Geometry Progression

8–10 Workshop

CCSS for math and the geometry progressions have redefined the purpose of transformations as a foundation for geometry in today's classroom. Through a series of activities built for making sense, see how one can build a coherent model for transformations. Session will include activities ready for immediate use in your secondary classroom.

Jedidiah Butler

Heritage High School, Perris Union High School District, Menifee, California

Henry B. Gonzalez Convention Center, 304B

3:15 P.M.—4:30 P.M.

553 BUILD

My Children Can't Think: Building Discourse into Our Classroom through Number Talks

3–5 Workshop

Facilitating mathematical discourse is an effective teaching practice for all students (NCTM 2014). African Americans are usually taught with traditional methods. Number Talks allow teachers and students to engage in meaningful mathematical discussions. The presenters will share their Number Talks journey with African American students.

Johanna Lee Massey
Alabama A&M University, Huntsville
Latesa Willis-Sanders
Bessemer City Schools, Alabama

Henry B. Gonzalez Convention Center, 305

554 BUILD

"Crowdsourced Algebra": Achieve Generalization through Crowdsourcing

8–10 Workshop

Encourage students to be active participants with these algebra activities. We'll explore both no-tech and high-tech methods for "class-sourcing"—take part in the human inequality number line, be a piece in the binomial theorem jigsaw, explore visual approaches to exponential growth and see how Desmos Activity Builder can invite class discussions.

Steve Fuguet
@mrfuguet
Hatboro-Horsham High School, Pennsylvania

Bob Lochel
@bobloch
Hatboro-Horsham High School, Pennsylvania

Henry B. Gonzalez Convention Center, 007C

3:30 P.M.—4:30 P.M.

555 ASSESS

AP Calculus: The New Curriculum Framework and the Mathematical Practices

10–12 Session

The updated AP Calculus includes a new curriculum framework that ties course content and mathematical practices to clearly stated learning objectives. How do these Mathematical Practices for AP Calculus define instruction? How are they related to the conceptual understanding of calculus? How do these changes affect assessment?

Vicki Carter
@vickimcarter
West Florence High School, Florence, South Carolina

Stephen Davis
Davidson College, Davidson, North Carolina

Ben Hedrick
College Board, Duluth, Georgia

Henry B. Gonzalez Convention Center, 214B

556 BUILD

Arithmetic and Algebra: More Alike Than You Think

Coaches/Leaders/Teacher Educators' Session

We share a sequence of problems that demonstrate how classic one, two and multi-step applied problems from the elementary classroom connect to problems of increasing difficulty in algebra. We share classroom activities designed to help students make these connections between the problems they solved in elementary school and algebra.

Heather Dallas
UCLA Mathematics, Los Angeles, California

Roger Howe
Yale University, New Haven, Connecticut

Grand Hyatt San Antonio, Crockett AB

FRIDAY

557 **TECH****Engaging Formative Assessment Techniques with Technology****8–10 Session**

This session will have teachers engaging in several formative assessment tasks using free technology from Desmos to Nearpod. The tasks will demonstrate that we can engage students in their learning and assess them understanding in real time using such technology.

Eric Milou

🐦 @drMi

Rowan University, Glassboro, New Jersey

Henry B. Gonzalez Convention Center, 301

558 **TECH****Five Steps to Flip Your Math Classroom****General Interest Session**

With the popularity of Khan Academy, a flipped classroom has become a popular practice. Flipping the classroom gives teachers valuable class time for student practice, while putting students in the driver's seat of their learning. Learn five steps to flip a lesson, and get recommendations on great edtech tools to support you.

Steve Garton

🐦 @sgarton121

Common Sense Education, San Francisco, California

Henry B. Gonzalez Convention Center, 205

559 **BUILD****Get Your Students Talking: Introducing Debate to the Math Classroom****8–10 Session**

What is the value of 0/0? Is there a better order for Order of Operations? Is math invented or discovered? Embracing these questions leads to new and better understanding of mathematical concepts. Watch a demonstration debate, learn how to structure safe, meaningful debates in your math class, and then introduce the fun of arguing to your students.

Ethan Weker

🐦 @Ethan_MidPen

Mid-Peninsula High School, Menlo Park, California

Noirin Foy

Los Altos School District, California

Grand Hyatt San Antonio, Lonestar Ballroom D

560 **PROF****I'm Not Looking for a Hero****General Interest Session**

Expectations for teachers grow each year. How do we keep up with the responsibilities and continue to create mathematics success for our students? Are teacher's leaders and collaborators or heroes expected to do it all alone? Come learn and discuss how to create a mathematics classroom where children learn and teachers thrive.

Connie Schrock

Emporia State University, Kansas

Grand Hyatt San Antonio, Republic ABC

561 **PROF****Lesson Study: It's Not Just about the Lesson!****General Interest Session**

In Oakland Unified School District, site math teams use lesson study to engage around CCSS content and practice standards. Come experience essential components of a lesson study cycle using a research theme, lesson plan, and video from one of our sites. Discussants include lesson study researchers Dr. Akihiko Takahashi and Dr. Catherine Lewis.

Courtney Ortega

Oakland Unified School District, California

Mary Reed

Oakland Unified School District, California

Henry B. Gonzalez Convention Center, 303

562 **A&E****Let's Talk Numbers, Shall We? Our Journey to Building Number Sense****6–8 Session**

Are your students lacking number sense? Do you struggle to teach the standards due to re-teaching algorithms? Our math specialist team will share how we've utilized the book *Making Number Talks Matter* by Cathy Humphreys and Ruth Parker. Learn what number talks are, how to implement them, and how they build and strengthen students' number sense.

Pamela Rayburn

Madison County School District, Ridgeland, Mississippi

Alissa Murray

Madison County School District, Ridgeland, Mississippi

Henry B. Gonzalez Convention Center, 217D

563 BUILD**Making Sense of Trigonometry in Geometry Class through the Unit Circle**

10–12 Session

In this session, we will explore an alternative approach to introducing trigonometry in geometry using the unit circle. This approach calls upon a number of mathematical standards, develops students' sense of angle measure and trigonometric functions, and has historical precedence.

Jon Southam

Sonoma Valley Unified School District, California

Henry B. Gonzalez Convention Center, 008AB

564 A&E**Matching an Effective Strategy to the Language Level of ELLs**

General Interest Session

Using three cognitively demanding math tasks written in Korean, Spanish, and British English, we will show various strategies that help English language learners make sense of mathematics. Each problem will place participants in the shoes of ELLs at high, intermediate, and beginner levels of English proficiency.

Ricardo Martinez

Iowa State University, Ames

Ji Yeong I

Iowa State University, Ames

Henry B. Gonzalez Convention Center, 214A

565 BUILD**MMMMM: Making Math More Meaningful with Models (K–Grade 2)**

Pre-K–2 Session

Making Math More Meaningful with Models: too often we push our students directly to abstract algorithms without first giving students the prerequisite experience with models such as empty number lines, number bonds, arrow method, area model, and so on. Teachers will learn how to use these models to make math meaningful for their students.

Duane Habecker

@dhabecker

Pleasanton Unified School District, California

Grand Hyatt San Antonio, Texas Ballroom F

566 "M"**Pi, Phi, Polynomials, and Python: Interdisciplinary Mathematics and Computer Science**

8–10 Session

This session will explore how mathematical topics and relationships can be seen through the lens of computer science and coding in the Python programming language. Explorations involving Xenocratus, the Golden Ratio, polynomial arithmetic, and elementary cryptography will connect algorithmic thinking to deep mathematical understanding.

Thomas Ward

@TWardGH

Greenhills School, Ann Arbor, Michigan

Henry B. Gonzalez Convention Center, 214C

567 BUILD**Please Eliminate My Dear Aunt Sally**

6–8 Session

PEMDAS limits students' understanding of many important properties of mathematics that can help students make connections to important mathematical properties. So, let's eliminate Aunt Sally and discuss how to build mathematical flexibility and approach the order operations with numerical fluency in mind.

Daniel Ilaria

West Chester University, Pennsylvania

Grand Hyatt San Antonio, Travis CD

568 BUILD**Problem Solving and Problem Posing: A Structural Approach to Word Problems**

General Interest Session

Problem solving is important, but often perceived as difficult. Beyond problem solving, problem posing is also a key skill for teachers. With a focus on addition and subtraction word problems, we will present a structural approach to analyzing, solving, and creating multistep word problems.

Yeping Li

Texas A&M University, College Station

Roger Howe

Texas A&M University, College Station

Henry B. Gonzalez Convention Center, Hemisfair 3

569**"M"****Putting Math in STEM Activities**

8

STEM is not just about applying content from prior grades; it is about measurement and data. This session will present examples of STEM activities for algebra and geometry to develop understanding of the math. Students will build a model of an amusement park, race model cars, build a pendulum, and look at pendulums!

Janet Caldwell

Rowan University, Glassboro, New Jersey

Grand Hyatt San Antonio, Lonestar Ballroom E**570****ASSESS****Quality Questioning for Formative Assessment in the Mathematics Classroom**

3–5 Session

What is quality questioning? What is formative assessment? How can quality questioning be used effectively to formatively assess your students? Attend this session to find out how you can ask the best questions to determine what your students know and what they don't know!

DesLey Plaisance

@DesLeyVP

Nicholls State University, Thibodaux, Louisiana

Henry B. Gonzalez Convention Center, 007D**571****TLC****Reasoning in Mathematics Classrooms: Small Steps That Lead to Big Change**

3–5 Session

Meet teachers who worked with math education researchers to provide opportunities for students to develop and use reasoning skills while learning mathematics. Transfer of ideas into practice was difficult, but small steps added up. We will share what struggles and successes we experienced when students' reasoning became a focus of their learning.

Kyong Mi Choi

University of Iowa, Iowa City

Karen Kauffman

Mt. Pleasant School District, Iowa

Lottie Schnicker

Mt. Pleasant School District, Iowa

Grand Hyatt San Antonio, Presidio ABC**572****"M"****STEM: Solving (Problems), Toyota, Engineering, and Mathematics**

8–10 Session

How can your students help Toyota improve the efficiency of their manufacturing process? We'll share a problem involving measurement, accuracy, and precision that your students can solve. Ask questions of one of the engineers who solved it, and learn how to involve your students in a real STEM problem (free materials available from Spark101.org).

Michael Collins

Toyota Motor Engineering & Manufacturing North America, Inc., Georgetown, Kentucky

Fred Dillon

Ideastream/PBS, Strongsville, Ohio

Henry B. Gonzalez Convention Center, 221**573****A&E****Still Fighting the Good Fight: Standing Up for Equity In Mathematics**

Coaches/Leaders/Teacher Educators' Session

Are you hoping to detrack your schools? Come ask us about our next chapter: San Francisco has worked for three years to implement a board policy that detracks math through the end of tenth grade. Using research and our own data, we frame this as a social justice issue and instructional opportunity. Together, we will reflect on learnings and next steps.

Lizzy Hull Barnes

@sfusdmath

SFUSD, San Francisco, California

Richard Carranza

SFUSD, San Francisco, California

Henry B. Gonzalez Convention Center, Hemisfair 2**574****TLC****Supporting Productive Struggle in Mathematics Classrooms**

General Interest Session

This session will focus on what productive struggle is and how to support it in the classroom. Video and text-based examples will be used to illustrate ways to support productive struggle. Participants will discuss general principles for supporting student's productive struggle that can be applied in their own classrooms.

Margaret Smith

University of Pittsburgh, Pennsylvania

Henry B. Gonzalez Convention Center, Stars at Night 2&3

FRIDAY

575 A&E**Teaching Problem-Solving Strategies as Part of Algebra 1 Enables More Students to Succeed****8–10 Session**

Problem solving strategies align well with algebra 1 skills. Many students are not aware of strategies that others use. Explicitly teaching strategies such as Guess & Check, Look for Sub-problems, Make a Table, and Use a Manipulative helps level the playing field and provides access for students who were unaware of them. Examples will be provided.

Judith Kysh

San Francisco State University, California

Grand Hyatt San Antonio, Travis AB

576 BUILD**Unpacking the Magic of the “tan” Button: Developing a Conceptual Understanding of Tangent****10–12 Session**

It is time to move past the magic of the tangent button on your calculator. We will discuss a way to develop a conceptual understanding of tangent (and the rest of right triangle trigonometry!) before jumping to the calculator. Participants will have a chance to engage in an activity that will connect similar triangles to tangent.

Joshua Males

@josh_males

Lincoln Public School District, Nebraska

Lorraine Males

University of Nebraska-Lincoln

Henry B. Gonzalez Convention Center, 225

577 A&E**Ways to Help Students Overcome Their Math Anxiety****10–12 Session**

We will look at steps for teachers to help their students deal with their anxiousness in math class. These steps are parallel to steps used by some psychologists in overcoming other fears. These will be steps that can be done by any teacher.

Gary Hall

Lipscomb University, Nashville, Tennessee

Grand Hyatt San Antonio, Bowie ABC

578 BUILD**What’s Puzzling You? 2.0****General Interest Session**

Do you enjoy getting up in the morning and working the puzzles? This session will explore common and not-so-common examples of puzzles that are available. If time permits, we will discuss how these puzzles can be used in the mathematics classroom. This presentation is a continuation of the What’s Puzzling You? session given in 2016.

Jane Tanner

Onondaga Community College, Syracuse, New York

Grand Hyatt San Antonio, Lonestar Ballroom C

579 TLC**Writing Counts****Coaches/Leaders/Teacher Educators’ Session**

“Students need opportunities to sink their teeth into the marrow of math”—Wendy Ward Hoffer. Learn how discourse and writing help students grapple with their problem-solving processes. Experience structures and strategies designed to engage students in the process of thinking deeply about math which will assure their understanding.

Brenda Mesa

Birdville ISD, Haltom City, Texas

Ann-Marie Trammell

Birdville ISD, Haltom City, Texas

Henry B. Gonzalez Convention Center, 207B

579.1**Hidden Figures: My Role as a Math Consultant for This Film****General Interest Session**

In January 2017, the movie *Hidden Figures* was released. This movie tells the story of three African-American women mathematicians and engineers who would play a pivotal role toward the successful mission of John Glenn’s spacecraft orbit around the Earth and the NASA missions to the moon. In this session, we give a brief review of the space race going on at the time between the United States of America and the former Soviet Union. We will discuss the lives and contributions that NASA mathematician Katherine Johnson and the NASA engineers Mary Jackson and Dorothy Vaughan made to the space race.

Rudy L. Horne

Morehouse College, Atlanta, Georgia

Henry B. Gonzalez Convention Center, Hemisfair 1

3:30 P.M.–4:30 P.M.

579.2 **ew**

enVision A|G|A powered by Desmos for High School Mathematics

10–12 Exhibitor Workshop

Interested in a seamless and integrated digital experience for high school mathematics teaching and learning? Come see how the unique integration of Desmos into Pearson Realize offers a groundbreaking interactive experience designed to foster conceptual understanding through highly visual interactives that bring mathematical concepts to life.

Pearson Learning Services
Chandler, Arizona

Henry B. Gonzalez Convention Center, 206B

579.3 **ew**

HP Prime: Mathematics Education Technology on All Platforms!

10–12 Exhibitor Workshop

Get acquainted with HP Prime: the app-based, full-color graphing calculator. HP Prime is also available as software on Mac and PC as well as Android/iOS/Win10 phones/tablets. All versions have multi-touch, gesture-driven user interfaces (for example, pinch to zoom on a graph) and more. You'll receive a free copy of the software after the workshop.

HP Inc.
San Diego, California

Henry B. Gonzalez Convention Center, 210AB

579.4 **ew**

Math + ORIGO Digital Tools = Learning at Its Best

Pre-K–2 Exhibitor Workshop

Today's students are plugged in most of the day. Let's use that to our advantage when teaching math. Come see how ORIGO's digital resources can ignite and enliven any math lesson. This engaging workshop will highlight a variety of technology enhanced tools and how they can be used to enrich teaching and learning mathematics in K–5 classrooms.

ORIGO Education
Earth City, Missouri

Henry B. Gonzalez Convention Center, 212AB

4:45 P.M.–6:00 P.M.



580 **A&E**

Effective Thinking and Creative Puzzle Solving

General Interest Session

How can we joyfully and impactfully engage our students to thrive in their math classes? How can we inspire our students to see the beauty and power of mathematical thinking? Here we will offer some practical strategies of thinking that will allow our students to not only make greater meaning of mathematics but also to use those practices of the mind beyond their math classes.

Edward Burger is the president of Southwestern University; a professor of mathematics; an educational consultant on thinking, innovation, and creativity; and host of the podcast *Higher ED*. He is the author of more than 70 research articles, video series, and books, including *The 5 Elements of Effective Thinking*. Burger was awarded the 2001 Mathematical Association of America (MAA) Haimo Award for Distinguished Teaching of Mathematics, and in 2010 he was named the winner of the Robert Foster Cherry Award for Great Teaching. In 2006, *Reader's Digest* listed Burger in their annual "100 Best of America" issue as America's Best Math Teacher.

Ed Burger
Southwestern University, Georgetown, Texas

Henry B. Gonzalez Convention Center, Stars at Night 4

6:30 P.M.–7:30 P.M.

581 **PROF**

Ignite! We'll Enlighten You and We'll Make It Quick

General Interest Session

What makes mathematics teachers passionate? Join us to find out! Our 10 classroom teachers, representing kindergarten through high school, will light up the room with fresh ideas in math teaching and learning. Each speaker gets five minutes to talk about whatever ignites their passion, using 20 slides that auto advance every 15 seconds—whether they're ready or not!

Mary Bourassa, Ottawa, Canada; **Jessica Cheyney**, Round Rock, Texas; **Robyn Drew**, Nashville, Tennessee; **Troy Jones**, Saratoga Springs, Utah; **Paul Kelley**, Anoka, Minnesota; **Morondo Lewis**, Columbia, South Carolina; **Avery Pickford**, Hillsborough, California; **Megan Schmidt**, St. Francis, Minnesota; **Monica Tienda**, Oak Park, Michigan; **José Vilson**, New York, New York

Henry B. Gonzalez Convention Center, Stars at Night 2&3

FRIDAY

"M" The "M" in STEM/STEAM

PROF Professionalism: Learning Together as Teachers

TECH Tools and Technology

TLC Teaching, Learning, & Curriculum



The Math Forum
PEOPLE LEARNING MATH TOGETHER



Friday, April 7, 6:30–7:30 p.m., Cash Bar
Stars at Night Ballroom, B2 & B3



Matt Larson, Emcee
@mlarson_math

Ignite! We'll Enlighten You and We'll Make It Quick

What makes mathematics teachers passionate? Join us to find out! Our 10 classroom teachers, representing kindergarten through high school, will light up the room with fresh ideas in math teaching and learning. Each speaker gets 5 minutes to talk about whatever ignites their passion, using 20 slides that auto advance every 15 seconds whether they're ready or not! Emceed by Matt Larson, president of NCTM, and brought to you by the Math Forum.



Mary Bourassa
@MaryBourassa
High School Math
West Carleton Secondary
Dunrobin, Ontario



Jessica Cheyney
@JChey1
Kindergarten
Callison Elementary School
Round Rock, TX



Robyn Drew
@robyndrew1
4th Grade Math/Science
Percy Pierce Elementary
Nashville, TN



Troy Jones
High School Math
Westlake High School
Saratoga Springs, UT



Paul Kelley
@paulrkelley
High School Math
Anoka High School
Anoka, MN



Morondo Lewis
High School Math
Eau Claire High School
Columbia, SC



Avery Pickford
@woutgeo
5th & 6th Grade Math
Nueva School
Hillsborough, CA



Megan Schmidt
@VeganMathBeagle
High School Math
St. Francis High School
St. Francis, MN



Monica Tienda
@matienda
Grade 4
Key Elementary School
Oak Park, MI



José Vilson
@TheJLV
Middle School Math
Inwood Intermediate, 52
New York, NY



NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENT

NCTM ANNUAL MEETING & EXPOSITION 2018

April 25-28 | Washington, DC

Empowering the Mathematics Community in the Nation's Capital

It's never too early to plan ahead for the leading math education event of the year. Network with thousands of your peers and fellow math education professionals to exchange ideas, engage with innovation in the field, and discover new learning practices that will drive student success.

The latest teaching trends and topics will include:

- **Tools and Technology:** Enhancing Instruction and Promoting Innovation
- **Access, Equity, and Empowerment:** Transformative Practices and Professional Accountability
- **Purposeful Curriculum:** Cultivating Coherence and Connections
- **Teaching and Learning:** Building a Community of Empowered Learners
- **Assessment:** Involving and Empowering Students
- **Professionalism:** Empowering Teachers through Community
- **Mathematical Modeling:** Interpreting the World through Mathematics
- **Emerging Issues and Hot Topics**

SAVE THE
DATE

The NCTM Annual Meeting & Exposition is ideal for:

- PRE-K-12 TEACHERS
- MATH TEACHER EDUCATORS
- NEW AND PROSPECTIVE TEACHERS
- MATH COACHES AND SPECIALISTS
- MATH RESEARCHERS
- SCHOOL AND DISTRICT ADMINISTRATORS

SATURDAY

Learn more at nctm.org/annual

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HIGHLIGHTS

Math Is Power Not Punishment, 595

Learning Cycles and Mathematical Practices in the Classroom Math Talk Community, 681

Closing Keynote: From Fermat's Last Theorem to Homer's Last Theorem, 708

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REGISTRATION HOURS

7:00 a.m.–12:00 p.m.

EXHIBIT HOURS

8:00 a.m.–12:00 p.m.

NCTM CENTRAL HOURS

8:00 a.m.–12:00 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.

582 **"M"****Bringing Computational Thinking into Elementary Mathematics****3–5 Session**

A research team at the University of Chicago and the University of Illinois Urbana-Champaign has been developing an online resource for elementary mathematics teachers to use to bring more computational thinking into their mathematics classes. Come and learn how you can use this resource to help bring CS to all!

Andy Isaacs

University of Chicago, Illinois

Kathryn Rich

University of Chicago, Illinois

Cheryl Moran

University of Chicago, Illinois

Henry B. Gonzalez Convention Center, 008AB

583 **TLC****Experience Three-Act Tasks as a Learner****10–12 Session**

In this session, participants will experience three-act math tasks (modeled after Dan Myer's tasks). An overview of how three-act tasks can be implemented in the classroom will be presented, and participants will experience at least one task as a student in the high school math classroom. We will discuss how three-act tasks kindle students' interest.

Umamaheswari Subramanian

Atlanta Public Schools, Georgia

Elizabeth Oparinde

Atlanta Public Schools, Georgia

Lindra Gordon

Atlanta Public Schools, Georgia

Henry B. Gonzalez Convention Center, 007D

584 **PROF****Facilitating the Lesson Study Process with Google Apps****General Interest Session**

This session will demonstrate how the lesson study process can be streamlined and managed in a paperless manner using free, cloud-based Google Apps to communicate and collaborate. The session will also consider tech-based strategies for addressing challenges to engaging in lesson study.

Yvelyne Germain-McCarthy

University of New Orleans, Louisiana

Tinashe Blanchet

The Learning Laboratory New Orleans, Inc., Louisiana

Henry B. Gonzalez Convention Center, 205

585 **BUILD****Fractions as Numbers: Unifying All the Representations and Interpretations****3–5 Session**

Multiple representations and interpretations for fractions are introduced in grades 3–5: equipartitioning and part-whole area models, the number line, division, and operator. This session will explore a learning progression for fractions and related tasks that elicit and connect foundational conceptual understanding to procedural fluency.

Lauren Whitley

Amplify Education, Raleigh, North Carolina

Drew Corley

Amplify Education, Raleigh, North Carolina

Zachary Wissner-Gross

Amplify Education, Brooklyn, New York

Grand Hyatt San Antonio, Travis AB

Don't miss the **Closing Session** on Saturday afternoon with featured speaker Simon Singh, science writer and broadcaster



586 **A&E****Free Online Tools for Guiding Discourse in Rich Math Tasks****3–5 Session**

Use free, online tools to kick-start rich tasks in your classroom. Give yourself a personal navigation system to move from notice and wonder, to making estimations, to facilitating multistep problem solving where students pursue their own solutions. Use video, online discussion guides, and virtual manipulatives, all available online for free.

Julie McNamara

Cal State East Bay, Hayward, California

Arjan Khalsa

@arjankhalsa

Conceptua Math, San Rafael, California

Henry B. Gonzalez Convention Center, 301

587 **BUILD****From Euler to the Fundamental Theorem****10–12 Session**

In this session, we will use Euler's Method to build intuition into the Fundamental Theorem of Calculus. We will engage in an activity used in the classroom to model the lesson as it is done with students. Discussion about implementation and best practices will be conducted.

Tamar Avineri

North Carolina School of Science and Mathematics, Durham

Grand Hyatt San Antonio, Lonestar Ballroom E

588 **A&E****Getting Struggling Math Students to Mathematize Their World and Engage Them in Meaningful Procedures****6–8 Session**

Students who struggle with computation rarely learn to appreciate math in their worlds. They have a difficult time seeing themselves as mathematicians capable of doing math. In this session, you will explore activities aimed to get students to mathematize the world around them while developing computational skills within a meaningful context.

Jennifer McAleer

@jennifuhs4

The Carroll School, Lincoln, Massachusetts

Peter Morris

The Carroll School, Waltham, Massachusetts

Grand Hyatt San Antonio, Lonestar Ballroom D

589 **BUILD****Going beyond Number Talks****General Interest Session**

Are you using number talks in your classroom to develop fluency through the flexible use of computational strategies? Teachers in K–grade 5 will learn how to build upon their number talks routine by creating lessons that allow their students to investigate and build a deeper understanding of the mathematics behind those strategies.

Kevin Larkin

Pinellas County Schools, Largo, Florida

Adrienne DeLong

Pinellas County Schools, Largo, Florida

Grand Hyatt San Antonio, Crockett CD

590 **A&E****Helping Learners Who Are Struggling to Access the Mathematics Curriculum****General Interest Session**

Discover what research says about the learning needs of individuals who struggle with mathematics and the evidence-based strategies that can help them access the curriculum. Participate in a simulation, view video clips, and examine your own beliefs and assumptions. Leave with handouts summarizing research and effective strategies.

Linda Forbringer

Southern Illinois University Edwardsville

Grand Hyatt San Antonio, Crockett AB

591 BUILD**Identifying and Addressing Common Addition and Subtraction Misconceptions****Pre-K–2 Session**

Frustrated with seeing the same mistakes in your students' addition and subtraction work? In this session, we will analyze student work to identify common addition and subtraction misconceptions. We will also explore a variety of models and strategies that will support your students' deep conceptual understanding of addition and subtraction.

Saffron VanGalder

Eureka Math, Washington, D.C.

Henry B. Gonzalez Convention Center, 217D

592 BUILD**It's Not Just a Careless Mistake!****6–8 Session**

Often students dismiss their errors as careless mistakes, instead of opportunities for learning. In this session we will examine student errors in a number of different strands (Number and Operations, Algebra, Geometry), identify the source of the mistakes, and plan instruction to remediate or even avoid these errors altogether.

Mary Pat Sjostrom

[@DrMPShoe](#)

Winthrop University, Rock Hill, South Carolina

Grand Hyatt San Antonio, Texas Ballroom F

593 TLC**Julian's Numerical Development across the Years: A Video Portrait****Pre-K–2 Session**

From early childhood through the primary grades, children's numerical development occurs in the ability to count, subitize, add and subtract, and make sense of multiplicative situations. We will explore this learning trajectory by reflecting on videos of one child, Julian, between the ages of two and nine, linking his development with current research.

Sarah Lord

University of Wisconsin-Madison

Sara Cutler

SEAMS Consulting, LLC, Madison, Wisconsin

Henry B. Gonzalez Convention Center, 214C

594 ASSESS**Making Number Sense the Heart of MTSS Using Interview-Based Screeners****Coaches/Leaders/Teacher Educators' Session**

Come watch and discuss videos, dig into some data, and consider the potential for supporting all tiers of MTSS using interview-based number sense screeners. In 2010, Boulder, Colorado, began implementing system-wide fall number sense interviews for K–5. Learn from our struggles and successes. Handouts of the free, open-source screeners will be available.

David Woodward

[@elemmathguy](#)

Boulder Valley School District, Colorado

Grand Hyatt San Antonio, Republic ABC

595 TLC**Math Is Power Not Punishment****General Interest Session**

We often offer students shortcuts, strategies, and skills before students understand their origin, their value, and the millions of hours of work they've saved mathematicians throughout history. We'll look at techniques for putting students in a position to need these challenging skills so they feel like power, not punishment.

Dan Meyer

Desmos, San Francisco, California

Henry B. Gonzalez Convention Center, Lila Cockrell Theatre

596 TLC**Math Workshop: Guided Math & Beyond****3–5 Session**

Participants will learn WHY Math Workshop is a valuable model for instruction and HOW to establish routines and procedures that help get differentiated guided groups & learning stations up and running. Participants will gain a solid understanding of the different structures within Math Workshop and be able to see how it fits into a K–5 math class.

Jennifer Lempp

[@lempp5](#)

Fairfax County Public Schools, Falls Church, Virginia

Grand Hyatt San Antonio, Lonestar Ballroom F

597 ASSESS

Mathematics Achievement from a National and International Perspective: A Deeper Look at 2015 Data

General Interest Session

Over the past 18 months, results from 2015 NAEP, TIMSS, TIMSS Advanced, and PISA have been released. This presentation will provide an overview of United States performance and examine both the mathematics being assessed as well as demonstrate how contextual variables can be used to provide further insight into student performance.

Kim Gattis
AIR, Washington, D.C.
Ebru Erberbr
AIR, Washington, D.C.

Grand Hyatt San Antonio, Presidio ABC

598 A&E

Neurodiversity and Mathematics: Rethinking Intervention

General Interest Session

The time has come to think about disability and math. Learn about approaches to disability such as Neurodiversity, Universal Design for Learning, and how to apply them to math.

Rachel Lambert
Chapman University, Orange, California

Grand Hyatt San Antonio, Bowie ABC

599 BUILD

Report on ICMI Study 23 on Whole Number Arithmetic

General Interest Session

The International Commission on Mathematics Instruction (ICMI) promotes international communication and cooperation for improving mathematics instruction worldwide. This session will report ICMI Study 23, focused on whole number arithmetic, including history, international teaching practices, and adaptation for 21st-century learning.

Roger Howe
Yale University, New Haven, Connecticut
Sybilla Beckmann-Kazez
University of Georgia, Athens

Henry B. Gonzalez Convention Center, 225

600 BUILD

Structures and Repeated Reasoning: Keys to Decimal Number Teaching and Learning

3–5 Session

Decimals and fractions are two representations for numbers that require units less than 1. Students must look for and make use of structures of whole numbers and repeated reasoning used with whole number operations previously to build their understanding of decimals. We will highlight some key ideas such as units and properties of operations.

Tad Watanabe
Kennesaw State University, Georgia

Henry B. Gonzalez Convention Center, 221

601 PROF

The HeART of Coaching: Asking Purposeful Questions

Coaches/Leaders/Teacher Educators' Session

NCTM's *Principles to Actions* states, "Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships." This principle connects directly to the heart of coaching. During this session math coaches use a process for asking purposeful questions.

Mary Mitchell
@marymitchell
Math Solutions, Sausalito, California
Brenda Konicke
Math Solutions, Sausalito, California

Grand Hyatt San Antonio, Lonestar Ballroom C

8:00 A.M.–9:00 A.M.

602 ASSESS

The Rewards and Challenges of Standards-Based Grading

10–12 Session

Implementing a standards-based grading system within a school culture based on points accumulation presents significant challenges, yet there are a variety of rewards for making it happen. In this presentation, we discuss our own successes and failures when we committed to putting SBG into practice.

Matthew Grinwis

🐦 @mrgrinwismath

Downingtown Area School District, Exton, Pennsylvania

Michael Manganello

Downingtown Area School District, Exton, Pennsylvania

Henry B. Gonzalez Convention Center, 214B

603 TECH

Upgrade Your Card Sorts

10–12 Session

Card sorts help students compare, contrast, and group mathematical structures. In this session, we'll discuss various ways in which card sorts promote conceptual understanding, and we'll learn how to use a free digital card sort to promote discussion and give feedback in ways that are impossible with paper card sorts.

Shelley Carranza

🐦 @stcarranza

Desmos, Inc., Mountain View, California

Henry B. Gonzalez Convention Center, 207B

8:00 A.M.–9:15 A.M.

604 BUILD

Building Conceptual Blocks for Procedural Understanding of Geometry

Coaches/Leaders/Teacher Educators' Workshop

How do students learn about angles, parallel lines, and partitioning a segment? How does that knowledge lead to more complex concepts in middle and high school? Let's examine the role teachers play in connecting foundational geometric concepts in elementary grades to the application of geometry at upper grades using hands-on activities.

Kelly Alsup

🐦 @kelly_alsup

Great Minds, Washington, D.C.

Stefanie Hassan

Great Minds, Washington, D.C.

Henry B. Gonzalez Convention Center, 007B

605 BUILD

Copy, Change, Flip? Why Not to Invert and Multiply

3–5

Students often struggle to understand how to divide fractions using various strategies. How do teachers do this without copy, change, flip? In this session, teachers will explore the progression of division from whole numbers to fractions while using a variety of tools and tasks to promote a deeper understanding of division of fractions.

Kathleen Carter

Howard County Public Schools, Sykesville, Maryland

Connie Conroy

Howard County Public School System, Ellicott City, Maryland

Kendra Johnson

Howard County Public School System, Ellicott City, Maryland

Henry B. Gonzalez Convention Center, 305

CANCELED

SATURDAY

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606 A&E**Dealing with Diversity: Math Games for Engaging All Learners****Pre-K–2 Workshop**

Are you looking for engaging, hands-on activities for CCSS concepts that help your students gain competence and confidence? Participants play games that incorporate the use of cards and dice, and will learn ways to differentiate instruction to meet the needs of EDL, ELL and RTI students. Strategies for fact fluency, PV, and assessment will be shared.

Jane Felling

[@Boxcarseduc](#)

Box Cars and One-Eyed Jacks, Edmonton, Alberta, Canada

Grand Hyatt San Antonio, Texas Ballroom C

607 BUILD**Determining Definitions of a Circle and an Ellipse through a Modeling Activity****8–10 Workshop**

In this session, participants will engage in a modeling activity in which they investigate a crime scene and, as a result, determine the definitions of a circle and an ellipse. The presenter will discuss the use of this activity with middle school students at a math camp and with preservice teachers in a middle grades mathematics methods course.

Bethany Noblitt

Northern Kentucky University, Highland Heights

Grand Hyatt San Antonio, Texas Ballroom A

608 BUILD**Developing Algebraic Thinking through Problem-Solving Activities****3–5 Workshop**

This session focuses on hands-on and minds-on algebraic thinking activities that can be used to transform real-world problems into learning experiences that develop students' abilities to use multiple representations to conjecture, justify, and make generalizations. Leave with classroom-ready activities and ideas to challenge all your students.

Carolyn White

Rice University, Houston, Texas

Susan Troutman

Rice University, Houston, Texas

Henry B. Gonzalez Convention Center, 006C

609 ASSESS**Do Not Become Un-"Hinged"—Learn to Dig****8–10**

Are you looking for assessment tools that will guide teacher and student learning a lesson? Join us in an examination of questions as a formative assessment strategy. You will explore digital tools that will support its implementation. Participants should bring a device and/or laptop.

Debra Mintz

[@debimintz](#)

Retired, Pleasanton Unified School District, California

Celine Liu

Alameda County Office of Education, Hayward, California

Henry B. Gonzalez Convention Center, 304B

610 TLC**Experience-First Statistics: Using Activities to Promote Statistical Thinking****10–12 Workshop**

The Common Core emphasizes statistics early and often. For AP Statistics or any class wishing to incorporate statistics, there are many activities that can be done to help students develop deep understanding of concepts. We will explore three such activities: understanding r-squared, interpreting confidence intervals, and a basic hypothesis test.

Jonathan Osters

[@callmejosters](#)

The Blake School, Minneapolis, Minnesota

Henry B. Gonzalez Convention Center, 007A

611 BUILD**Exploring Right Triangle Properties with Paper Folding****10–12 Workshop**

In this hands-on session you'll cut, crease, and fold to reveal significant geometric results. Paper folding can be used to prove the Pythagorean theorem and explore a relationship between the altitude and hypotenuse. The culmination is seeing how all of this work leads to insight for real-world design problems. You gotta know when to fold 'em . . .

Marjan Hong

Discovery Education, Concord, North Carolina

Henry B. Gonzalez Convention Center, 006B

612 TECH**Hands-On Activities + Technology = Mathematical Understanding through Authentic Modeling****8–10 Workshop**

Inquiry-based learning coupled with handheld technology empowers students to apply linear, quadratic, and exponential functions to real-world situations. Participants are provided with classroom-ready lessons that use and connect multiple mathematical representations and synthesize the Statistics, Functions, and Modeling strands of CCSSM.

Tom Beatini

Union City Public Schools, New Jersey

Henry B. Gonzalez Convention Center, 006D

613 BUILD**Hands-On Geometry for Deeper Understanding for All Learners in Grades 3–5****3–5 Workshop**

We will investigate two- and three-dimensional components of geometry by exploring polygons and polyhedra and their properties through hands-on activities that lead to deeper student understanding. Attention will be given to differentiating the lessons for special education through gifted populations. Van Hiele levels will be addressed as well.

Marguerite Mason

College of William and Mary, Williamsburg, Virginia

Samuel Rhodes

College of William and Mary, Williamsburg, Virginia

Eric Shippee

College of William and Mary, Williamsburg, Virginia

Henry B. Gonzalez Convention Center, 217A

614 BUILD**Helping Students Become Proportionally Correct: Just Cross-Multiplying Is a Thing of the Past!****6–8 Workshop**

Students may be able to write and solve proportions without reasoning proportionally. They need to do more than just cross multiply. We will introduce essential understandings related to proportional reasoning by examining student thinking. Participants will engage in activities for middle school students designed to develop these understandings.

Dovie Kimmins

Middle Tennessee State University, Murfreesboro

Jeremy Winters

Middle Tennessee State University, Murfreesboro

Henry B. Gonzalez Convention Center, 006A

615 "M"**Math in Your Feet: Moving Bodies Are Learning Bodies****3–5 Workshop**

We know kids love to move—there is a developmental imperative at play that can't be ignored. How can we harness this innate playfulness in ways that move our students, literally, toward conceptual understanding of elementary math? Learn how the whole, moving, dancing body can be a tool for doing and learning mathematics in deep and engaging ways.

Malke Rosenfeld

[@mathinyourfeet](https://twitter.com/mathinyourfeet)

Independent Teaching Artist, Bloomington, Indiana

Henry B. Gonzalez Convention Center, 005

616 TLC**Problems in Context—Not a Problem! Comprehend the Scene****Pre-K–2 Workshop**

Add, subtract, multiply, divide; this is not the question we seek. This session will provide participants with insight and lessons on how to access student understanding of problems presented in context prior to attempting to find a solution. Technology, building concrete models, and retelling are all part of the plan.

Kendra Johnson

Howard County Public School System, Ellicott City, Maryland

Randi Blue

Howard County Public School System, Ellicott City, Maryland

Henry B. Gonzalez Convention Center, 224

617 **TLC****Some Solid Ideas for Learning Geometry: Engaging Activities for Middle Grades Students****6–8 Workshop**

Geometry, often overlooked in middle school mathematics, can allow students to engage in mathematics as it relates to the world around them. This workshop provides a series of connected activities to build students' understanding of spatial relationships necessary for all students to solve grade appropriate real-world problems involving geometry.

Gail Englert

Retired, Norfolk City Public Schools, Virginia

Jean Howard

Helena, Montana

Henry B. Gonzalez Convention Center, 217B

618 **TECH****Take Some Random Walks—on a Hexagonal Island with Dice, on a Number Line with a Calculator, & More!****6–8 Workshop**

We will take random walks on a hexagonal board with dice, and we'll take simulated walks on a number line and on circular boards using graphing calculators. We'll learn about and see the huge variety of outcomes of such walks, from short to very long. Take these classroom-tested hands-on activities back to your students!

Patricia Baggett

New Mexico State University, Las Cruces

Andrzej Ehrenfeucht

University of Colorado Boulder

Henry B. Gonzalez Convention Center, 007C

619 **BUILD****The Power of 3!****Pre-K–2 Workshop**

How do I address the diverse needs of all my students while keeping the class on the same objective and learning target? Come explore how to use stations and Guided Math to differentiate the instruction for your developing, proficient, and advanced learners. Hands-on activities and multiple models will be presented and practiced.

Gayle Stahl

Independent Consultant, Spring, Texas

Henry B. Gonzalez Convention Center, 304C

620 **PROF****The Power of Video to Analyze Strong Mathematical Instructional Practices****Coaches/Leaders/Teacher Educators' Workshop**

Classroom observations can be a powerful tool to build understanding of strong mathematical instructional practices. Come learn about and explore free comprehensive PD modules centered around exemplar moments captured in video. Great session for teachers and coaches in K–12.

Barbara Beske

[@beske3](#)

Student Achievement Partners, Mullica Hill, New Jersey

Henry B. Gonzalez Convention Center, 004

621 **"M"****The Superhero Boat Challenge****6–8 Workshop**

Attendees will receive a copy of this interactive, hands-on STEM activity. The activity requires attendees to design and construct a boat based on specific mathematical specifications. Boats must be able to float, carry weight, and move across a pool. The boat challenge includes finding surface area, volume, finding rate of speed, and more.

Elizabeth Grossie

Lafayette Parish School System, Louisiana

Grand Hyatt San Antonio, Lonestar Ballroom B

622 **TLC**

Thinking Critically about Statistical Inference: Playing Cards and Drinking Water

10–12 Workshop

Difficulties understanding the underlying concepts of hypothesis testing can lead to incorrect conclusions regarding the outcome of a statistical study. This workshop will focus on some of these difficulties and provide activities for helping students better understand the difference between a correct and incorrect conclusion from inference.

Ellen Breazel

Clemson University, South Carolina

Henry B. Gonzalez Convention Center, 302AB

623 **TECH**

Transformational Geometry In 15 Seconds or Fewer: Immediate Interactive Investigations for Grades 8–11

8–10 Workshop

Get hands-on experience and Play-Investigate-Explore-Discover the geometric properties in 15 seconds! Using a handheld, iPad, or software, students will become engaged quickly. And deeply. Get all 30 free activities and student/teacher materials and see how to implement. Integrate creative exploration and pedagogy via technology and collaboration.

Tom Reardon

[@tomreardon3](https://twitter.com/tomreardon3)

Fitch High School/Youngstown State University, Ohio

Grand Hyatt San Antonio, Lonestar Ballroom A

624 **BUILD**

Using Handmade Fractal Cards to Generate Data for Algebra Explorations

10–12 Workshop

Learn how to use measurement and fractions to make engaging fractal cards. Use the cards to generate precise data while developing the concept of function. Represent characteristics of the model using symbols, tables, and graphs. Examine how the activities can be used to differentiate instruction. Classroom-ready materials will be available.

Teri Willard

Central Washington University, Ellensburg

Janet Shiver

Central Washington University, Ellensburg

Grand Hyatt San Antonio, Texas Ballroom E

625 **ASSESS**

Using Learning Maps to Reimagine Instruction and Redefine Assessment

6–8 Workshop

We will use concept maps to show how knowledge of functions develops. Our learning map models display alternate pathways students may take to construct understanding of prerequisite and target concepts. Built-in formative assessment tools help teachers identify knowledge gaps and revise instruction to meet learning outcomes.

Angela Broaddus

University of Kansas, Lawrence

Lindsey Weiland

University of Kansas, Lawrence

Nicki Lindner

University of Kansas, Lawrence

Grand Hyatt San Antonio, Texas Ballroom B

Thank you to the Program Committee members. Your time and dedication made this year's Annual Meeting a huge success!



626 **TECH****Using Simulations to Make Inferences: Come Learn How!****10–12 Workshop**

In this workshop, participants will increase their understanding of using simulations to make inferences through engaging in hands-on, classroom-ready tasks. Participants will also learn about appropriate teaching strategies, students' misconceptions while using simulations, and technology resources. Bring a laptop if you can!

Jeremy Strayer

Middle Tennessee State University, Murfreesboro

Jennifer Lovett

Middle Tennessee State University, Murfreesboro

Amber Matuszewski

Rutherford County, Murfreesboro, Tennessee

Henry B. Gonzalez Convention Center, 304A

627 **BUILD****Wait—What? Multiplication Is More Than Just Equal Groups?****3–5 Workshop**

Conceptual understanding of multiplication begins before students formally learn to multiply. Let's examine activities to demonstrate the learning progression of multiplication that can be immediately used in your classroom. We will engage in tasks and explore models designed to facilitate students' development of multiplicative reasoning.

Leslie Ceballos

@LDHirsh

Allen ISD, Allen, Texas

Meg Hearn

LearnZillion, Washington, D.C.

Henry B. Gonzalez Convention Center, 217C

628 **TLC****A Teaching Model for Mathematical Argument in the Elementary Classroom****3–5 Session**

This session provides a teaching model, illustrated with video examples, for making learning about mathematical argument a regular, ongoing part of instruction. The model engages students in a classroom routine that involves examining examples, articulating conjectures about what they notice, and using representations to construct arguments.

Susan Jo Russell

TERC, Cambridge, Massachusetts

Deborah Schifter

Education Development Center, Waltham, Massachusetts

Reva Kasman

Salem State University, Massachusetts

Henry B. Gonzalez Convention Center, 225

629 **TECH****Actively Engage Students in Content and Practices with Interactive Simulations****6–8 Session**

Interactive simulations are flexible tools for teaching content while also fostering engagement, reasoning, modeling, and sense making. Learn how to incorporate simulations into your classroom, facilitate inquiry-based activities, and engage students in mathematical practices. Take home new ideas and lessons you can implement immediately.

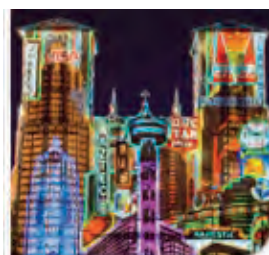
Amanda McGarry

@mcgarrymath

University of Colorado Boulder

Henry B. Gonzalez Convention Center, 214A


NCTM Central, located in the Exhibit Hall, has activities, lessons, sample journals, information about grant funding, and more—stop by!



630 TECH**Algebraic Functions, Computer Programming, and the Challenge of Transfer****8–10 Session**

Programming is just like math . . . or is it? It turns out they differ in significant ways, and prior efforts to teach algebra through programming have been disappointing at best. This session will explore the reasons for this, and describe the research behind an evidence-based intervention that uses a unique approach to address these differences.

Emmanuel Schanzer

 @bootstrapworld
Bootstrap, Alexandria, Virginia

Henry B. Gonzalez Convention Center, 008AB

631 A&E**BREAKING NEWS: Using Current Events to Develop Whole Students****10–12 Session**

Incorporating current events into the math curriculum empowers students not only to make sense of the world around them, but to challenge their beliefs about themselves and others. We will look at multiple strategies from leading discussions that focus on building the Standards for Mathematical Practice to full-scale project-based learning.

Andrew Browning-Couch

STEM School Chattanooga, Tennessee

Grand Hyatt San Antonio, Crockett CD

632 TECH**Challenging Precalculus Alternative Assessments Using the Free Online Desmos Calculator****10–12 Session**

Learn about two major precalculus projects that will transform your students and help them to learn and to understand what they are doing. There is a “huge” difference between “doing” mathematics and “understanding” mathematics. Come learn how to make that happen. If possible, bring your laptop or smart device to begin to experience this yourself.

Neil Cooperman

Millburn High School, Millburn, New Jersey

Stephanie Cooperman


School District of the Chathams, New Jersey

Henry B. Gonzalez Convention Center, 217D

633 TECH**Designing Online Playgrounds for Learning Mathematics****8–10 Session**

We share how teachers’ experiences with “online playgrounds” in a university course led to their use of online technology to broaden opportunities for student participation and to engage in formative assessment. We demonstrate how teachers can infuse video conferencing, social media, and online interactive tools to support students’ math learning.

Heather Johnson

 @dr_heatherlynn

University of Colorado Denver

Peter Hornbein

University of Colorado Denver

Dana Bryson

Evergreen Country Day School, Colorado

Henry B. Gonzalez Convention Center, 214C

Visit **nctm.org**
for lessons,
activities, and
teacher resources.



634 BUILD**Developing Essential Understandings of Addition and Subtraction****Pre-K–2 Session**

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

Jeremiah McGraw

Grant Wood Area Education Association, Cedar Rapids, Iowa

Amy Schemmel Keller

Grant Wood Area Education Agency, Cedar Rapids, Iowa

Grand Hyatt San Antonio, Crockett AB

635 PROF**Dive into Embedded Professional Learning Session Plans in Illustrative Mathematics’ New Curriculum****6–8 Session**

Do you collaborate with peers in grade level or grade band meetings for math teachers? Struggle to find math based content for your meetings that corresponds to what you are currently teaching and pushes your own learning forward? Check out the new professional learning session plans freely available as an open education resource.

Jody Guarino

@jody_guarino

Orange County Department of Education, Costa Mesa, California

Jennie Beltramini

Anacortes School District, Washington

Ellen Whitesides

Illustrative Mathematics, Tucson, Arizona

Henry B. Gonzalez Convention Center, Hemisfair 3

636 BUILD**Engaging Students in Rich and Powerful Mathematical Tasks****6–8 Session**

Engaging students in rich mathematical tasks will improve their reasoning and problem solving skills, their disposition towards mathematics, and their conceptual and procedural understanding. During this session, participants will be engaged in several rich mathematical tasks and will discuss how to design and enact rich and engaging tasks.

Stacy Reeder

University of Oklahoma, Norman

Grand Hyatt San Antonio, Presidio ABC

637 A&E**Evening the Playing Field through Development of Facts Fluency****6–8 Session**

Students lacking their math facts? Learn effective strategies to build number sense and fact fluency at the middle school level that are easy to implement and time friendly, giving all students access to grade level math. Leave with strategies to develop students’ mental math skills and ability to attend to structure that you can use the next day.

Ann Kim

Community Roots Academy, Aliso Viejo, California

Jane Noh

Community Roots Academy, Aliso Viejo, California

Henry B. Gonzalez Convention Center, 214B

638 A&E**Exploring Issues of Power, Privilege, and Opportunities to Learn Mathematics****Higher Education Session**

Participants will learn to foster meaningful conversations with preservice teachers on issues related to power, privilege, and social justice in mathematics teaching. Traditional (e.g., annotated bibliography of scholarly articles) and nontraditional (e.g., BuzzFeed quiz, video clips) resources for facilitating these conversations will be provided.

Harry Washington

Millersville University, Pennsylvania

Erin Moss

Millersville University, Pennsylvania

Grand Hyatt San Antonio, Republic ABC



Breaking Barriers: Actionable approaches to reach each and every learner in mathematics

Access. Equity. Empowerment.

Bring your team and engage in an innovative learning experience for mathematics education. With a focus on access, equity, and empowerment, and designed specifically for teams, you can experience the conference through three different themes:

- Reflecting on mathematics instruction in terms of access, equity, and empowerment
- Developing equitable mathematical teaching practices that empower students
- Learning new strategies to identify and remove barriers to access to high-quality mathematics

What You'll Gain—

- A deeper understanding of student agency, identity, social justice, culture, and language within the math classroom
- Tips on how to reflect on assumptions and deficit thinking about educational systems, students, and communities
- Relevant and responsive instructional practices in mathematics that take into account diverse learners
- Ways to foster positive mathematics identities.
- Methods to identify and overcome obstacles to ensure that each and every student has access to high-quality mathematics instruction
- Ways to empower your students to ask and answer critical questions about the world around them

639 BUILD

Fluency, Discourse, and the Standards for Mathematical Practice

3–5 Session

Fluency doesn't just happen! Let's consider together how the Standards for Mathematical Practice can enhance mathematical discourse and support students' development of mathematical fluency. How do purposeful questioning and the use of multiple representations strengthen discourse and support productive struggle?

Cathy Carroll

WestEd, Redwood City, California

Henry B. Gonzalez Convention Center, 303

640 BUILD

Increasing Discourse through Task Design in the Elementary Math Workshop

3–5 Session

Using research on student discourse, North Kansas City Schools will share how they increased productive talk and the rigor of tasks in elementary math workshops. This has deepened student understanding and resulted in significant increases in math state test scores and students' ability to accurately, efficiently, and flexibly compute mentally.

Chad Sutton

North Kansas City Schools, Missouri

Todd Hinnenkamp

North Kansas City Schools, Missouri

Lisa Friesen

North Kansas City Schools, Missouri

Grand Hyatt San Antonio, Bowie ABC

641 ASSESS

Journaling: A Tool for Developing Mathematics Identity

General Interest Session

Multiple studies have shown that when students reflect on their thinking and emotions in mathematics, especially through writing, they experience greater success. Math journal prompts and protocols support positive classroom culture as well as identity development. Teachers will leave with new tools they can use in their classroom.

Kemble Schnell

West Linn Wilsonville School District, Portland, Oregon

Kasi Allen

Lewis & Clark College, Portland, Oregon

Grand Hyatt San Antonio, Lonestar Ballroom E

642 TLC REFLECTION COVE

Juicy Tasks to Nourish Students' Mathematical Reasoning

Pre-K–2 Session

Participants will learn the characteristics of what we refer to as “juicy tasks” that engage young mathematicians in making sense of profound mathematics, allow a range of reasoning strategies, and build on students' daily experiences. We will discuss strategies for identifying and creating juicy tasks for teachers' own classrooms.

Cathery Yeh

Chapman University, Orange, California

Mark Ellis

California State University, Fullerton

Carolee Koehn Hurtado

University of California, Los Angeles (UCLA) Mathematics Project

Henry B. Gonzalez Convention Center, 221

643 **"M"****Leveraging the Math in Science Classrooms****General Interest Session**

Math is an integral part of science. By aligning math and science, teachers can work together to create opportunities for strengthening and solidifying the math concepts utilized in science classrooms. This session will focus on designing prompts that require students to apply their math understanding to support scientific arguments.

Rebecca Grainger

University of Pittsburgh, Pennsylvania

Laurie Speranzo

Institute for Learning, University of Pittsburgh, Pennsylvania

Grand Hyatt San Antonio, Texas Ballroom F

644 **ASSESS****LOCUS: A Formative Assessment Tool for Teachers That Is Informing State and National Assessments****6–8 Session**

This session will describe how the LOCUS assessments are having an impact on the way statistics is assessed on high-stakes assessments. Participants will gain access to all items and the online system that provides a formative assessment tool. Peer-reviewed commentaries that provide free professional development resources will also be shared.

Tim Jacobbe

University of Florida, Gainesville

Henry B. Gonzalez Convention Center, 205

645 **TLC****Make Math Talk Count: Creating Productive Struggle through Effective Communication****10–12 Session**

Who, what, why, when, and how is not just commonplace in language arts anymore. The more rigorous math content standards and practices require students to communicate and articulate learning. Justifying answers through mathematical discourse leads to deeper conceptual understanding and higher retention.

Kim Sadler

SpringBoard, The College Board, New York, New York

Lori Robinson

North East Independent School District, San Antonio, Texas

Grand Hyatt San Antonio, Travis CD

646 **TLC****Making Modeling Meaningful: Finding and Adapting Tasks for Grades 3–5****3–5 Session**

Where do we find interesting and mathematically rich modeling tasks for the elementary grades? Learn about finding and adapting tasks that will engage all students in the process of mathematical modeling. You will leave with activities to try in your classroom and tools to create tasks that draw on your students' knowledge and experiences.

Mary Carlson

Montana State University, Bozeman

Kimberly King

Bozeman Public Schools, Montana

Erin Farrell

Bozeman Public Schools, Montana

Henry B. Gonzalez Convention Center, 207B

Visit **NCTM Central** and join your peers in the math education community exploring new resources, renew your NCTM **membership**, shop the latest titles in the **Bookstore**, learn about grant funding through the **Mathematics Education Trust**, connect with colleagues in the **Networking Lounge**, and explore fun math activities in the **Math Corner**.



647 **PROF****Noticing and Wondering: A Feedback Approach for Collaboration****Coaches/Leaders/Teacher Educators' Session**

How can we shift our feedback after teacher observations from feeling evaluative toward a more inviting conversation about math teaching? Join me to learn about a language structure for inquiring about and discussing math teaching, practice this structure with short cases and video, and identify some lenses for guiding observations and feedback.

Sarah Roller

University of Alabama in Huntsville

Grand Hyatt San Antonio, Lonestar Ballroom C

648 **"M"****The Connectivity of Mathematics to Science in Elementary School****Coaches/Leaders/Teacher Educators' Session**

Creating lessons across mathematics and science can be a way to promote positive dispositions about mathematics. Planning and implementing engaging lessons that connect STEM concepts can be challenging. Come and learn more about the connectivity of mathematics to science and explore example of thematic integration of science in mathematics.

Susan Cooper

Florida Gulf Coast University, Fort Myers

Elif Safak

Florida Gulf Coast University, Fort Myers

Grand Hyatt San Antonio, Travis AB

649 **TLC** **REFLECTION COVE****The Struggle is Real: Tasks, Academic Status, and Productive Problem-Solving****8–10 Session**

Developing a culture of productive struggle in classrooms requires holistic vigilance. We often treat such problems in isolation: if only I had the right tasks, if only students demonstrated enough grit, if only. . . . We'll examine the relationship between quality tasks and student mindsets which together promote an environment of productive struggle.

Geoff Krall

New Tech Network, Napa, California

Henry B. Gonzalez Convention Center, Hemisfair 2

650 **"M"****Using Music Videos in the Key of Mathematics: Put STEAM in Your STEM!****General Interest Session**

Music videos provide an auditory and visual representation of important topics in mathematics which can be used in classes at ANY level. From the invertible music of Mozart to Kylie Minogue and Beyoncé, the structure of music forms a perfect analogue to mathematical concepts, even of the artist M. C. Escher. No background in music is necessary!

David Masunaga

Iolani School, Honolulu, Hawaii

Grand Hyatt San Antonio, Lonestar Ballroom F

651 **BUILD****Whole Group or Partial Group? It Matters When Kids Make Sense of Fraction Problems****3–5 Session**

Does it matter to students when solving multiplication and division fraction problems if the number of groups is a whole number or a fraction? This session will examine students' intuitive strategies for solving fraction multiplication and division problems that do not rely on shortcuts such as "multiply across" and "keep-change-flip."

Laura Kent

University of Arkansas, Fayetteville

Olof Steinhorsdottir

University of Northern Iowa, Cedar Falls

Henry B. Gonzalez Convention Center, 007D

652 **BUILD****Writing in Math: It's Not an Add-On****Higher Education Session**

Writing in math classes can be a powerful tool for both students and teachers. Over several semesters, we have infused different writing tasks into beginning college-level courses. Join a discussion about our tasks, successes, and lessons learned. Collect some practical ideas to incorporate writing into your already full curriculum.

Ingrid Peterson

University of Kansas, Lawrence

Susan Gay

University of Kansas, Lawrence

Grand Hyatt San Antonio, Lonestar Ballroom D

653 BUILD**“What Makes You Say That?”
Questioning That Promotes Thinking**
3–5 Workshop

Creating mathematicians focused on explanation, justification, reflection, and thinking begins with posing purposeful questions. What instructional strategies will the teacher use in crafting questions? What role will the student play in owning their learning? Engage in rich mathematical tasks and leave with a new mission.

Rob Nickerson

ORIGO Education, Earth City, Missouri

Henry B. Gonzalez Convention Center, 302AB**654 “M”****A Series of Fortunate Math LABS (or Out-of-Classroom Experiences)**
10–12 Workshop

Labs are an essential experiential learning component in science classes. Why can’t this happen in math class? This workshop looks at a series of simple math labs that take students out of the classroom to visualize math in hallways, staircases, the gymnasium, football fields and local parks to transform paper/pencil math to the real world.

Mark Couturier@tansinecossine
OCSB, Orleans, Ontario, Canada**Henry B. Gonzalez Convention Center, 304B****655 BUILD****Completing the Incomplete: Making Sense of Completing the Square Using Manipulatives**
8–10 Workshop

Participants will use algebra tiles to make sense of completing the square. This workshop will focus on collaboration to build a deeper understanding of the topic. Participants will also discuss student misconceptions, possible errors when completing the square, and how manipulatives can help students make sense of the process.

Erhan Haciomeroglu

University of Central Florida, Orlando

Heidi Eisenreich

Georgia Southern University, Statesboro

Aline Abassian

University of Central Florida, Orlando

Henry B. Gonzalez Convention Center, 304C**656 TLC****Geometry & Algebra: Easy Hands-On Math Activities and Games**
6–8 Workshop

Participants will learn easy, hands-on activities and games focused on coordinate geometry, algebraic expression of coordinates on lines, slope, perimeter, area, and volume. Participants will see real-life connections for geometry and algebra as well as their relationship to each other. Student samples and extensive handouts will be provided.

John Felling

Box Cars And One Eyed Jacks, Edmonton, Alberta, Canada

Henry B. Gonzalez Convention Center, 006C

657 BUILD

Does This Algorithm Make Me Look Fat? Addition and Subtraction in K–Grade 5

Coaches/Leaders/Teacher Educators' Workshop

Teachers and students need a deep command of place value, properties of operations and the relationship between operations for success in common core. Participants will trace the path of addition and subtraction vertically from K to 5, building the standard algorithm using the continuum of concrete–pictorial–abstract.

Kari Fiutak

Kenmore Tonawanda UFSD, Buffalo, New York

Henry B. Gonzalez Convention Center, 304A

658 A&E

Effective Teaching Practices in Linguistically Diverse Classrooms

6–8 Workshop

During this workshop, participants will have the opportunity to experience examples of teaching practices in classrooms where multiple languages are spoken while keeping high expectations and high cognitive demand. Scenarios and videos of real classrooms will be posed as teaching challenges, and participants will discuss possible solutions.

M. Alejandra Sorto

Texas State University, San Marcos

Alexander Rasche

Texas State University, San Marcos

Brittany Webre

Texas State University, San Marcos

Henry B. Gonzalez Convention Center, 217C

659 TLC

Encouraging Productive Struggle Using “What-If-Not” Problems in Geometry Class

8–10 Workshop

High school geometry students are typically exposed to proofs of the Pythagorean theorem. In this session, we will use Brown and Walter’s “What-if-not” strategy for formulating new problems when the conditions of the Pythagorean theorem are not met, leading to deeper understanding of the original theorem.

Roger Wolbert

Edinboro University, Pennsylvania

Henry B. Gonzalez Convention Center, 217A

660 A&E

Families and Mathematics: Strategies for Learning from and with Students' Families

3–5 Workshop

We share a series of family engagement sessions that featured examples of parents’ use of mathematics in their daily lives to launch into investigations of number conceptions and arithmetic operations. This bi-directional model that bridges parent assets and school mathematics helped to open discussions of learning with understanding.

Mayra Orozco

Price Elementary, Anaheim, California

Magaly Rodriguez

ACSD, Anaheim, California

Armando Martinez Cruz

California State University, Fullerton

Henry B. Gonzalez Convention Center, 006B

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SATURDAY

661 BUILD**Making Numbers Make Sense in the Early Years****Pre-K–2 Workshop**

The speaker will offer strategies, including the use of manipulatives, to help students build number sense, including: addition/subtraction skills, patterning, and the comparison of values (0–20) in the early years. Attendees will be actively engaged with “make and take” hands-on activities to utilize in their own class. Handouts will be provided.

Ellen Lauterbach

Marshall Cavendish Education, Tarrytown, New York

Henry B. Gonzalez Convention Center, 004

662 TECH**Old School Geometry****8–10 Workshop**

Using straightedge and compass, both physically and electronically, we will “do” geometry. Euclidean geometry is frequently taught by textbook and by example. However, putting theorems and postulates into action by constructing, investigating, and theorizing place us in Euclid’s classroom.

John Ashurst

[@kiltedcyclist](#)

Harlan Independent Schools, Kentucky

Lindsay Gold

University of Dayton, Ohio

Derek Sturgill

Ohio University, Athens

Henry B. Gonzalez Convention Center, 007C

663 BUILD**Pinecones + Beaver + Compass = Narnia? Nope, Math!****6–8 Workshop**

Do you ever think about how you can use your schoolyard to help students better understand math? Experiential education uses the natural world to teach essential math concepts. Participants will work in small groups to explore model lessons, then will have time to reflect on how they may use experiential education strategies in their own classes.

Lindsey Grundfast

Quarrybrook Outdoor Learning Center, Windham, New Hampshire

Henry B. Gonzalez Convention Center, 007A

664 TLC**Reasoning about Algebraic Concepts: Designing Tasks to Provide Opportunities for All Students****8–10 Workshop**

Participants will examine five algebra textbook problem sets and, based on the content, design tasks that provide access for all students, build on prior knowledge, and promote opportunities for students to reason and develop mathematical arguments. The presenters will support the participants in designing tasks and will share their created tasks.

Justin Boyle

University of Alabama, Tuscaloosa

Yi-Yin (Winnie) Ko

Indiana State University, Terre Haute

Henry B. Gonzalez Convention Center, 006A

665 BUILD**Statistics for the Redesigned SAT****10–12 Workshop**

The redesigned SAT assesses an increased number of statistics standards; One and two variable analysis, probability, and inference must now find a way into high school math curriculum. This session outlines four, activity-driven statistics units that aim to cover all of the standards needed for students to be successful on the SAT.

Lindsey Gallas

[@mrsgallasmath](#)

Kentwood Public Schools, Michigan

Luke Wilcox


Kentwood Public Schools, Michigan

Henry B. Gonzalez Convention Center, 007B

666 A&E**The Missing Parts of Understanding Fractions****3–5 Workshop**

While CCSSM and other state standards call for understanding fractions as parts of wholes, as measures, and as numbers themselves, educators struggle to develop their students' facility with fractions. Experience tasks that identify and build the underlying mental actions for making sense of fractions. Position your students for learning success.

Carolyn Olijnek

 @COlijnek

US Math Recovery Council, Apple Valley, Minneapolis

Christina Miller

US Math Recovery Council, Apple Valley, Minneapolis

Henry B. Gonzalez Convention Center, 305

667 "M"**Together Is Better! Using the Modeling Cycle to Connect Secondary Math and Science****8–10 Workshop**

Connecting math with science through modeling! Participants will be mathematicians as scientists. You will gather data, identify a pattern in the data, originate a mathematical model that is both descriptive and supports the underlying pattern, and defend claims and justify reasoning of the model. You will leave with materials to use in class.

David Leib

Wichita Public Schools, Kansas

Art Ballos

Wichita Public Schools, Kansas

Henry B. Gonzalez Convention Center, 217B

668 TECH**Using NCTM's Core Math Tools to Deepen Mathematical Connections in Statistics and Functions****10–12 Workshop**

NCTM's Core Math Tools will be used to deepen and connect content knowledge between the CCSSM's conceptual categories statistics and functions. Activities will focus around the use of simulation in statistics and model fitting with functions. Participants will explore three tasks, common misconceptions, and questions used to develop CCSSM standards

Basil Conway

Jacksonville State University, Alabama

Henry B. Gonzalez Convention Center, 006D

669 ASSESS**Using Rubrics to Engage Students with the Mathematical Practices****6–8**

Assessing student understanding of standards is an integral part of instruction. It is important to create a culture of active engagement with the math practice standards. In this workshop, participants will engage in a rigorous math task as facilitators and provide teacher feedback and allow for student self-reflection using a math practices rubric.

Veronica Ernandes

Aspire Public Schools, Los Angeles, California

Geneva Europa

Aspire Public Schools, Oakland, California

Rebecca Horwitz

The Level Playing Field Institute, Oakland, California

Henry B. Gonzalez Convention Center, 005

Be a speaker! Submit your proposal now for the 2018 Annual Meeting & Exposition at **NCTM.org/speak**. Deadline is May 1.



9:45 A.M.–11:00 A.M.

670 **TLC**

What's Next? Building Communities In the Senior Math Class—Thinking Round Open Tasks

10–12 Session

There is lots of work on building math communities for primary and intermediate grades, but what happens in a senior math class? In this session, teachers will engage in extending open problems to promote rich math communities in a senior setting and consider how to use observational data gathered from students for assessment.

Velisa Anusic

@MathManAnusic

Peel District School Board, Toronto, Ontario, Canada

Henry B. Gonzalez Convention Center, 224

CANCELED

11:00 A.M.–12:00 P.M.

671 **BUILD**

Addition/Subtraction Number Talks: Building Conceptual Understanding and Computational Fluency

Pre-K–2 Session

We'll share what a number talk is, how number talks can be implemented in K–3 classrooms, and how they have impacted students' understanding and computational fluency, focusing primarily on addition and subtraction. Student work will be shared.

Esther Billings

Grand Valley State University, Allendale, Michigan

Kathryn Coffey

Grand Valley State University, Spring Lake, Michigan

Grand Hyatt San Antonio, Bowie ABC

672 **TLC**

Algebra in Middle School: Engaging and Preparing Diverse Students for the Challenge

6–8 Session

Girls and students of color often are not expected or given opportunities for highest-level math, but skipping topics leaves gaps. Explore ways to provide greater access for students to thrive in middle school algebra and beyond with an engaging, challenging compacted curriculum. Activities focus on coherent development of algebraic thinking across grades.

Linda Sheffield

Emerita, Northern Kentucky University, Fort Thomas

Henry B. Gonzalez Convention Center, Hemisfair 3

673 **TLC**

Between Mindset and Performance: Building the Skills and Habits of Good Mathematicians

General Session

A growth mindset, the belief that performance can grow, is critical for driving student success in math. But belief alone is insufficient. Students need skills and dispositions of effective math learners. This session digs into reinforcing growth mindset by systematically developing the strategies and behaviors that lead to improved performance.

David Dockterman

Harvard Graduate School of Education/Houghton Mifflin Harcourt, Carlisle, Massachusetts

Grand Hyatt San Antonio, Crockett AB

674 **TLC**

Constructions for Calculus: Meaningful Math Models

10–12 Session

Participants will construct 3-D models to illustrate basic concepts from Calculus AB and BC. Emphasis will be placed on the underlying calculus that supports the physical models. Suggestions for assessing and adapting the models to alternative topics will be discussed.

Kathy VanderBee

East Kentwood High School, Kentwood, Michigan

Barbara Montgomery

Kentwood Public Schools, Kentwood, Michigan

Grand Hyatt San Antonio, Lonestar Ballroom C

CANCELED

SATURDAY

675 **TLC****Design and Refine: Constructing Tasks to Spark Student Curiosity****General Interest Session**

What happens after you start using 3-act tasks in class? You begin to see math everywhere. Move from ideas to implementation by identifying the elements and arrangement that is most likely to engage students. We will follow one task as it is reiterated in response to students. Leave with questions to guide the process as you create or modify tasks.

Molly Daley

🐦 @mdaley15

Educational Service District 112, Vancouver, Washington

Lindy Sims

Evergreen Public Schools, Vancouver, Washington

Jaime Rosa

Evergreen Public Schools, Vancouver, Washington

Grand Hyatt San Antonio, Travis AB

676 **A&E****Empowering Digital Collaboration in 3 Acts****General Interest Session**

How do we foster collaboration where all voices are heard? Can the most unlikely contributors supply ideas, while the brightest seek those insights? Technology is useful in ensuring all students routinely contribute equitably and improve their own capacity to problem solve. We will explore digital tools for collaboration on complex 3-act problems.

Cory Henwood

🐦 @coryhenwood

Diamond Ranch Academy, Hurricane, Utah

Henry B. Gonzalez Convention Center, 008AB

677 **TECH****Flipping Calculus: A High School Educator's Experience****10–12 Session**

Participants can learn more about flipped learning while I share my experiences about completely flipping AP Calculus AB. I will explain how I structure my class, how I create my materials, and what students and I see as the benefits and drawbacks of this format. Experienced flippers are invited to share ideas based on participant discussion.

Sarah Volk

Fargo Public Schools, North Dakota

Henry B. Gonzalez Convention Center, 214C

678 **BUILD****Fractions, Ratios, and Proportions, Oh My!****General Interest Session**

Come examine connections between understanding fractions in elementary grades and ratios and proportions in middle school. Mathematical connections and flexible ways of thinking about fractions, ratios, and proportions will be emphasized. Tasks and classroom videos will be presented which can be applied to participants' classrooms.

Taylor Wenzel

🐦 @taylor_wenzel

University of Central Florida, Orlando

Janet Andreassen

University of Central Florida, Orlando

Edward Nolan

Towson University, Maryland

Grand Hyatt San Antonio, Presidio ABC

679 **TLC****I Asked a Question—Now What?****6–8 Session**

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

Genni Steele

Math Solutions, Sausalito, California

Mary Mitchell

Math Solutions, Sausalito, California

Henry B. Gonzalez Convention Center, 301

680 **BUILD****Is Carrying a "9" Heavier Than Carrying a "1"? Saying What We Mean and Meaning What We Say****General Interest Session**

Does "reducing" a fraction really make it smaller? Do we really ever intend to give back what we "borrow"? In this session, we will examine vocabulary and expressions that do not precisely represent the mathematics to which they refer and consider more precise language that can be used to express and justify our thinking.

Pamela Halpern

Salem State University, Massachusetts

Cara Goldberg

Lexington High School, Massachusetts

Grand Hyatt San Antonio, Republic ABC

681 **TLC****Learning Cycles and Mathematical Practices in the Classroom Math Talk Community****3–5 Session**

A nurturing math talk community has learning cycles that advance student thinking as students explain methods using their own math drawings. We will discuss such cycles and how they support differentiation but also learning by all. Participants will discuss how videos show the mathematical practices and coaching by students and teachers.

Karen Fuson

Consultant, Fallbrook, California

Robyn Decker

Consultant, Holland, Michigan

Grand Hyatt San Antonio, Lonestar Ballroom D

682 **BUILD****Nurturing Early Algebraic Thinking in Pre-K through Grade 2****Pre-K–2 Session**

This session offers practical methods for teaching algebraic thinking at the early childhood level. The presenters will share ideas and classroom-ready activities designed to help support pre-K–2 teachers in providing appropriate and challenging instruction to develop the algebraic thinking of students in early elementary classrooms.

Edel Reilly

Indiana University of Pennsylvania

Joann Migyanka

Indiana University of Pennsylvania

Henry B. Gonzalez Convention Center, 303

Use **#NCTMannual** to stay connected with other attendees on Twitter, Facebook, and Instagram.

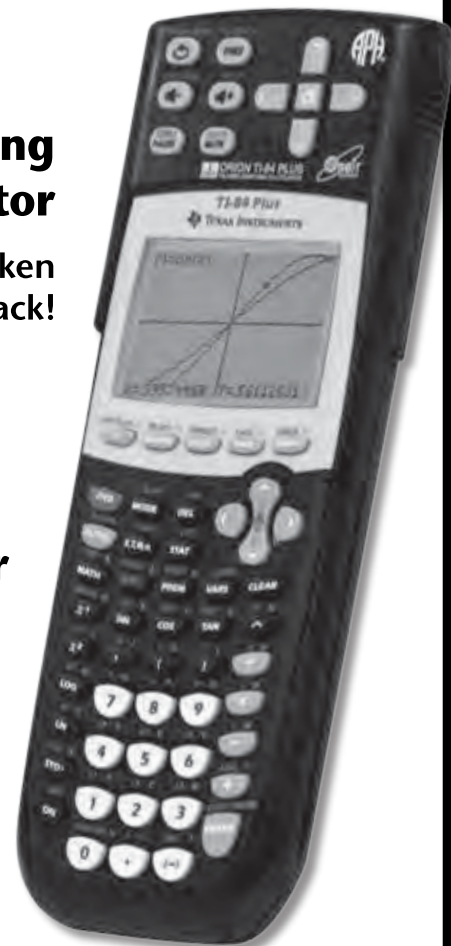


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683 **TECH****Projecting Student Success: Making Project-Based Learning Work in a Math Classroom****6–8 Session**

While project-based learning is becoming more and more popular in schools across the country, many math teachers are being told “math is just different” and not given many resources or ideas on how to successfully implement project-based learning. This session will focus on one math teacher’s pursuit to bring PBLs to life in her math classroom.

Maida Russell

[@MaidaRussell1](#)

Springfield Public Schools, Missouri

Henry B. Gonzalez Convention Center, 217D

684 **BUILD****Reaching Students from Middle School through College with a Conceptual Approach to Algebra****General Interest Session**

Factoring, rational expressions, exponents, and other algebra topics have left many students who learned by procedural methods with knowledge gaps. We will show how conceptual learning can be used in middle school to college calculus classrooms to build strong fundamentals and improve student work. Hands-on and technology-supported methods will be shared.

Jessica Pfeil

Choate Rosemary Hall, Wallingford, Connecticut

Gillian Curran

Hamlin School, San Francisco, California

Grand Hyatt San Antonio, Lonestar Ballroom E

685 **BUILD****Set Your Sights High: Teaching Arithmetic with an Algebra Lens****3–5 Session**

Algebra readiness is a hot topic. This session supports teachers in developing ways of thinking that underlie both arithmetic and algebra. Experience how to engage your students in exploring the laws of arithmetic with numbers and representations. While focusing on core content, you can optimize students’ learning and and foster algebra readiness.

Amy Mayfield

Math Solutions, Sausalito, California

Lu Ann Weynand

Math Solutions, Sausalito, California

Grand Hyatt San Antonio, Texas Ballroom F

686 **“M”****STEAM: Using Mathematics to Put the A in STEM****General Interest Session**

Creativity is at the heart of innovation. In this session, we connect visual and performing arts standards with mathematics standards in K–6. The intention is to give access to all students, in particular those from low socio-economic backgrounds, English language learners, and students with special needs to academic achievement through arts integration.

Diane Kinch

TODOS: Mathematics for ALL, Claremont, California

Grand Hyatt San Antonio, Lonestar Ballroom F

687 **BUILD****The Difference between a Number Talk and a Lesson****Pre-K–2 Session**

The power of a number talk is that the student does the thinking instead of following the teacher’s thinking. How do we support children’s growth in computational proficiency without thinking for them?

Kathy Richardson

Math Perspectives Teacher Development Center, Bellingham, Washington

Henry B. Gonzalez Convention Center, 221

688 **TECH****Turn Up the Feedback****General Interest Session**

It's not surprising that rich, focused, and timely feedback is a key component in student learning. We see that in research, in brain science, and especially in our classrooms. We'll look at four applications—Google Forms, Classkick, Kahoot, and Evernote—but more importantly at four moments in the learning process that are enhanced by feedback.

Bill Doherty

Campolindo High School, Moraga, California

Henry B. Gonzalez Convention Center, 205

689 **A&E****Using the Concrete-Representational-Abstract Technique to Teach Algebra to Students Who Are Struggling****6–8 Session**

Participants attending this session will learn how to teach introductory algebra to struggling students by implementing the concrete-representational-abstract technique. Specifically, individuals will learn how to use manipulatives and hands-on activities for teaching algebraic expressions and solving equations at the concrete and pictorial level.

Joseph Sencibaugh

Webster University, Saint Louis, Missouri

Brooke Callan

Webster University, Saint Louis, Missouri

Brennen Almus

Webster University, Saint Louis, Missouri

Henry B. Gonzalez Convention Center, 225

690 **A&E****Assisting Struggling Learners in Problem Solving through Self-Regulation****Pre-K–2 Burst**

This presentation will discuss how the problem-solving performance and solution accuracy of first-grade students at risk for mathematical learning difficulties (MTSS/RTI Tier 2) increased after they learned to self-regulate during the problem-solving process using the metacognitive based I-THINK problem-solving framework.

Jeremy Lynch

Slippery Rock University, Pennsylvania

Henry B. Gonzalez Convention Center, 004

691 **TECH****Computational Thinking in School Mathematics: It's Elementary!****3–5 Burst**

We will share three activities that connect computational thinking with elementary school mathematics, including the geometry of polygons, fractions, and number stories. We will show how using Scratch programming and “unplugged” activities will help engage students to work collaboratively and productively.

George Reese

[@msteageorge](#)

MSTE at University of Illinois, Champaign

Carla Strickland

UChicago CEMSE, Chicago, Illinois

Wendy Maa

Kenwood Elementary School, Champaign, Illinois

Henry B. Gonzalez Convention Center, 006D

692 PROF**Departmentalized in Upper Elementary:
Why It Is Great to Be THE Math Teacher****3–5 Burst**

Ever wonder what would happen if you could teach math all day? You will see how one urban Title 1 school departmentalized in fourth grade, how it benefited the students and the teachers, and the exciting things that happened in the math classroom as a result!

Melissa Crowley

🐦 @MCrowley522

Ritenour School District, St. Louis, Missouri

Henry B. Gonzalez Convention Center, 005

693 ASSESS**Desmos + Algebra 1 = Deep
Understanding x Fun****8–10 Burst**

Learn how we used the online graphing calculator Desmos to make our algebra 1 students look more deeply into linear equations and linear inequalities. Students were able to dive deeper into understanding the “why” behind the concepts. We will provide the projects, samples, and rubrics we used.

Stacy Remphrey

🐦 @StacyRMath

Unionville-Chadds Ford School District, Kennett Square, Pennsylvania

Glen Lewis

Unionville-Chadds Ford School District, Kennett Square, Pennsylvania

Henry B. Gonzalez Convention Center, 007B

694 TLC**Go Beyond Explaining! Types of and
Purposes for Elementary Mathematical
Writing****General Interest Burst**

You may have your students regularly write in math class, but what are the purposes for this writing? Come learn about new recommendations for four types of writing and their various purposes that have elementary students reason and communicate mathematically. Walk away with insights about how to leverage writing to enhance student learning.

Tutita Casa

University of Connecticut, Storrs

Madelyn Colonnese

University of Connecticut, Storrs

Henry B. Gonzalez Convention Center, 305

695 TLC**High School Teachers' Perspectives
on Efforts to Implement Discourse
Techniques****10–12 Burst**

High school teachers participated in a semester-long professional development course focusing on discourse. After the course, four teachers participated in a research study where they watched themselves teach and they reflected on their beliefs and efforts to facilitate discussions with their students. Learn about their challenges and successes!

Cara Goldberg

Lexington High School, Massachusetts

Henry B. Gonzalez Convention Center, 006C

Attending the meeting is just the beginning! Engage with featured speakers, access additional material, network with peers, and much more on the extended meeting experience website at meetings.nctm.org.



696 **PROF****Learning to Teach Mathematical Argumentation through Successive Approximations of Practice****Coaches/Leaders/Teacher Educators' Burst**

Teachers need support in helping students “construct viable arguments and critique the reasoning of others.” Several studies discuss the importance of teachers having professional development experiences proximal to new practices. We’ll share our work in the NSF-funded Bridging project and activities that simulate argumentation teaching practices.

Jennifer Knudsen

SRI Education, Austin, Texas

Harriette Stevens

Mathematics Education Group, San Francisco, California

Teresa Lara-Meloy

SRI International, Menlo Park, California

Henry B. Gonzalez Convention Center, 007A

697 **“M”****Logarithmic Earthquake Project: An Algebra 2 Project with Real Applications****10–12 Burst**

We will discuss the ins and outs of a project on earthquakes that ties into the logarithms unit of algebra 2 as well as on issues facing society today. We’ll show examples of student work and how to differentiate the project. Attendees will walk away from the session with a shared Google folder with all materials needed to implement the project.

Tanisha Fitzgerald-Williams

Notre Dame High School, San Jose, California

Beverly Heigre

Notre Dame High School, San Jose, California

Henry B. Gonzalez Convention Center, 217B

698 **TLC****Notecards Rule! Linking Length and Number Sense****3–5 Burst**

Can a 4-by-6 notecard be used to create all the lengths on a ruler? Help your students compose and decompose numbers while examining relationships evident on a simple rectangular notecard. Problem-solving, reasoning, and explanation are abundant in this hands-on, minds-on activity that can be engaging for students of many levels and abilities.

Bob Mann

Western Illinois University, Macomb

Anita Reid

Lewistown High School, Lewistown, Illinois

Henry B. Gonzalez Convention Center, 304A

699 **TECH****Online Technology Training for K–16 Math Teachers****Coaches/Leaders/Teacher Educators' Burst**

Discover how a learning-by-design approach with self-selected technologies (GeoGebra, TinkerPlots, Virtual Manipulatives, Applets, Calculators, SketchUp, Scratch, etc.) supports teachers as they create, peer review, implement, and reflect on technology-integrated lessons. Learn about which technology frameworks teachers prefer.

Kathryn Shafer

Ball State University, Muncie, Indiana

Henry B. Gonzalez Convention Center, 007C

700 **TLC****Purposeful Planning Leads to Productive Discourse****General Interest Burst**

This session will explore and expand upon “The Five Practices for Orchestrating Productive Discussions.” Participants will learn simple planning techniques that will enable them to better facilitate mathematical discussions, minimize in-the-moment teaching decisions, and maintain a student-focus while also ensuring the learning goals are achieved.

Jessica de la Cruz

Assumption College, Worcester, Massachusetts

Henry B. Gonzalez Convention Center, 224

701 **TLC****The First 10 Minutes Sets the Stage****6–8 Burst**

Join us as we share how we get students engaged in the first few minutes of class. Each day of the week we focus on different skills to improve number sense, generalize patterns, use appropriate math vocabulary, and reflect on student learning. Leave with new ideas and a great format for setting the stage for a successful class period.

Elizabeth Warren

Estacada Middle School, Oregon

Sally Wood

Estacada Middle School, Oregon

Henry B. Gonzalez Convention Center, 304B



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702 **BUILD****The Progression of the Number Bond****3–5 Burst**

Number bonds are models used to show part-part-whole relationships and can be used from K–5 as students manipulate whole numbers and decimal fractions. Having a familiar model as students move through the grades will help them conceptually understand the part-part-whole relationship as they work with increasingly complex math problems.

Soo Jin Lu

Great Minds, Washington, D.C.

Henry B. Gonzalez Convention Center, 006B

703 **PROF****Thinking Outside the Lunchbox:
Starting with a Book Study****Coaches/Leaders/Teacher Educators' Burst**

Have you ever wanted to do a book study in your school or district, but struggled to answer: Who? When? How? Join us to learn about our first year providing a voluntary book study of *Principles to Actions* in two middle and two high schools. We will discuss grants, resources, lessons learned, and action plans to move each building (and you) forward!

Diona Cozzolino

@dcozzolino

Madison City Schools, Alabama

Sarah Roller

University of Alabama in Huntsville

Henry B. Gonzalez Convention Center, 302AB

704 **BUILD****A Fruity Investigation Featuring Data
and Measurement****3–5 Burst**

This presentation illustrates how produce from a school garden can engage grades 3–5 students in attending to precision and modeling while learning content about measurement and data. The instruction responds to *Principles to Actions* by connecting mathematics to the real world and incorporating other disciplines; in this instance, science.

Hannah Rae Stone

West Virginia University, Morgantown

Jim Rye

West Virginia University, Morgantown

Henry B. Gonzalez Convention Center, 214D

705 BUILD**Twelve Creative Activities for the Middle School Math Teacher****6–8 Burst**

This session will focus on sharing twelve instructional strategies and activities that teachers can immediately implement in their classrooms. The strategies will include templates and lesson plans of hands-on activities that help students build strong, conceptual understandings of course content.

Eric Shippee

College of William and Mary, Williamsburg, Virginia

Marguerite Mason

College of William and Mary, Williamsburg, Virginia

Samuel Rhodes

College of William and Mary, Williamsburg, Virginia

Henry B. Gonzalez Convention Center, 006A**706 BUILD****Using Number Talks to Transform Instructional Practice****3–5 Burst**

Participants will practice number talks as students. Experiences of the presenter using number talks to transform teaching practices will be shared.

Brandon Baner

Lipscomb University, Nashville, Tennessee

Henry B. Gonzalez Convention Center, 217A**707 PROF****Virtual Growth: Building Capacity with Bug-in-the-Ear****General Interest Burst**

Explore an alternative approach to attending professional developments, observing classrooms, and providing feedback through a virtual environment. Discuss how Skype and Facetime can enhance teacher development and strengthen knowledge of content and students during real-time instruction.

Vernita Glenn-White

Stetson University, Deland, Florida

Henry B. Gonzalez Convention Center, 304C**708****Closing Keynote****From Fermat's Last Theorem to Homer's Last Theorem****General Interest Session**

Best-selling British author Simon Singh discusses his books and how they can be used in the classroom to inspire students. He will cover *Fermat's Enigma* (the first book about mathematics to become a No. 1 bestseller in the U.K.), *The Code Book* (a history of cryptography), and *The Simpsons and Their Mathematical Secrets* (an examination of the mind-blowing mathematics hidden in the world's most successful TV show).

Simon Singh is a science writer and broadcaster based in London. His books include *Fermat's Enigma*, *The Code Book*, *Big Bang: The Origin of the Universe*, *Trick or Treatment?*, and *The Simpsons and Their Mathematical Secrets*. His BBC documentary about *Fermat's Last Theorem* won a BAFTA award and an Emmy nomination. In 2003, for services to science education, Queen Elizabeth awarded him an MBE (member of the Most Excellent Order of the British Empire), which means that he has to go to bed wearing a suit of armor. (The bit about the armor is not actually true.)

Simon Singh

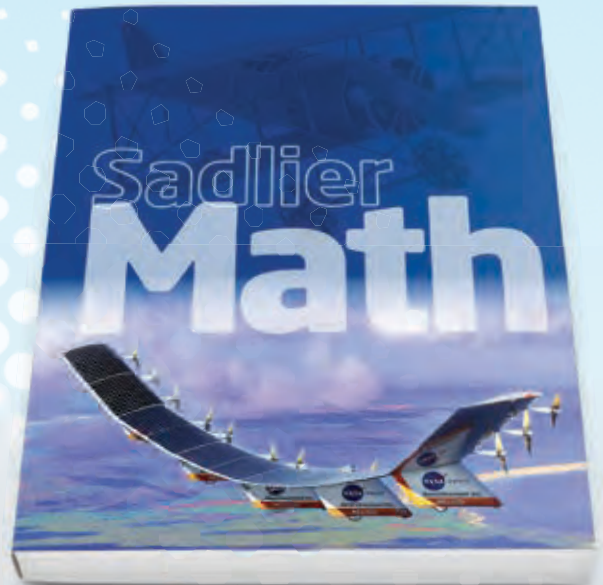
Science Writer, United Kingdom

Henry B. Gonzalez Convention Center, Stars at Night 2&3

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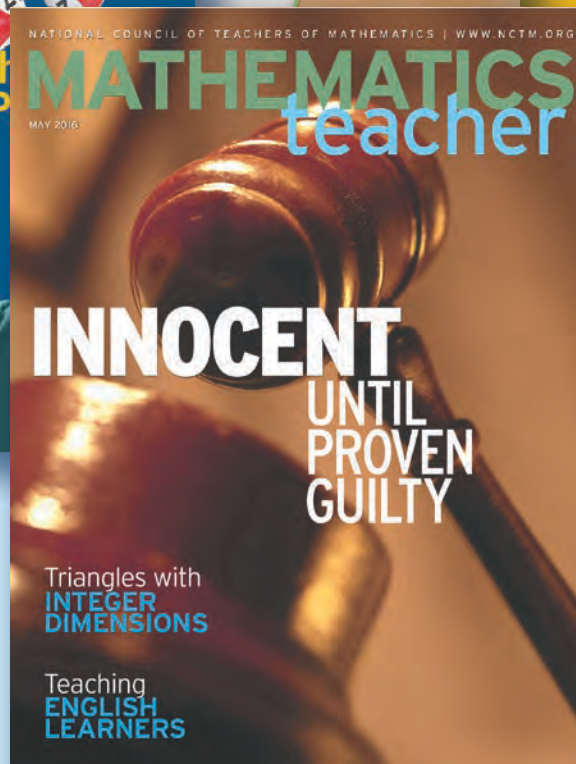
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GENERAL
INFORMATION

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Whether you're a teacher, a coach, a department chair, or a school or district administrator, Developing Mathematical Ideas (DMI) will enable you to deliver rich and rewarding seminars to support teacher understanding and student learning.

NEW | Number and Operations, Part 1: Building a System of Tens: Calculating with Whole Numbers and Decimals

BY DEBORAH SCHIFTER, VIRGINIA BASTABLE, AND SUSAN JO RUSSELL


The first module in the seven-part DMI Series, this title engages participants in a collaborative learning experience. The thirty cases provide the basis of each session's investigation of specific mathematical concepts and teaching strategies.

The **online facilitator's package** contains everything necessary to prepare for and lead the seminar, including access to the casebook content and classroom videos.

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Casebook

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Stock #15032 List Price: \$50.95 / **Member Price: \$40.36**

COMING SOON | Number and Operations, Part 2: Making Meaning for Operations: In the Domains of Whole Numbers and Fractions

BY DEBORAH SCHIFTER, VIRGINIA BASTABLE, AND SUSAN JO RUSSELL


In this second module of the seven-part DMI Series, participants examine the action and situations modeled by the four basic operations. The seminar begins with a view of young children's counting strategies as they encounter word problems, moves to an examination of the four basic operations on whole numbers, and revisits the operations in the context of rational numbers.

The **online facilitator's package** contains everything necessary to help coaches, university teacher educators, or those who are teachers themselves prepare for and lead the seminar successfully with participants who enter with a range of prior knowledge and experience.

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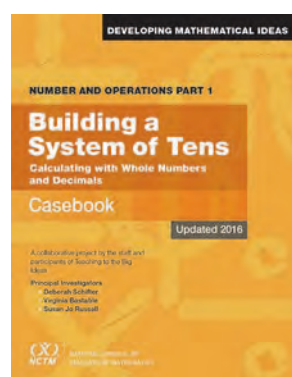
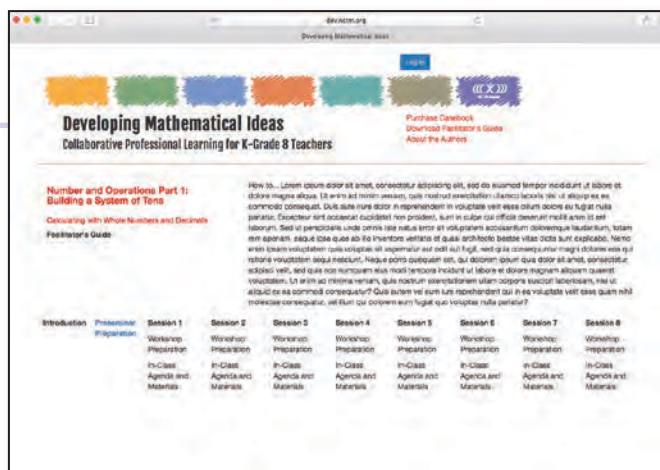
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The DMI series emerged from decades of work in mathematics teacher professional development on the part of its creators, and continues to renew itself and remain relevant in this new online version by incorporating its connections to the Common Core State Standards for Mathematics, revising content on the basis of the observations and insights from the field, and keeping up to date with the latest research.



"Our teachers love DMI seminars. The seminars provide them with an opportunity to dig deeply into important mathematics content ... teachers here say that it was what they learned in our DMI seminars that helped them transform their teaching."—LINDA RUIZ
DAVENPORT, *Director of K-12 Mathematics, Boston Public Schools*

ADDITIONAL MODULES:

Measuring Space in One, Two, and Three Dimensions

Examining Features of Shape

Reasoning Algebraically About Operations: In the Domains of Whole Numbers and Integers

Patterns, Functions, and Change

Modeling with Data



Tips for a Rewarding Annual Meeting & Exposition

- **Attending the meeting is just the beginning!** Engage with featured speakers, access additional material, network with peers, and much more on the extended meeting experience website at meetings.nctm.org.
- Access the conference app for program and speaker information, to connect with other attendees, and to share your feedback. Visit www.nctm.org/confapp.
- Access speaker handouts and build your schedule at www.nctm.org/planner.
- Become familiar with the layout of the Henry B. Gonzalez Convention Center and the Grand Hyatt by reviewing the **floor plans** on pages 199–205.
- Check for updates, and for full or cancelled sessions, through the conference app or **program updates screens** located in the lobbies of the convention center and the Grand Hyatt.
- Attend the **Mathematics Education Trust Celebración Reception** on Wednesday evening after the Opening Session to toast the 2017 NCTM Lifetime Achievement Award recipients, and mingle with mentors, colleagues, and friends (tickets can be purchased through registration; limited supply).
- Don't miss **ShadowCon** at 5:00 p.m. on Thursday, April 6. As it has become more and more popular, over the past three years we've made it part of the NCTM Annual Meeting experience.
- Check out the **Reflection Coves**, where highlighted and invited speakers will continue the conversation from their sessions in a more informal setting. You must be present at their sessions to receive information about the speakers' locations. Board members, Affiliate Relations Committee members, and the President and Immediate Past President will also spend time in the coves discussing topics of interest with attendees. There will also be three **Math Teachers' Circle coves**, one for K–5 mathematics one for 6–8 mathematics, and another for 9–12 mathematics.
- Visit us in **NCTM Central** at the Exhibit Hall entryway. Join the community of educators exploring the many NCTM resources designed to meet your mathematics teaching challenges: Member Services, where you can pick up free resources and learn more about how NCTM can help you professionally; the Mathematics Education Trust desk, where you can inquire about grant, scholarship, or award funding available to you; the NCTM Bookstore, where you can browse the latest titles; and the Networking Lounge, where you can enjoy free Wi-Fi and connect with other attendees.

- Plan to spend some quality time making new connections and exploring the “hands-on, minds-on” math education offerings in the Networking Lounge. There will be 20-minute “mini-sessions” ranging from serious play with math toys to learning how to write or review articles for NCTM journals; the **Math Corner** will have plenty of hands-on tools for explorations, rich tasks, and readings to mull over either in the Networking Lounge or to carry with you after the conference; and featured speakers will be hosting smaller, intimate conversations following up on their sessions, along with NCTM editors and authors.
- Visit the **Exhibit Hall**, where more than 200 exhibitors will share the latest educational products.
- Stop by the **City Information Desk** in the registration area of the Exhibit Hall for information on Alamo City.
- Stay connected with other Annual Meeting attendees by using **#NCTMannual** on Twitter, Facebook, and Instagram.
- If you are attending the conference with colleagues, attend different presentations and share your learned knowledge after the conference.
- Be sure to silence cell phones during presentations.
- The more you participate in the presentations, the more you will get from the conference.
- Be safe! Remove your name badge when you leave the conference facilities at the end of the day.
- Tell us about your conference experience by responding to the post-conference online survey.

Research Conference

The Research Conference, jointly sponsored by the NCTM Research Committee and the Special Interest Group on Research in Mathematics Education of the American Educational Research Association, will take place Monday–Wednesday, April 3–5, at the Henry B. Gonzalez Convention Center. The Research Conference Registration Area will be located on the second-floor Park View lobby. Separate registration is required to attend Monday and Tuesday of the Research Conference. More information is available at www.nctm.org/researchconference. Stay connected with other Research Conference attendees by using **#NCTMrc** on Twitter, Facebook, and Instagram.

Registered NCTM Annual Meeting attendees may attend Wednesday's Research Conference presentations at no extra charge with their Annual Meeting badge. The Wednesday program includes Linking Research and Practice sessions, with the Linking Research and Practice Plenary at 10:00 a.m. Concurrent sessions begin at 8:30 a.m. and continue until 4:00 p.m.

Technology at Your Fingertips

Wi-Fi Access

The Henry B. Gonzalez Convention Center and the Grand Hyatt hotel offer complimentary wireless throughout the lobby areas.

Conference App

The NCTM conference app, available on Apple and Android mobile devices, as well as a mobile Web app for Windows Mobile and BlackBerry devices, keeps you connected with every aspect of the Annual Meeting. The free app allows you to search sessions, speakers, and exhibits; view the Exhibit Hall floor plan; highlight your favorite presentations; get a Twitter feed update (official Twitter hashtag #NCTMannual); rate presentations, and connect with other attendees. Visit www.nctm.org/confapp for more information.

Presentation Handouts

Attendees can access available electronic presentation handouts through the conference app and online planner.

Online Planner

The online planner is a great way to search the conference program book, set up your schedule, and download presentation handouts. The online planner is up to date with the latest program changes and presentation information. Visit www.nctm.org/planner.

Program Updates

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

Registration and Access to Presentations

Registration will be located in the Henry B. Gonzalez Convention Center Exhibit Hall 3/4. You must wear your badge to enter all presentations and the NCTM Exhibit Hall. You will need to show a picture ID to have your badge reprinted.

By registering for the NCTM 2017 Annual Meeting & Exposition, participants grant NCTM the right to use, in promotional materials, their likeness or voice as recorded on, or transferred to videotape, film, slides, audiotape, or other media.

NCTM Central

Make your meeting experience complete with a visit to NCTM Central in Exhibit Hall 3/4 of the Henry B. Gonzalez Convention Center during exhibit hours.

Learn how NCTM supports you and the field of mathematics education:

- Get your free take-home activities, sample journals and more at **Member Services**. Take the opportunity to update your membership information and learn about your benefits.
- Discover available funding and resources to support you in your career and professional development through the **Mathematics Education Trust (MET)**.
- Visit with **The Math Forum** and learn about online resources and services, such as Problems of the Week, Ask Dr. Math®, T2T®, Powerful Problem Solving and more.
- Experience NCTM's **Classroom Resource Collaboration Center** and learn how you can help us gather, connect, and organize high-quality resources with teacher support based on real teachers' experience.
- Connect with peers, social media, speakers, NCTM journal editors and authors in the **Networking Lounge**. A presentation schedule is available on the conference app.
- The Math Forum and NCTM host the **Math Corner**, a place to spend time engaging in math explorations with friends new and old. We'll have math crafts to make, tools and toys to explore, problems and scenarios to notice and wonder about, Powerful Problem Solving activities to read about and take home, and more. Bring your own math explorations and questions, whether it's a task from a session you want to collaborate on further, a favorite task from your own classroom, or something that's got you stumped!

Your Opinion Counts

Thank you for attending the NCTM 2017 Annual Meeting & Exposition. In the days after the Annual Meeting, you will receive an e-mail asking you to evaluate your conference experience. Please complete the conference attendee 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.

Bookstore

Save 25% off the list price on all purchases made at the on-site NCTM Bookstore, located in Exhibit Hall 3/4 of the Henry B. Gonzalez Convention Center. View firsthand all the publications that will help you in your teaching career. Also, find a variety of specialty products that make great gifts, prizes, and incentives to spread the word about the importance of mathematics and that share your passion for the field. Preview the store at www.nctm.org/catalog.

Note on Sales Tax Exemptions: To qualify for sales tax exemption in the NCTM Bookstore, you must furnish a copy of a Texas tax exemption certificate, issued by the state, at the time of purchase. The law requires NCTM to keep a copy of the certificate, which we cannot return to you. You must pay with a purchase order, check, or credit card from the school to which the exemption certificate is issued. NCTM cannot accept personal checks, personal credit cards, or cash in conjunction with tax exemption certificates.

The NCTM Bookstore is not equipped to handle shipping from the meeting site. A UPS Business Office, located at the front entrance of the Henry B. Gonzalez Convention Center, is ready to assist you with your shipping needs.

Shuttle Service

Attendees who reserved their hotel room through NCTM's official housing company will receive complimentary shuttle service from hotels in the NCTM housing block to the Henry B. Gonzalez Convention Center. Hotels that are within walking distance of the convention center will not have shuttle service. Note: There will be late night shuttle service Wednesday, April 5, to accommodate attendees of the Mathematics Education Trust Celebración Reception. Routes and schedules will be posted in your hotel lobby and can be found online at www.nctm.org/annualhousing. The schedule will be followed as closely as possible. If you have questions, please visit the shuttle desk located at the entrance to the Henry B. Gonzalez Convention Center.

Information Booth

There will be an NCTM Information Booth at the Henry B. Gonzalez Convention Center. It will be located outside of the NCTM Exhibit Hall 3/4 in the main lobby. Convention staff will be available to answer your questions.

Lost-and-Found

You may retrieve or turn in lost-and-found items at the NCTM Information Booth in the Convention Center. At the end of the conference, all lost-and-found items will be turned over to Convention Center Security.

Nursing Mother's Room

Please inquire at the NCTM Information Booth in the main lobby of the Convention Center.

Restaurant Reservations

Explore the fabulous restaurants of San Antonio. Stop by the City Information Desk located in the registration area of the Exhibit Hall at the Convention Center. The friendly staff will be available to offer recommendations and make reservations. They can also assist you with directions and local information, from transportation and historical sites to shopping and entertainment.

Bag and Coat Check Service

A bag and coat check service is available for you to store your belongings during conference hours for a nominal fee. During conference hours Wednesday–Saturday, you can check your items at the bag/coat check, located in the registration area of the NCTM Exhibit Hall 3/4 of the Convention Center. Please pick up all items each day by closing time; you may not leave items overnight.

First Aid

A first aid station will be staffed at the Convention Center in the NCTM Exhibit Hall 3/4 during the conference. If you need medical services while in San Antonio, please check with your hotel concierge for the closest medical facilities. For any medical emergency, call 911 without hesitation.

For Your Child's Safety

Because of the size and nature of the NCTM 2017 Annual Meeting & Exposition, this event is not an appropriate setting for children under 16 years of age. Your hotel concierge will be able to recommend activities available for children while you attend the conference. We appreciate your understanding and cooperation. Children 16 years and over will need to register as nonteaching guests. To register a nonteaching guest, stop by the Registration Area in the NCTM Exhibit Hall 3/4 at the Henry B. Gonzalez Convention Center.

Exhibit Hall Information

Exhibits

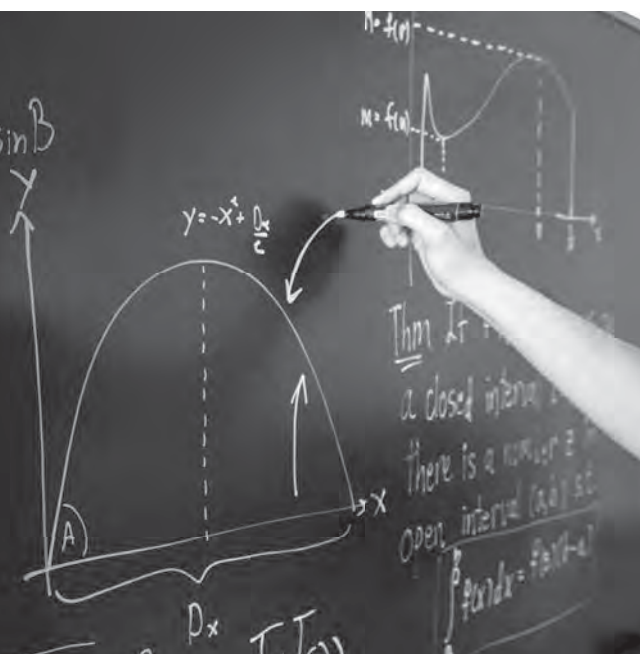
Make time to visit the NCTM Exhibit Hall. The hours allow ample opportunity to explore, try out, and purchase products and services for your classroom or to help you meet your career goals. You can also meet the people who produce these products, get fresh ideas, and see how products work. The hall will be open on Thursday from 8:00 a.m. to 5:00 p.m., Friday from 8:00 a.m. to 5:00 p.m., and Saturday from 8:00 a.m. to Noon. Check out the map of the Exhibit Hall on pages 210–211 and the Exhibitor Directory on pages 212–224.

Exhibitor Workshops

Do you want more in-depth and personal interaction with exhibitors? Plan to attend the Exhibitor Workshops. These workshops offer a wide variety of topics with exhibitors showcasing their products and services. See the program for Exhibitor Workshop offerings, indicated by **ew** after the presentation number. New this year—some of the workshops will take place in the NCTM Exhibitor Workshop Theater in the Exhibit Hall.

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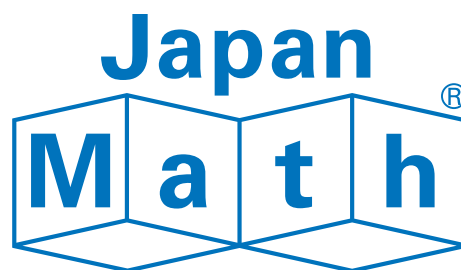
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AFFILIATE INFORMATION

Join an NCTM Affiliate Today!

Once you have joined NCTM, membership in an NCTM Affiliate is a terrific way to round out your professional involvement. Affiliates offer you an opportunity to link with teachers in your state, region, or city for support, professional development opportunities, community outreach, political advocacy, and information sharing. The host Affiliates for the NCTM 2017 Annual Meeting & Exposition and the Affiliates-at-Large are listed below. E-mail the Affiliate contact for membership information. NCTM has more than 200 Affiliates throughout the United States and Canada. For a list of all organizations affiliated with NCTM and information on how to join, please see the Affiliate Directory on the NCTM website at **www.nctm.org**.

Affiliate Information

Alamo District Council of Teachers of Mathematics and Texas Council of Teachers of Mathematics

Linda Gann, llgann8@gmail.com

Affiliates-at-Large

Adult Numeracy Network

Pam Meader, mdr151@aol.com

Association of Mathematics Teacher Educators

Megan Burton, megan.burton@auburn.edu

Association of State Supervisors of Mathematics

Charles Watson, chaswatson@sbcglobal.net

Benjamin Banneker Association, Inc.

Claude Stuart, stuaent@aol.com

Council for Technology in Mathematics Education

Stephanie Cooperman, scooperman@chatham-nj.org

Council of Presidential Awardees in Mathematics

Donald Scheuer, mathguy1@verizon.net

National Council of Supervisors of Mathematics

Sharon Rendon, rendosha@gmail.com

North American Study Group on Ethnomathematics

Tod Shockey, todshockey@gmail.com

TODOS: Mathematics for ALL

Bob McDonald, mac@todos-math.org

Women and Mathematics Education

Andria Disney, andriadisney@live.com

About the Host Affiliates

The **Alamo District Council of Teacher of Mathematics (ADCTM)** is an organization of mathematics teachers, supervisors, administrators, and students from San Antonio and surrounding areas. This organization provides opportunities for educators to advance their teaching of mathematics by providing professional growth opportunities, collaboration with other mathematics educators, and opportunities to contribute back to mathematics education. Building students' understanding of and confidence in mathematics is at the core of our mission. We believe that all students can learn mathematics through meaningful and cognitively engaging instruction.

The **Texas Council of Mathematics (TCTM)** is a professional organization that encourages an active interest in mathematics. TCTM publishes a journal called *Texas Mathematics Teacher*. Through *Texas Mathematics Teacher* and the annual Conference for the Advancement of Mathematics Teaching (CAMT), educators have the opportunity to study and increase their knowledge of effective teaching practices in mathematics. We are 5,000+ teachers, administrators, and teacher-educators from Texas who are committed to improving teaching and learning in mathematics. TCTM's mission is focused in five areas: recruit and retain mathematics teachers, support curriculum and instruction, advocate education policy, communicate with teachers and serve as the Texas partner affiliate to the National Council of Teachers of Mathematics (NCTM).

Henry B. Gonzalez Convention Center

OVERVIEW—CONVENTION CENTER LEVELS

Ballroom

Stars at Night Ballroom
HemisFair Ballroom
Meeting Rooms 301-305



Meeting Level

Meeting Rooms 205-225



Street Level

Exhibit Halls 1-4B
Bridge Hall
Lila Cockrell Theatre
Main Lobby/Business Center
West Lobby



River Level

Meeting Rooms 004-008
The LDR
Grotto

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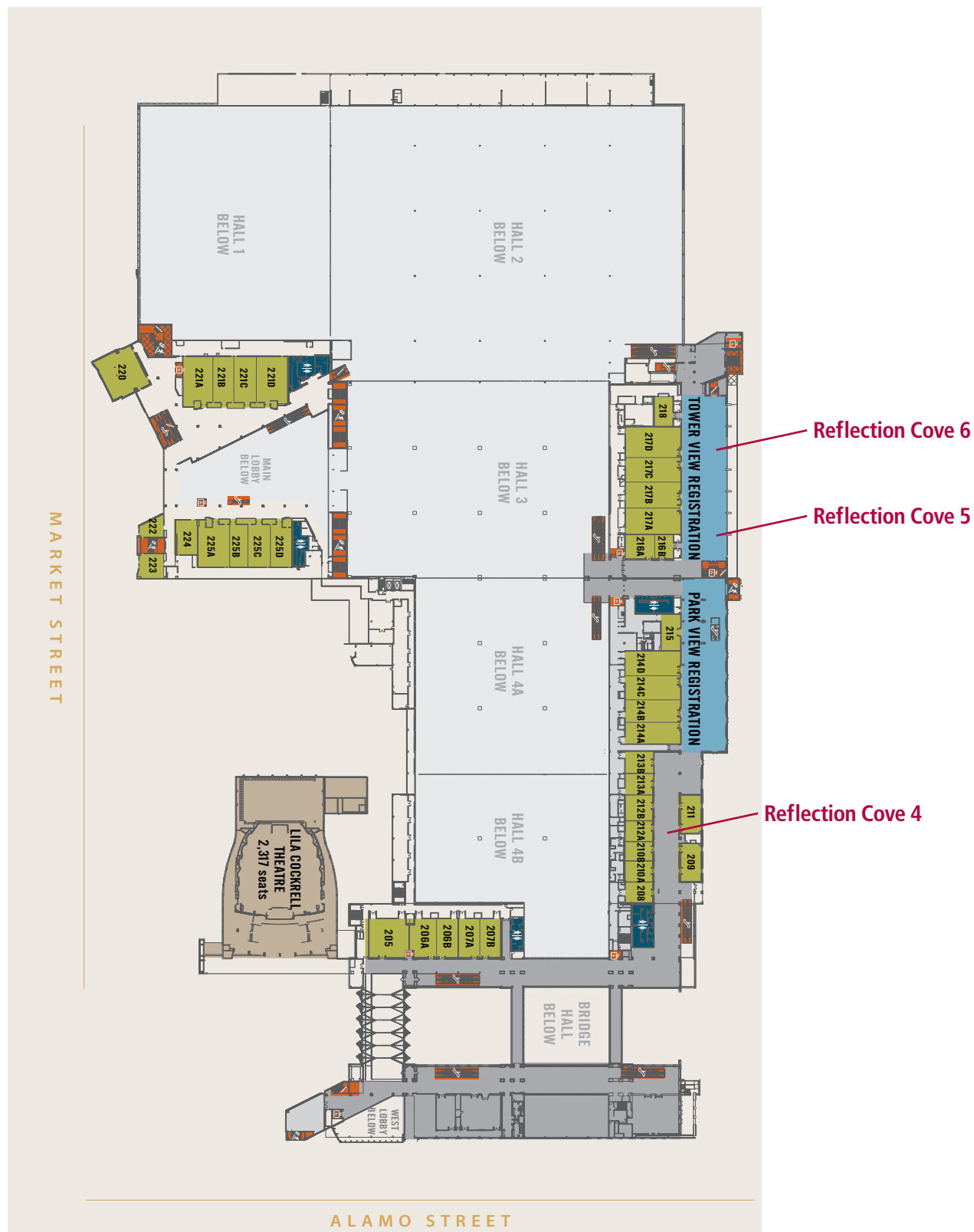


MARKET STREET

FLOOR PLANS

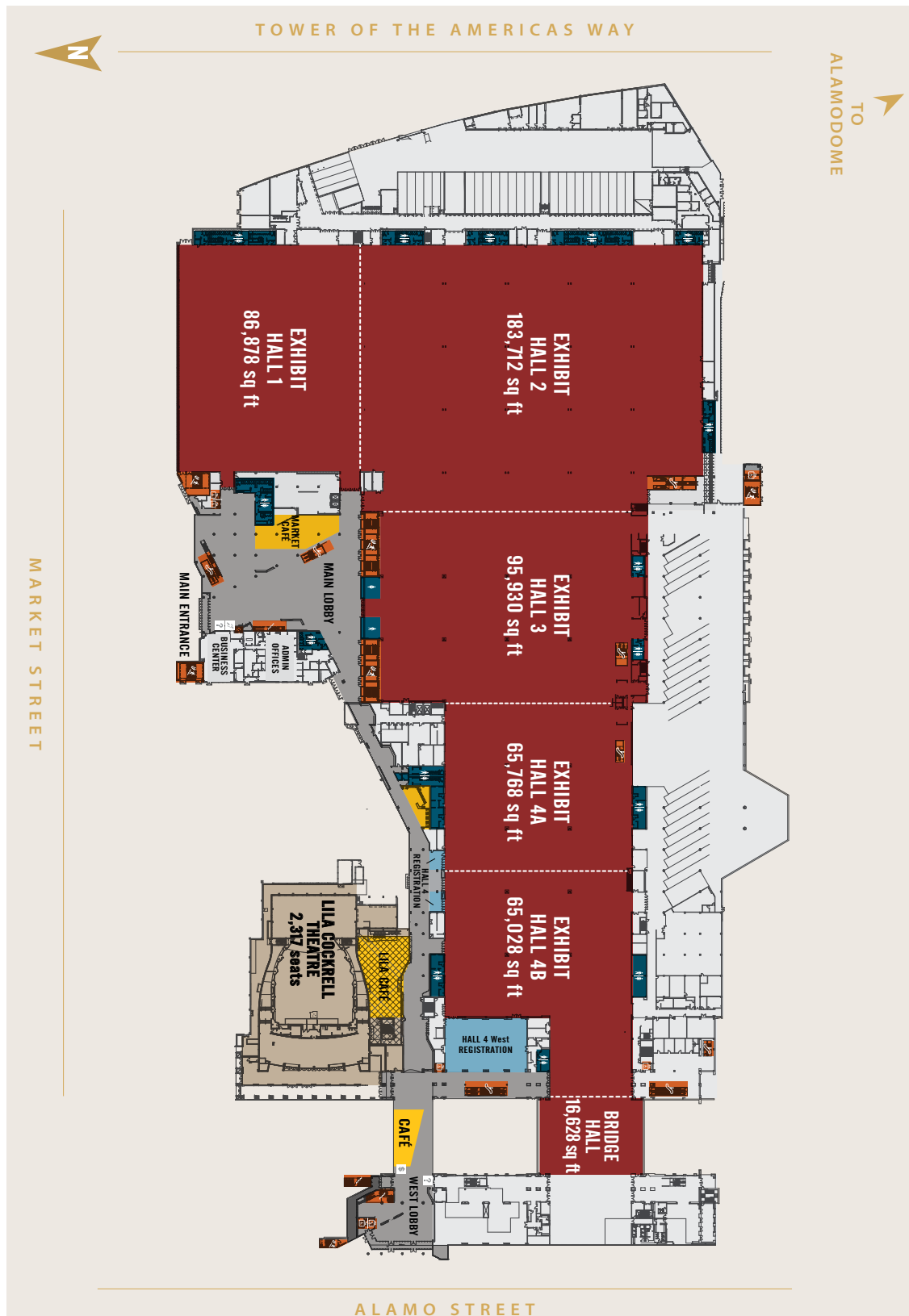
Henry B. Gonzalez Convention Center

MEETING ROOM LEVEL



Henry B. Gonzalez Convention Center

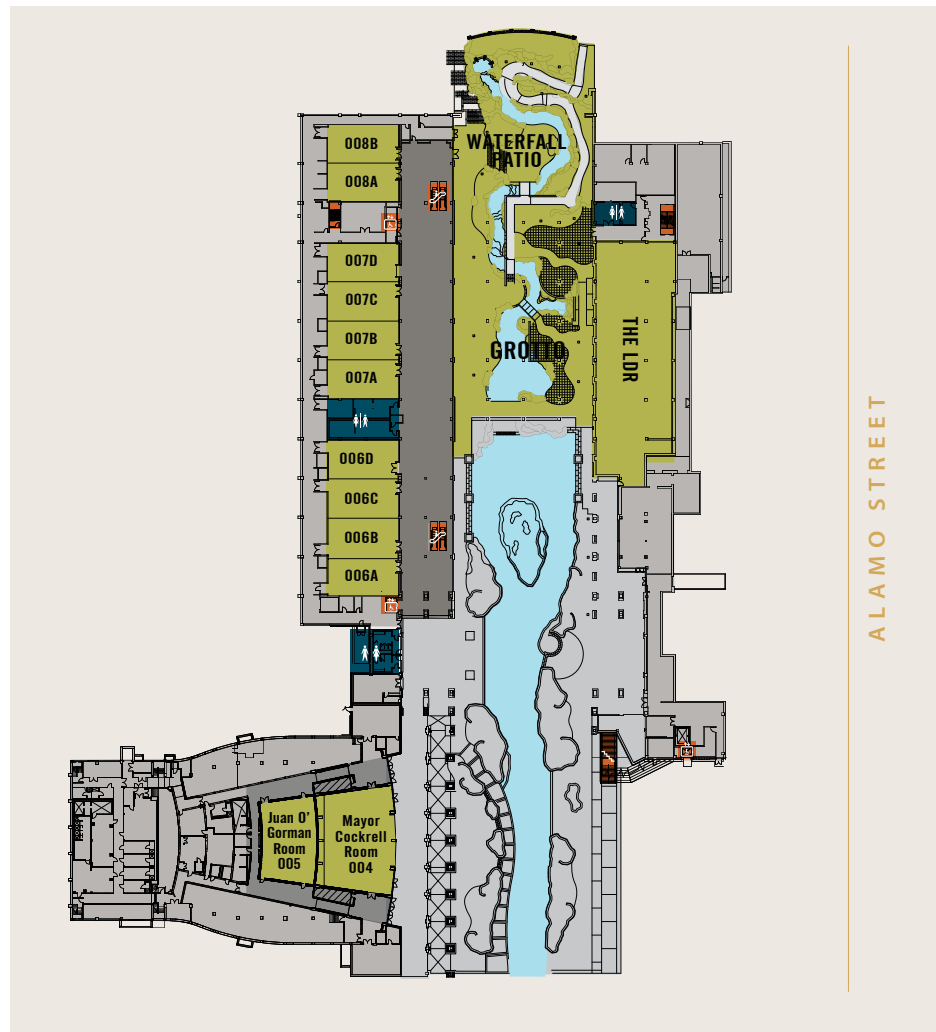
STREET LEVEL



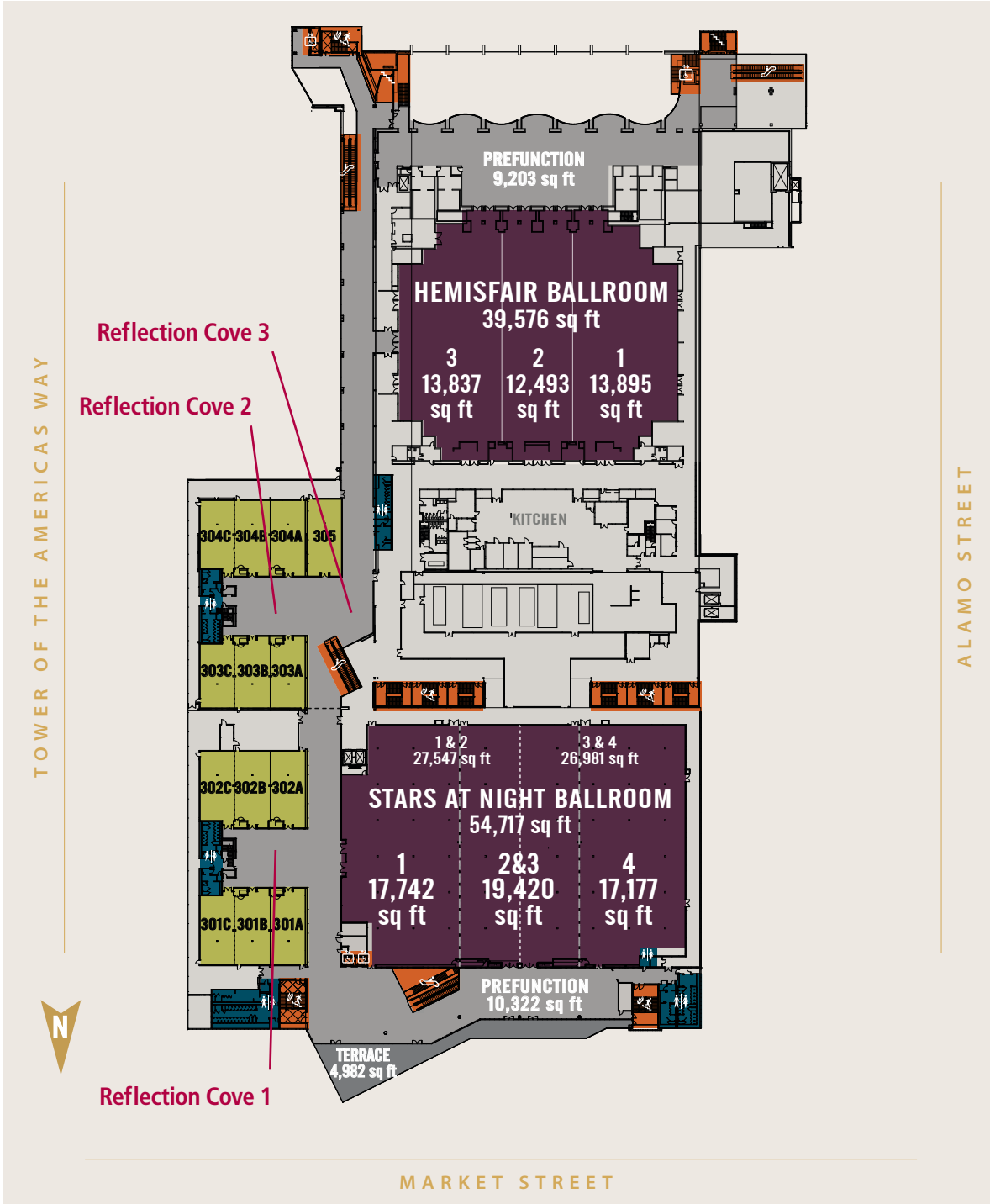
GENERAL INFORMATION

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RIVER LEVEL



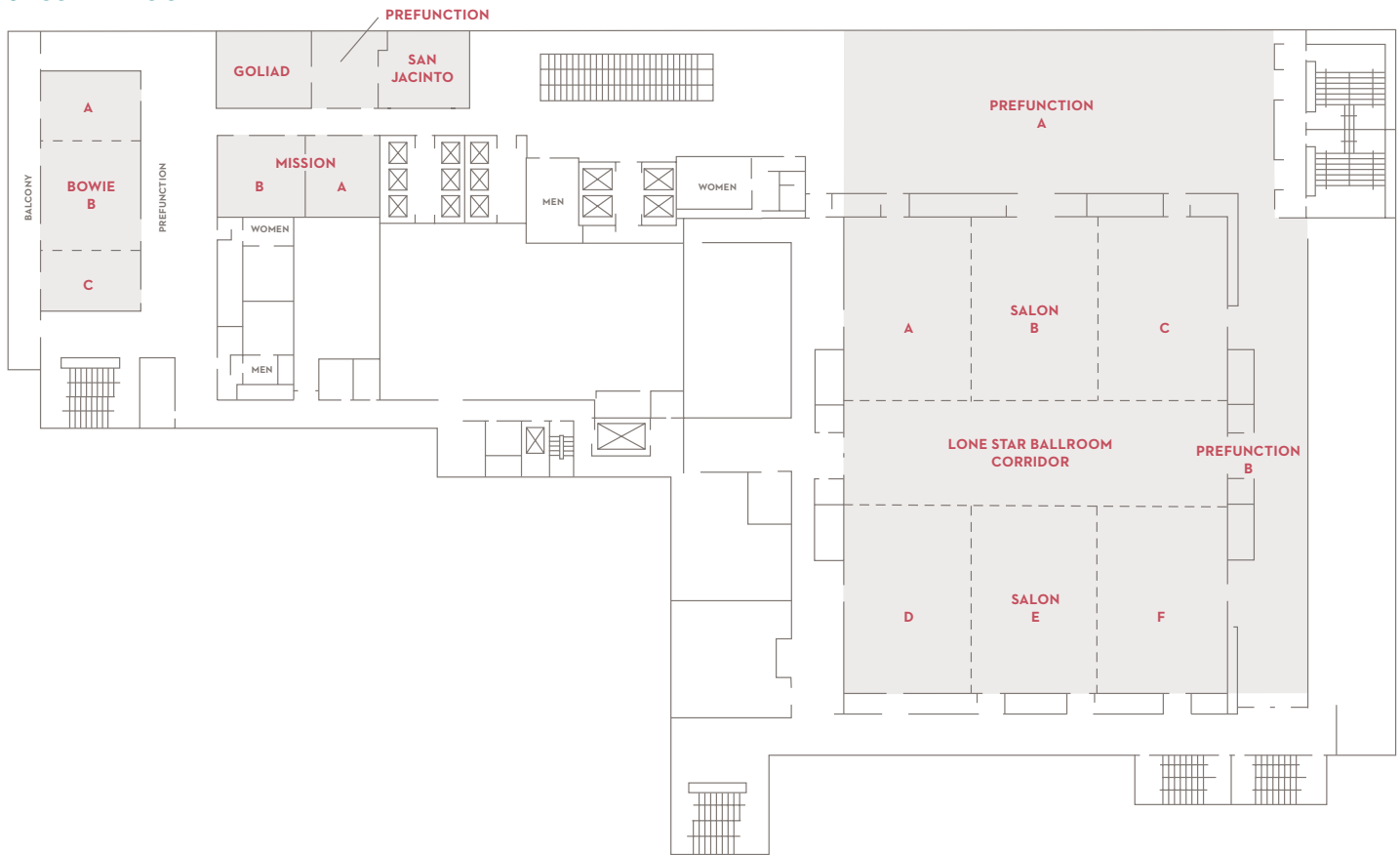
BALLROOM LEVEL



FLOOR PLANS

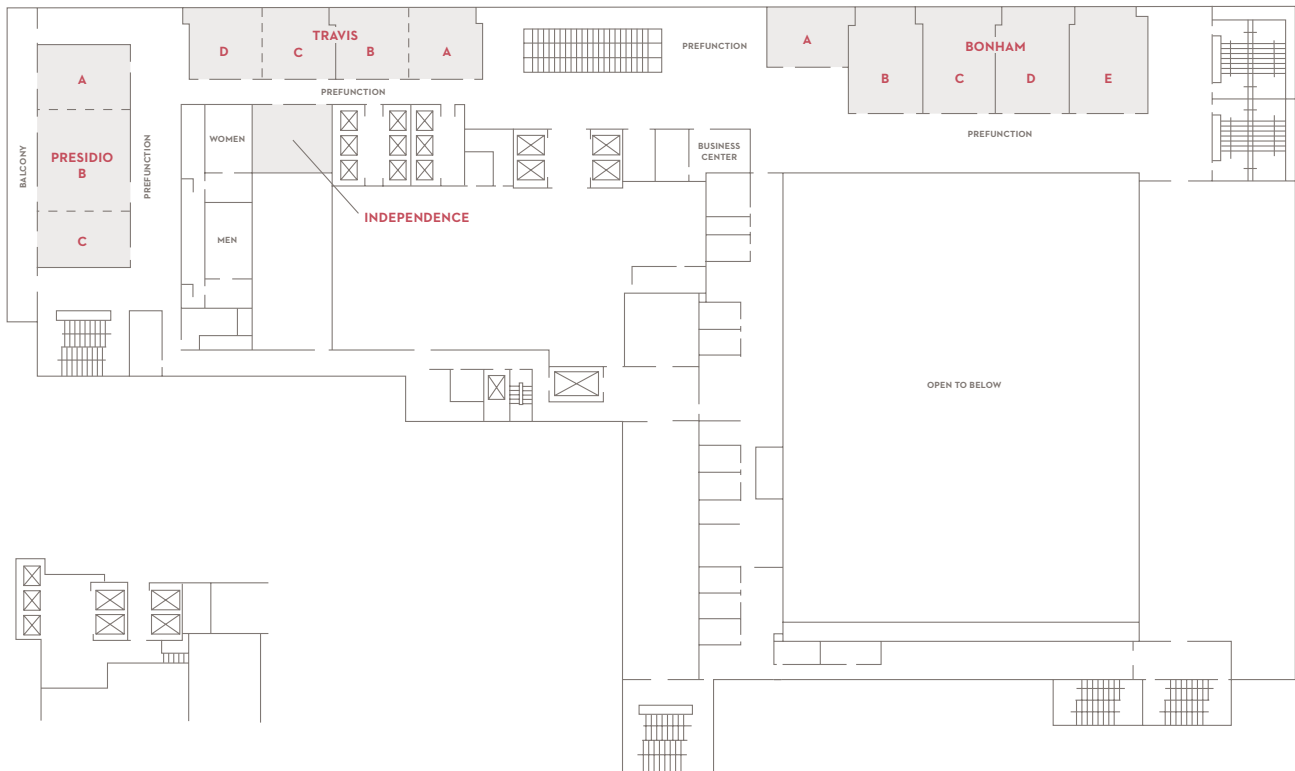
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SECOND FLOOR

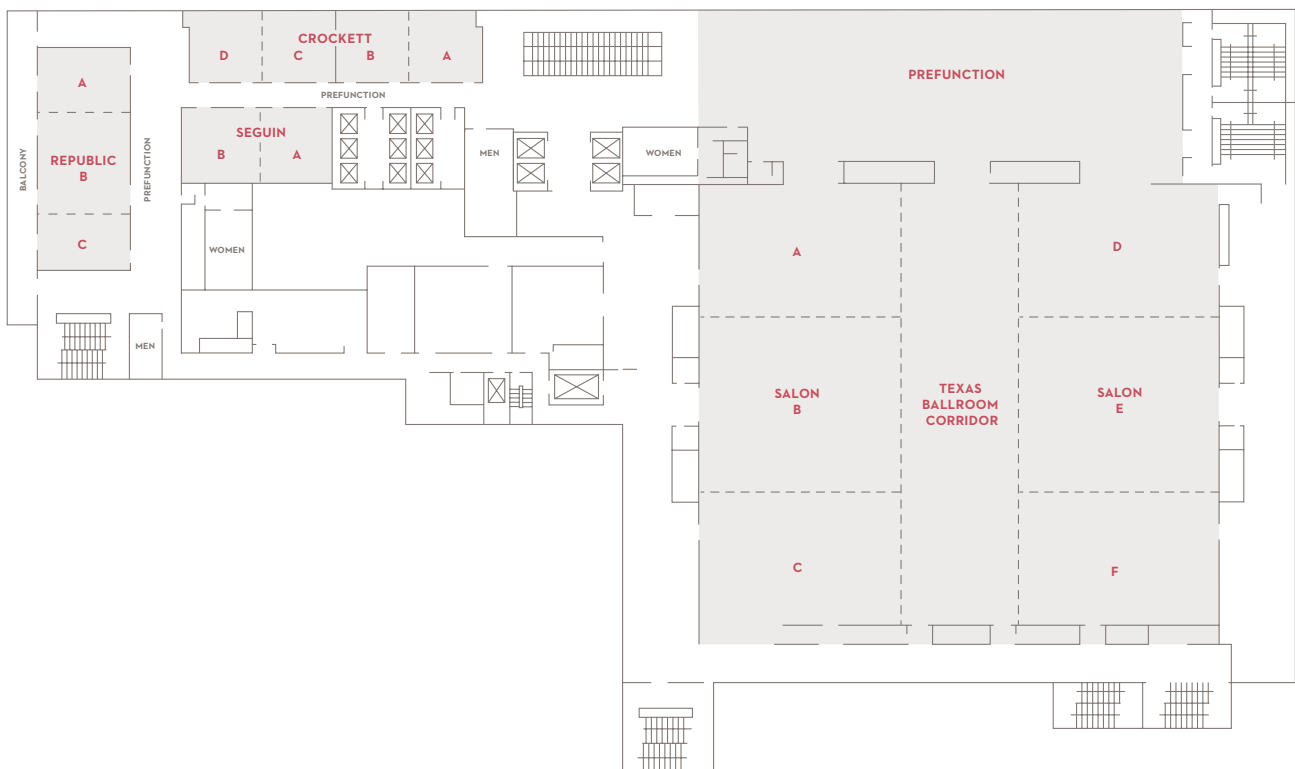


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THIRD FLOOR



FOURTH FLOOR



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The National Council of Teachers of Mathematics is the public voice of mathematics education, supporting teachers to ensure equitable mathematics learning of the highest quality for all students through vision, leadership, professional development, and research. With nearly 80,000 members and more than 200 Affiliates, NCTM is the world's largest organization dedicated to improving mathematics education in prekindergarten through grade 12. The Council's *Principles and Standards for School Mathematics* includes guidelines for excellence in mathematics education and issues a call for all students to engage in more challenging mathematics. NCTM is dedicated to ongoing dialogue and constructive discussion with all stakeholders about what is best for our nation's students.

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President, NCTM



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Description of Professional Development Activity: This is a four-day annual meeting sponsored by the National Council of Teachers of Mathematics. Over 700 presentations are offered for teachers of prekindergarten through college. Topics range from administration to geometry, precalculus to statistics.

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#-9

#MTBoS: Math Twitter Blogosphere Booth 644

Salem, Massachusetts
879-528-4673

ExploreMTBoS.wordpress.com

The MTBoS is an informal network of math teachers who have found community online through Twitter and blogs. We've built resources, curricula, websites, and have co-authored books. We also run workshops, problem-solving groups, and a weekly "department meeting" via webinar. We are passionate teachers who take pride in freely sharing our ideas. Come meet fellow teachers who use the Internet to grow professionally. Browse the resources we've made. Even start your own Twitter account or blog!

A

Algebra Readiness Educators, LLC Booth 536

Orange, Texas

AlgebraReadinessEducators.com

The Algebra Readiness Builder series is a supplement to any curriculum and will enhance students' base understanding of concepts and skills necessary for success on word problems, projects, and test preparation. Our books distribute practice over time allowing for deeper understanding of current and future mathematical concepts. Algebra Readiness Educators, LLC is a company owned and operated by full-time educators. Come by booth 536 for more information.

ALSAC/St. Jude Children's Research Hospital Booth 820

Memphis, Tennessee
901-578-2478
mathathon.org

The St. Jude Math-A-Thon® is a free, education-based fundraising program benefiting St. Jude Children's Research Hospital®. The program includes a free math curriculum supplement and sponsorship materials for K-grade 8. Families never receive a bill from St. Jude for treatment, travel, housing, and food—because all a family should worry about is helping their child live. Do the math, and help save lives with the St. Jude Math-A-Thon. Visit us at booth 820.

American Educational Products Booth 1042

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American Printing House for the Blind Booth 1317

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American Statistical Association Booth 827

Alexandria, Virginia
703-684-1221
amstat.org/education

The American Statistical Association (ASA) is a scientific and educational society that works to improve statistical education at all levels. The ASA offers outreach activities and free resources such as teacher professional development, student competitions, publications, webinars, student activities, and lesson plans tied to the statistics standards in the Common Core. Stop by the ASA booth to chat with statistics educators and learn about ASA's free K-12 statistics education resources.

Amplify Booth 434

Brooklyn, New York
amplify.com

Amplify is reimagining the way teachers teach and students learn. Our products and services lead the way in data-driven instruction, one-to-one mobile learning and next-generation digital curriculum and assessment. Amplify has provided innovative technology to the K-12 market for more than a decade.

Ascend Education Booth 544

Lake St. Louis, Missouri
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ascendmath.com

Ascend Math is intensive math intervention that: provides a unique study path for each student beginning at each student's functional grade level; delivers a unique study path through each student's individual skill gaps at every grade level; provides a unique study path for each student reaching below grade level and continuing through skill gaps at each level; and provides an individual study plan for each student reaching below grade level with a unique path through skill gaps at each level.

B

Bach Company Booth 812

Palo Alto, California
BachCompany.com

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Happauge, New York
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barronseduc.com

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Hamilton, New Jersey
866-843-3715
bfpwpub.com/highschool

Bedford, Freeman & Worth (BFW) Publishers is the most trusted source for innovative print and digital high school mathematics textbooks and teacher resources. We publish the best-selling book, *The Practice of Statistics*, now in its 5th edition, for AP Statistics and *Rogawski's Calculus for AP* for the AP Calculus course. Please stop by booth 1108 to receive more information on these programs.

Bedtime Math Foundation Booth 236

Summit, New Jersey
908-444-4522
bedtimemath.org

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

Benjamin Banneker Association, Inc. **Booth 650**

Orlando, FL
941-356-0726
bannekermath.org

The Benjamin Banneker Association is a national non-profit organization dedicated to mathematics education advocacy, establishing a presence for leadership, and professional development to support teachers in leveling the playing field for mathematics learning of the highest quality for African-American students.

Big Ideas Learning, LLC **Booth 525**

Erie, Pennsylvania
877-552-7766
bigideaslearning.com/

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Borenson and Associates, Inc. **Booth 1009**

Allentown, Pennsylvania
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borenson.com

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Box Cars & One-Eyed Jacks Inc **Booth 938**

Edmonton, Alberta, Canada
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boxcarsandoneeyedjacks.com

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C

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New York, New York
<https://canfigureit.com>

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Carnegie Learning **Booth 743**

Pittsburgh, Pennsylvania
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carnegielearning.com

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Casio America, Inc. **Booth 631**

Dover, New Jersey
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Catherine Fosnot & Associates: New Perspectives **Booth 1326**

New London, Connecticut
917-523-2175
NewPerspectivesOnLearning.com

New Perspectives on Learning offers on-site support for coaches and teachers in the form of in-class work, learning communities, and workshops. NewPerspectivesOnline.net offers an online platform for professional learning, K–6, taught by Cathy Fosnot and Maarten Dolk, specifically targeted to the Standards of Mathematical Practice using CFLM. Come to the booth for a preview. A new app is also available at the booth to assess and document learning using our Landscapes of Learning tools.

Catnip's Word Walls **Booth 229**

San Antonio, Texas
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catnipswordwalls.com

Our word walls were created by a teacher with students in mind. Everything is hand drawn and extremely colorful, which makes them unique and eye catching! Each page has the word, definition, and a graphic/example. They could be considered mini anchor charts. Our word walls are as comprehensive as possible, while adhering to our state and national standards (Common Core and TEKS). They are the perfect addition to any math classroom, and support instruction through correct vocabulary.

Center for Mathematics and Teaching, Inc. **Booth 811**

Sherman Oaks, California
310-310-4948
mathandteaching.org

Transition to the Common Core with the Center For Mathematics and Teaching. We provide engaging, student-centered programs for middle school students and professional development for teachers.

Claire Lynn Designs **Booth 232**

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972-723-2251
clairelynn.com

College Board, The **Booth 226**

New York, New York
212-713-8331
collegeboard.org

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education.

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ConsumerMath.org

Booth 1229

Bakersfield, California
661-865-8518

ConsumerMath.org

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CueThink

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Curriculum Associates

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Founded in 1969, Curriculum Associates, LLC designs research-based print and online instructional materials, screens and assessments, and data management tools. The company's products and outstanding customer service provide teachers and administrators with the resources necessary for teaching diverse student populations and fostering learning for all students. Learn more at www.curriculumassociates.com.

D

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Booth 943**

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**Eureka Math
Booth 731**

Washington, D.C.
202-223-1854
eureka-math.org

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

**Exemplars
Booth 537**

Underhill, Vermont
802-899-4409
exemplars.com

For more than 20 years, Exemplars has published math performance tasks for instruction and assessment. Our authentic material engages students and is differentiated at three levels. Our latest material, Problem Solving for the Common Core, features newly developed tasks and classroom tools to support the implementation of CCSSM. Planning sheets, rubrics, anchor papers, and assessment rationales are provided. The material supports and is aligned to the content standards and the Standards for Mathematical Practice.

**ExploreLearning
Booth 435**

Charlottesville, Virginia
866-882-4141
explorellearning.com

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

F**FACEing MATH
Booth 224**

Hemet, California
951-492-8341
FACEingMATH.com

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

**Family Math Night by Math Unity
Booth 443**

Rocklin, California
(916) 772 2788
familymathnight.com

Our focus at Math Unity is to build strong family-school partnerships through fun and engaging Family Math Night events. We do this through our ready-to-go Family Math Night kits. Each kit comes complete with everything needed to run a successful event and includes a nice balance of standards-based activities, projects, and games. Continuing the learning at home is also important so we also provide Take-Home kits filled with fun games. We make it easy to engage parents on an academic level!

**First In Math—Suntex International
Booth 233**

Easton, Pennsylvania
610-253-5255
firstinmath.com

FIRST IN MATH® ONLINE: Harnessing the power of digital gaming to BUILD MATH SKILLS. A 2015 "Best of Show" award winner at the International Society for Technology in Education (ISTE) conference, FIRST IN MATH® provides a rich, digital platform that helps students acquire, reinforce, and retain basic through advanced math skills. Used by more than 10 million students in the U.S., this standards-aligned program utilizes digital games proven to facilitate deep practice among students in K–grade 8.

**FluidMath / Fluidity Software, Inc.
Booth 825**

Somerville, Massachusetts
617-666-4442
fluiditysoftware.com

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San Antonio, Texas
800-777-3764
frog.com

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New Braunfels, TX
800-620-5011
gourmetlearning.com

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**GraphLock
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Coolidge, Arizona
520-705-0143
graphlock.com

GraphLock is an application that gives the full functionality of a scientific and graphing calculator. GraphLock is designed to be used in testing environments due to its unique Lock-down feature that disables all phone functions (calls, texts, notifications) and turns the user's phone solely into a calculator. GraphLock can also be used in non-lockdown mode where the user's phone will function normally. With GraphLock, users will never have to carry around a calculator again!

H**Houghton Mifflin Harcourt/
Heinemann**

Booth 1024
Austin, Texas
512-721-7161
hmhco.com

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

HP Inc.

Booth 1134
San Diego, California
619-677-8049
hp.com/hpprime

HP education technologies revolutionize the classroom with multirepresentational tools that spark student interest and empower educators. And with the launch of the HP Wireless Classroom Network, teachers can share data, conduct instant polls, create apps, and view student's calculator screens. Visit HP at booth 1134 to learn more about the HP Prime Full Color Touch Graphing Calculator with its new Wireless Connectivity Kit!

I**IXL Learning
Booth 225**

San Mateo, California
650-372-4321
IXL.com

IXL provides a standards-aligned immersive learning experience for all subjects in K–12. Come learn how IXL's carefully crafted content and direct instruction supports students as they build the foundational skills needed for success. With IXL Analytics, teachers have insights to help them drive gains in student performance and on high-stakes assessments.

J**Japan Math Corp
Booth 1137**

Chicago, Illinois
312-631-3750
japan-math.com

We are the U.S. subsidiary of a leading provider of learning materials in Japan, founded in 1933. For over 80 years we have been supporting the advancement of Japanese public education. Our mission is to provide quality education to children in all kinds of environments. Education fosters our children, and paves the way for our society's future. Here at Japan Math Corp., we provide high-quality education and learning materials for children to help them build a bright future.

K**Kagan Publishing & Professional
Development**

Booth 636
San Clemente, California
949-545-6374
kaganonline.com

Kagan's line of products are All About Engagement! Kagan works with educators to implement scientifically proven strategies that increase academic gains, create positive social relations, and foster a love for learning. Browse Kagan's booth stocked with books, SmartCards, software, learning games, and resources all designed to make learning come alive. Kagan is the #1 source for cooperative learning and active engagement products. Scientifically research based and extensively classroom tested.

**Kamico Instructional Media
Booth 1013**

Austin, Texas
254-947-7283
kamico.com

Touch the life of a child—impact the future of our country. KAMICO has been creating research-based educational materials for almost 30 years including English and Spanish assessments for K–12, hands-on games and activities, RTI materials, and on-line tools to track and analyze academic data, as well as to create instructional groups based on academic needs. KAMICO also provides professional development tailored to meet the individualized needs of districts, schools, and educators.

**Kendall Hunt Publishing Company
Booth 324**

Dubuque, Iowa
563-589-1075
kendallhunt.com/prek12

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

**Koyo Publishing
Booth 715**

Tualatin, Oregon
503-557-8100
koyopublishing.com

Koyo Publishing Inc.™ brings the best of Japan's elementary mathematics curriculum to North America. Our first offering is Sansu Math™, a series for grades 1–5. Created in collaboration between academics and publishers on both sides of the Pacific, Sansu Math™ grants English-speaking teachers and students access to a program with proven results.

EXHIBITOR DIRECTORY

L

Lakeshore Learning Materials

Booth 325

Carson, California
800-421-5354

lakeshorelearning.com

Lakeshore Learning Materials is one of the leading manufacturers of K–6 math resources—including in-depth teaching products focused on developing mathematical reasoning and problem-solving skills. We also offer hundreds of other items that support daily instruction and intervention strategies in the classroom and that help educators make math relevant to students.

LearnBop

Booth 238

New York, New York
866-912-8588

learnbop.com

LearnBop is a step-by-step automated tutoring system for K–12 mathematics. Unlike most math learning systems, where a wrong answer leads to students being prompted to drill more similar problems, LearnBop's system is interactive, guiding students to find the answer on their own by breaking the problem into smaller steps. Each step is tagged with a mathematical concept, providing teachers with in-depth data to personalize math instruction by identifying and closing each student's individual gaps.

Learning Wrap-Ups

Booth 1227

Layton, Utah
801-497-0050

learningwrapups.com

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

LearnZillion

Booth 719

Washington, D.C.
415-497-9886

learnzillion.com

LearnZillion provides school districts with a comprehensive solution that aligns formative assessment, professional development, and open curriculum so that teachers can successfully implement the new standards and better meet the needs of their students.

Lone Star Learning

Booth 333

Lubbock, Texas
806-281-1424

lonestarlearning.com

Lone Star Learning is a curriculum development company offering unique, easy-to-use visuals and interactive bulletin boards that give students the specific practice needed to achieve mastery in math, science, and language arts. Lone Star Learning is the proud winner of Learning Magazine's Teachers' Choice Award for three years running. We strive to increase student success while decreasing teacher effort with our innovative products! We hope to become an integral part of your classroom!

M

Mangahigh.com

Booth 625

London, United Kingdom
877-626-4244

mangahigh.com

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

Marshall Cavendish Education

Booth 809

Tarrytown, New York
914-332-8888

mceducation.us

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–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.

Math Books By Dan

Booth 839

Dallas, Texas
214-695-1778

Authors of Calculus & Differential Equations material are often so brilliant & knowledgeable in their field that they make incredible & unfounded assumptions about the readiness of their audience. We present a trilogy of books written using techniques acquired by a career of teaching grades 5–12: anticipatory sets, interactive applets, reinforcement schedules, repetition, real-world applications, pacing, concept spiraling, color coding, parallel concepts, illustrations, & copious use of visuals.

Math For America

Booth 1043

New York, New York
646-437-0904

MathForAmerica.org

At Math for America (MfA), we do everything we can to make teaching a viable, rewarding, and respected career choice for the best minds in science and mathematics. Our three fellowships bring together outstanding teachers to share knowledge, advance teaching skills, and define excellence itself. Learn more at MathForAmerica.org.

Math GPS, LLC

Booth 1324

Boerne, Texas
mathgps.org

Math GPS is a Texas-based company which produces math support materials for grades 2–Algebra I. For open ended problem solving, engaging activities, assessment questions, interventions, and support materials look no further. We are your map to success!

Math Solutions

Booth 1125

Sausalito, California
800-868-9092

mathsolutions.com

Math Solutions, founded by Marilyn Burns, has been transforming instruction for over 30 years by providing the highest quality professional learning, resources, and coaching to improve mathematics instruction and student proficiency. With partnerships across schools and districts nationwide, Math Solutions offers comprehensive professional learning to transform curriculum and instruction, while preparing students for the rigorous expectations of college and career.

Math Teachers' Circle Network

Booth 848

San Jose, California
408-350-2088

mathteacherscircle.org

Math Teachers' Circles are professional communities of K–12 mathematics teachers and mathematicians. Groups meet regularly to work on interesting mathematics problems, allowing teachers to enrich their knowledge and experience of math while building meaningful partnerships with other teachers and mathematicians. Founded in 2006, the Math Teachers' Circle Network is a project of the American Institute of Mathematics (AIM, www.aimath.org) in San Jose, California.



Math Teachers Press **Booth 908**

Minneapolis, Minnesota
800-852-2435
movingwithmath.com

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

Mathalicious **Booth 739**

Austin, Texas
530-420-5474
mathalicious.com

61 percent of middle schoolers would rather take out the garbage than do math homework. For them, math isn't just a chore . . . it's worse! But it doesn't have to be that way. Mathalicious offers engaging real-world lessons and projects aligned to Common Core State Standards for middle and high school. Lessons promote the CCSMP by providing opportunities for students to think critically and creatively, develop arguments, and critique the reasoning of others.

MATHCOUNTS Foundation **Booth 1236**

Alexandria, Virginia
703-299-9006
mathcounts.org

MATHCOUNTS provides fun and challenging programs for sixth-, seventh-, and eighth-grade students. Through three programs—the MATHCOUNTS Competition Series, the National Math Club, and the Math Video Challenge—we strive to foster talent, curiosity, and a love of math in all students. We also provide free resources to educators, such as the School Handbook, with 300 problems aligned to Common Core standards. There are many paths to success in math; stop by to learn how we can help your students discover theirs.

MathElf **Booth 445**

San Francisco, CA
216-318-3092
mathelf.com

MathElf offers a great iOS app that pairs students with tutors for a real-time tutoring experience. This is a great option for students looking for a bit of help as well as for teachers looking for additional income while helping dedicated students.

MathLine at Howbrite Solutions **Booth 533**

Cokato, Minnesota
320-286-2597
howbrite.com

MathLine is a blended learning strategy offering a multisensory tool for students and an interactive whiteboard tool for teachers to teach K–5 math. Common Core essentially focuses on deeper comprehension of targeted math concepts, which is precisely MathLine's greatest asset! MathLine will increase your teacher's confidence teaching math, as it is an easy-to-use support strategy. Come learn how you can achieve your Common Core objectives and raise your math scores.

Mathseeds **Booth 627**

New York, New York
917-338-4190
mathseeds.com

From the creators of Reading Eggs, Mathseeds teaches students in K–2 the core math and problem-solving skills needed to be successful at school with fun, highly interactive, and rewarding lessons. Mathseeds combines highly structured lessons with fun motivational elements that keep children engaged and keen to learn. Track your students progress against state standards and international numeracy standards. Reading Eggs is in 5,000 schools in the U.S. and 15,000 schools globally.

Mathspace **Booth 724**

New York, New York
718-510-2582
mathspace.co

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

McGraw-Hill Education **Booth 201**

Columbus, Ohio
614-430-4482
mheducation.com

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

Mentoring Minds **Booth 1037**

Tyler, Texas
800-585-5258
mentoringminds.com

Founded more than a decade ago, Mentoring Minds, the Critical Thinking for Life Company, develops affordable, effective learning tools that give students the skills to succeed, not just in the classroom, but in life. Experienced educators create K–12 print and online resources that integrate best practices for instruction, assessment, and learning for students across the nation. For more information about Mentoring Minds and its educational resources, call 800-585-5258 or visit mentoringminds.com.

Michigan State University **Booth 535**

East Lansing, Michigan
517-355-1708
prime.natsci.msu.edu/

The doctoral program in mathematics education is designed for those who show promise of becoming leaders in local, state, national, and international mathematics education communities. We prepare researchers and leaders to address critical mathematics education issues by developing analytical perspectives for research, engaging in reflective teaching, and deepening mathematical knowledge. Assistantships and fellowships are available!

MIND Research Institute **Booth 808**

Irvine, California
888-751-5443
mindresearch.org

MIND Research Institute is a neuroscience and education nonprofit that applies its distinctive visual approach to the development of math instructional software. MIND helps local schools create a blended learning environment to create a culture of critical thinkers for the next generation of STEM leaders. MIND's ST Math® programs reach 800,000 students and 31,000 teachers in 2,500 schools in 40 states. For more information, visit www.mindresearch.org.

Minitab Inc. **Booth 432**

State College, Pennsylvania
800-448-3555
minitab.com

Minitab® 17 is the leading software for statistics education worldwide, and it can be purchased via affordable semester rentals. Minitab is easy to use, with a comprehensive set of tools and powerful graphics capabilities that let you create stunning and informative graphs that bring data to life. Minitab integrates into curriculums seamlessly and affordably and is the package of choice at more than 4,000 colleges and universities. Visit www.minitab.com/academic.

N

Nasco

Booth 214

Fort Atkinson, Wisconsin
920-563-2446
eNasco.com

Nasco is proud to supply all the materials necessary for successful hands-on math programs. We have the latest mathematics teaching aids, supplies and equipment for elementary, middle school, and secondary math programs. Nasco has products that are aligned to today's rigorous standards and target STEM initiatives that engage 21st-century learning. We are skilled at creating cost-effective, customized kits to meet your classroom needs.

NASGEm: North American Study Group on Ethnomathematics

Booth 647

Estes Park, Colorado
970-371-0167

National Assessment of Educational Progress (NAEP)

Booth 1321

Washington, D.C.
202-842-3600

nationsreportcard.gov

The National Assessment of Educational Progress (NAEP) is the largest continuing and nationally representative assessment of what students across the United States know and can do. NAEP is administered by the National Center for Education Statistics within the U.S. Department of Education. The results are released as The Nation's Report Card.

National Council of Supervisors of Mathematics (NCSM)

Booth 645

Denver, Colorado
720-250-9582

mathedleadership.org

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

National Geographic Learning / Cengage Learning

Booth 543

Jacksonville, Florida
904-374-5588
ngl.cengage.com/

National Geographic Learning, a part of Cengage Learning, is a leading educational publisher of school, higher education, English Language Teaching, library and reference materials. At National Geographic Learning, we believe that an engaged and motivated learner will be a successful one, and we design our materials to motivate. We believe that learning can be exciting, inspiring, and transformational.

National Science Foundation

Booth 1336

Arlington, VA

NewPath Learning

Booth 538

Victor, New York
585-742-0164
newpathlearning.com

NewPath's curriculum mastery games, flip charts, interactive whiteboard software, and visual learning guides provide comprehensive coverage of the Common Core and current state standards for EC-Grade 12 math, science, ELA, and social studies. The company also offers an Online Learning Program with ready-to-use lessons and tools/templates to develop and deliver custom lessons.

NextLesson

Booth 332

San Francisco, California
415-968-9655
nextlesson.org

NextLesson connects learning to the real world. We offer 10,000 applied learning resources that engage K-12 students through topics they love, such as books, movies, sports, and technology, and apply skills and knowledge in real-world contexts. NextLesson resources are easy to use and adaptable for any classroom environment. They are designed by teachers and aligned to the Common Core and other state standards. Stop by to learn about our trial program!

O

Open Up Resources

Booth 1118

Menlo Park, California
347-967-6577
openupresources.org

Open Up Resources is a nonprofit developing the highest quality full-course curricula available to districts, provided for free to promote instructional equity. We partner with the country's foremost materials experts to develop superb curriculum and deliver essential implementation support, from professional development to printing. Our mission is to provide students and educators with equal access to rigorous, standards-aligned core programs.

Origo Education

Booth 209

Earth City, Missouri
314-475-3061
origoeducation.com

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

Overseas Placement Service for Educators

Booth 1234

Cedar Falls, Iowa
319-273-2083
uni.edu/placement/overseas

Offering services since 1976, the University of Northern Iowa Overseas Placement Service for Educators, a program of UNI Career Services, connects international K-12 schools with certified educators year-round. Services offered include the UNI Overseas Recruiting Fair, credential and referral services, and related publications. UNI is home to the original international fair for educators. Math teachers are in great demand! Stop by for a list of schools/countries participating!

P

Pear Deck

Booth 946

Iowa City, Iowa
peardeck.com

Founded by educators for educators, Pear Deck gives teachers and trainers superpowers to engage and assess every student in every row across all subjects in real-time. Pear Deck produces an interactive and community-focused classroom delivered through an innovative, real-time, Google-based app with unlimited storage. Import existing PDFs and Google Slides, start from scratch, or choose from a selection of pre-made sample decks. Start seeing 100% student engagement!

Pearson

Booth 725

Chandler, Arizona
480-316-0210
PearsonEd.com

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



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Perfection Learning **Booth 917**

Logan, Iowa
800-831-4190
perfectionlearning.com

For over 85 years, Perfection Learning has been a leader in reading, literature, and language arts programs. Our math programs feature Kinetic Books, cutting-edge digital math programs for high schools and higher education; preparation for the ACT and SAT; programs for Common Core standards practice; programs for English Language Learners; and more.

PhET Interactive Simulations **Booth 1035**

Boulder, Colorado
303-492-6963
phet.colorado.edu

The PhET Interactive Simulations Project has developed over 127 free simulations for teaching and learning science and math (<http://phet.colorado.edu>). Over the past year, our software development team pushed the boundaries of HTML5 to enable our new sims to run in any modern web browser, including on tablets such as the iPad. They emphasize the connections to real life, make the invisible visible (e.g. electrons), and include expert visual models.

Prodigy Math Game **Booth 942**

Burlington, Ontario, Canada
866-585-4655
prodigygame.com

Prodigy is a FREE, highly engaging math game that's used by over 3,000,000 students in North America. It's fully aligned to Common Core State Standards for grades 1–8 and automatically differentiates for each child. Educators can easily create formative assessments, track trouble spots, and view teacher/admin reports in real time.

Q **Qinghua-Sempco** **Booth 813**

Nashua, NH
603-889-1830
sempcoinc.com

SEMPCO, INC. has been working in curriculum development and product manufacturing for over 30 years. We create science and mathematics manipulative for schools and distributors throughout the country. Over the years, we have manufactured equipment and supplies for many different projects including major NSF (National Science Foundation) funded programs. We have also created a variety of custom and textbook specific curriculum kits as well as our own Investigations in Math Modules (IMM).

R **Reasoning Mind** **Booth 818**

Houston, Texas
832-255-2932
reasoningmind.org

Reasoning Mind is a nonprofit organization dedicated to helping provide a first-rate math education for every child. Come visit us and find out more about how our blended, adaptive learning programs and professional development opportunities can help your elementary students reach their academic potential.

Renaissance Learning **Booth 1114**

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

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

S **Sadlier** **Booth 1235**

New York, New York
800-221-5175
www.sadlier.com/school

Saltire Software **Booth 847**

Tigard, Oregon
503-968-6251 ext. 102
saltire.com

Saltire makes a line of math software for middle school through college level students. Products feature constraint based modeling with symbolics in an exploratory problem-solving environment. Our newest product, web-based Geometry Expressions, is a free subset of the main Geometry Expressions package.

Savannah College of Art and Design **Booth 239**

Savannah, Georgia
912-713-9583
scad.edu

Offering the most art and design degrees of any university in the U.S., with more than 100 programs of study across more than 40 majors and 70 minors, SCAD prepares talented students for thriving creative careers. The innovative SCAD curriculum is enhanced by cutting-edge technology and learning resources, as well as opportunities for internships, professional certifications and collaborative projects with industry partners — including BMW, Coca-Cola, Google, NASA and more.

Scholastic **Booth 709**

New York, New York
212-343-6969
scholastic.com

Scholastic is the world's largest publisher and distributor of children's books and is a leader in educational technology. The company creates quality books, print- and technology-based learning materials and programs, classroom magazines, multimedia, and other products that support teachers and help children learn both at school and at home.

Shmoop **Booth 845**

Tustin, California
shmoop.com

Shmoop wants to make you and your students' better lovers of literature, STEM, poetry, test prep, and life. With experience in thousands of classrooms and over 15 MM unique visitors arriving on our doorstep every month, Shmoop understands why students are fleeing boredom and looking for more from their learning materials and from life.

SIAM: Society for Industrial & Applied Mathematics **Booth 337**

Philadelphia, Pennsylvania
267-350-6383
siam.org

The mission of SIAM is to build cooperation between mathematics and the worlds of science and technology through our publications, research, and community. As part of this, we organize the Moody's Mega Math (M3) Challenge, an annual high school math modeling competition open to juniors and seniors across the country, which gives away \$150,000+ in scholarships to winning teams. M3 is an opportunity for students to take what they've learned in the classroom and apply it to a real-world problem.

Singapore Math Inc. **Booth 711**

Tualatin, Oregon
503-557-8100
SingaporeMath.com

Singapore Math Inc. is dedicated to bringing the highest quality educational resources to the U.S. and Canada. These resources include a range of selected core curricula and supplemental titles. We welcome you to come by booth 711 to peruse our Singapore Math® books and to learn more about the Singapore approach to teaching and learning mathematics.

Solution Tree**Booth 1309**

Bloomington, IN
800-733-6786
solution-tree.com

Solution Tree delivers comprehensive professional development to schools and districts around the world. Solution Tree has empowered K–12 educators to raise student achievement through a wide range of services and products including educator conferences, customized district solutions for long-term professional development, books, videos, and online courses. Last year, more than 25,000 educators attended Solution Tree events on professional learning communities, RTI, assessment, and other topics.

Stenhouse Publishers**Booth 1325**

Portland, Maine
800-988-9812
stenhouse.com

Stenhouse provides quality professional development resources by teachers, for teachers. Our goal is to offer educators a set of proven strategies from which they can choose and adapt what will work best for their students and in their own environment.

Stokes Publishing Company**Booth 335**

Sunnyvale, California
408-541-9145
stokespublishing.com

Daily drawings for a TeachTimer II using coupon in back of this NCTM Program book. Bargain-priced books . . . 50-80% off! Your source for CALC!, NUMERO, PolyPackPuzzles, TrigTrainer, Hall Pass Timer, MyChron student timers, SpeedScorer, and teacher resource materials all at conference discounted prices.

Student Achievement Partners**Booth 1112**

New York, New York
212-510-8533
achievethecore.org

Student Achievement Partners is a nonprofit organization with one purpose: to help all students and teachers see their hard work lead to greater student achievement. We are dedicated to providing educators with the necessary tools to ensure that all students are college and career ready. The content we provide is assembled by and for educators and is freely available to everyone to use, modify and share. Visit us at AchievetheCore.org!

SumBlox Group**Booth 642**

Paradise, Utah
435-512-5161
sumblox.com

SumBlox Group is the creator of the revolutionary math manipulative, SumBlox Building Blocks. This premiere STEM toy allows children to visualize the value of numbers through height, making elementary math concepts significantly easier to grasp and remember. The concept was developed in 2012 by B. David Skaggs while volunteer tutoring elementary mathematics. The company's mission is simply to improve early math education and inspire a love of mathematics in children everywhere.

T**Teacher Created Materials****Booth 208**

Huntington Beach, California
800-858-7339
tcmpub.com

Teacher Created Materials develops innovative and imaginative educational materials and services for students worldwide. Everything we do is created by teachers for teachers and students to make teaching more effective and learning more fun.

TenMarks/Amazon Education**Booth 742**

Cambridge, Massachusetts
856-723-1902
tenmarks.com

TenMarks, an Amazon company, provides a CODiE award-winning, web-based mathematics program designed for the new, rigorous math standards. Created to help teachers instruct, reinforce, differentiate, and engage math students, TenMarks is used by teachers in over 85 percent of school districts across the country. Designed by teachers for teachers, TenMarks knows that students achieve greater success when they're individually motivated and nurtured. To learn more, visit www.tenmarks.com.

TERC**Booth 746**

Cambridge, Massachusetts
617-873-9600
terc.edu

For over fifty years, TERC has been introducing millions of students throughout the United States to the exciting and rewarding worlds of math and science learning. Led by experienced, forward-thinking math and science professionals, TERC is an independent, research-based organization dedicated to engaging and inspiring all students through stimulating curricula and programs designed to develop the knowledge and skills they need to ask questions, solve problems, and expand their opportunities.

Texas Instruments**Booth 701**

Dallas, Texas
214-567-6409
education.ti.com

TI provides free classroom activities that enhance math, science, and STEM curricula; technology that encourages students to develop a deeper understanding of concepts; and professional development that maximizes your investment in TI technology. TI offers handhelds, software, apps for iPad®, and data collection technology, all designed to promote conceptual understanding, and formative assessment tools that gauge student progress. Visit education.ti.com.

The Actuarial Foundation/Be An Actuary**Booth 843**

Schaumburg, Illinois
847-706-3535
actuarialfoundation.org & beanactuary.org

The Actuarial Foundation supports mathematics achievement through an array of hands-on, real-world math resources. All of the lesson plans, materials, posters, online activities, and competitions are free! Go to www.actuarialfoundation.org. Be An Actuary "Actuary" is consistently one of the mostly highly rated career opportunities available for students who excel in math and business. There are limitless opportunities. See us also at www.beanactuary.org.

The MarkerBoard People**Booth 1133**

Lansing, Michigan
800-379-3727
dryerase.com

Discover our student dry-erase markerboards and response boards in class sets. Great for instant response and instant assessment. Unbeatable prices! Single- and double-sided available. Perfect for math, science, language arts, graphing, handwriting, and more. Long-lasting, nontoxic, ultra-low odor markers too!

The Math Learning Center**Booth 336**

Salem, Oregon
800-575-8130
mathlearningcenter.org

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

EXHIBITOR DIRECTORY

Think Through Math

Booth 532

Pittsburgh, Pennsylvania
215-776-3875

thinkthroughmath.com

Think Through Math (TTM), helps struggling students love math, allows gifted students to excel at math, and gives teachers the tools and data they need to help students succeed. TTM has become a critical part of the RTI, STEM, and 1-to-1 strategies of state education departments and thousands of districts and schools across the United States.

TODOS: Mathematics for ALL

Booth 648

Tempe, Arizona
480-515-5265

todos-math.org

The mission of TODOS: Mathematics for ALL is to advocate for equity and high-quality mathematics education for all students—in particular, Latina/o students. Our goals include advancing educators' knowledge and ability that leads to implementing an equitable, rigorous, and coherent mathematics program that incorporates the role language and culture play in teaching and learning mathematics and to develop and support educational leaders who continue to carry out the mission of TODOS.

U

US Census Bureau

Booth 912

Alexandria, Virginia
571-982-8722
census.gov

The Statistics in Schools (SIS) program of the U.S. Census Bureau provides data, tools, and activities that educators can incorporate into their lessons to help teach statistics concepts and data analysis skills to students. The activities and resources are segmented by subject (geography, history and social studies, mathematics and statistics, and sociology) and grade (from kindergarten through high school) so statistics education can be brought to any classroom.

US Math Recovery Council

Booth 1016

Apple Valley, Minnesota
952-683-1521
mathrecovery.org

Getting it right from the start, Math Recovery® Learning & Instructional Frameworks in Number identify and overcome core numeracy problems when young students struggle by intervening as early and quickly as possible. Our programs also help educators differentiate and stay on the cutting edge of learning. Add+VantageMR® includes assessments and instruction for classroom and small groups. Math Recovery® Intervention Specialist provides assessments and intensive intervention.

W

WeDu communications

Booth 1315

Mapo-gu, Seoul, South Korea
82231537460
wedu.co.kr

WeDu communications has been continually growing since 2003 to keep up with the rapidly changing educational environment by producing innovative contents. Having completed successful projects in a variety of areas, we have been recognized internationally, we will continue to grow as a company that constantly researches for more efficient, more pleasing ways to provide service for our customers.

WestEd

Booth 1142

San Francisco, California
415-615-3144
wested.org

With rigorous college- and career-readiness standards like the Common Core State Standards for Mathematics, developing mathematic content knowledge and academic literacy is more important than ever for both teachers and students. WestEd's curricula, books, and professional learning courses and workshops feature engaging, standards-based academic content, as well as instructional strategies that build academic literacy skills as an integral part of subject-matter learning.

Wiley

Booth 548

Hoboken, New Jersey
201-748-6762
wiley.com

Wiley is an independent, global publisher of print and electronic products. Wiley provides content and learning resources for courses from honors and AP high school curriculum through undergraduate and graduate textbooks and reference materials. Jossey-Bass offers materials to enhance K-12 teacher effectiveness, meet Common Core standards, support AP courses, and build student-centered leadership skills.

Wipebook Corporation

Booth 1237

Ottawa, ON
819-921-5690
wipebook.com

There are times when you have to get things wrong before you can get things right. So take chances, and make mistakes. Re-work, re-draw, and re-do with Wipebooks & Wipecharts. Question: Can you imagine a world where the rubber eraser or the delete button didn't exist? Neither can we, because fixing mistakes, and changing ideas is one of our deepest needs. It's time you tried our reusable whiteboard notebooks because you'll be wondering how you managed to survive without it!

Women in Mathematics Education

Booth: 649

Philadelphia, PA
267-992-1612
www.me-usa.org

The purpose of Women and Mathematics Education is to: encourage women and girls to study and to have active careers in the mathematical sciences; promote equal opportunity and the equal treatment of women and girls in the mathematical sciences; serve as a clearinghouse for ideas and resources in the area of women and mathematics; promote leadership among women and girls in the broad mathematics education community; and conduct research in the area of women and mathematics.

Woot Math

Booth 814

Boulder, CO
303-910-6163
wootmath.com

Woot Math provides free instructional resources to help students master rational numbers: fractions, ratios, decimals, and percents. Woot Math is a platform that enables teachers to leverage research-based content for classroom instruction and personalized learning: access an Interactive Problem Bank of thousands of hands-on problems; create Quizzes & Polls for real-time, classroom assessment; and use the award-winning Adaptive Practice proven to have a significant impacts on learning outcomes.

World Scientific Publishing

Booth 449

Hackensack, New Jersey
201-487-9655
worldscientific.com

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Wowzers, LLC

Booth 749

Cardiff, California
269-998-1152
wowzers.com

Wowzers is an engaging comprehensive online math program covering all core standards for grades K-8. The research-based program adapts to each learner and allows for an individualized path through the curriculum. Content is presented in multiple ways, and appeals to all learners (tactile, auditory and visual) Assessments mirror those found on high-stakes achievement tests and provide teachers and administrators with the information that they need to personalize learning for each student.



Networking Lounge Schedule—Author Presentations

| Thursday, 4/6 | | | Friday, 4/7 | | Saturday, 4/8 |
|-----------------------|-------|---|---|---|---------------|
| 9:00 a.m.–9:20 a.m. | Host | Chepina Rumsey | Erin Meikle | Sally Moomaw | |
| | Topic | Promoting Mathematical Argumentation (TCM) | Selecting and Sequencing Solution Strategies (TCM) | Early Addition: It Is in the Cards (TCM) | |
| 9:30 a.m.–9:50 a.m. | Host | Chepina Rumsey | Erin Meikle | Sally Moomaw | |
| | Topic | Promoting Mathematical Argumentation (TCM) | Selecting and Sequencing Solution Strategies (TCM) | Early Addition: It Is in the Cards (TCM) | |
| 10:00 a.m.–10:20 a.m. | Host | Sylvia Celedon-Pattichis and Nora Ramirez | Grace Kelemanik and Amy Lucenta | José Vilson | |
| | Topic | Beyond Good Teaching: Advancing Mathematics Education for ELLs | Routines for Reasoning | This Is Not A Test: A New Narrative on Race, Class, and Education | |
| 10:30 a.m.–10:50 a.m. | Host | Sylvia Celedon-Pattichis and Nora Ramirez | Mike Flynn | José Vilson | |
| | Topic | Beyond Good Teaching: Advancing Mathematics Education for ELLs | Beyond Answers | This Is Not A Test: A New Narrative on Race, Class, and Education | |
| 11:00 a.m.–11:20 a.m. | Host | Samuel Otten | Courtney Starling | Malke Rosenfeld | |
| | Topic | Making the Most of Going Over Homework (MTMS) | Attending to Precision with Secret Messages (MTMS) | Math on the Move: Engaging Students in Whole Body Learning | |
| 11:30 a.m.–11:50 a.m. | Host | Samuel Otten | Courtney Starling | Malke Rosenfeld | |
| | Topic | Making the Most of Going Over Homework (MTMS) | Attending to Precision with Secret Messages (MTMS) | Math on the Move: Engaging Students in Whole Body Learning | |
| 12:00 p.m.–12:20 p.m. | Host | Marta Civil | Marla A. Sole | | |
| | Topic | Access and Equity: Promoting High-Quality Mathematics in Grades 6–8 | Engaging Students In Survey Design and Data Collection (MT) | | |
| 12:30 p.m.–12:50 p.m. | Host | Marta Civil | Marla A. Sole | | |
| | Topic | Access and Equity: Promoting High-Quality Mathematics in Grades 6–8 | Engaging Students In Survey Design and Data Collection (MT) | | |
| 1:00 p.m.–1:20 p.m. | Host | Tracy Zager | Ed Nolan, Juli Dixon, Janet Andreasen, Erhan Selcuk Haciomeroglu, George Roy, and Farshid Safi | | |
| | Topic | Becoming the Math Teacher You Wish You'd Had | Making Sense of Mathematics for Teaching: Grades 6–8, High School | | |
| 1:30 p.m.–1:50 p.m. | Host | Max Ray-Riek | Juli Dixon, Ed Nolan, Thomasenia Adams, Guy Barnmoha, Lisa Brooks, Tashana Howse, and Jennifer Tobias | | |
| | Topic | Powerful Problem Solving | Making Sense of Mathematics for Teaching: Grades K–2, Grades 3–5 | | |
| 2:00 p.m.–2:20 p.m. | Host | Peg Smith | Kelly McGinn | | |
| | Topic | 5 Practices for Orchestrating Productive Mathematics Discussions | A Worked Example for Creating Worked Examples (MTMS) | | |
| 2:30 p.m.–2:50 p.m. | Host | Peg Smith | Kelly McGinn | | |
| | Topic | 5 Practices for Orchestrating Productive Mathematics Discussions | A Worked Example for Creating Worked Examples (MTMS) | | |
| 3:00 p.m.–3:20 p.m. | Host | Jennifer Bay-Williams | Gina Kilday | | |
| | Topic | Order of Operations: The Myth and the Math (TCM) | Calendar Routines K–2 | | |
| 3:30 p.m.–3:50 p.m. | Host | Jennifer Bay-Williams | Gina Kilday | | |
| | Topic | Order of Operations: The Myth and the Math (TCM) | Routines to Develop Number Concepts for Grades 2–4 | | |
| 4:00 p.m.–4:20 p.m. | Host | Sue O'Connell | Craig Cullen | | |
| | Topic | Math in Practice | A Pleasure to Measure: Tasks for Teaching Measurement in Elementary Grades | | |
| 4:30 p.m.–4:50 p.m. | Host | Cathy Fosnot | Craig Cullen | | |
| | Topic | Conferring with Young Mathematicians at Work | A Pleasure to Measure: Tasks for Teaching Measurement in Elementary Grades | | |

NETWORKING LOUNGE SCHEDULE

Networking Lounge Schedule—Presentations

| | | | Wednesday, 4/5 | Thursday, 4/6 |
|-----------------------|-------|--|--|---|
| 9:00 a.m.–9:20 a.m. | Host | | | Ethan Weker |
| | Topic | | | Math Debates |
| 9:30 a.m.–9:50 a.m. | Host | | | Ethan Weker |
| | Topic | | | Math Debates |
| 10:00 a.m.–10:20 a.m. | Host | | | Ron Lancaster |
| | Topic | | | Mathematical Lens (MT Department) |
| 10:30 a.m.–10:50 a.m. | Host | | | Ron Lancaster |
| | Topic | | | Mathematical Lens (MT Department) |
| 11:00 a.m.–11:20 a.m. | Host | | | Gina Kilday |
| | Topic | | | Using Children's Literature to Explore Math K–2 |
| 11:30 a.m.–11:50 a.m. | Host | | | Gina Kilday |
| | Topic | | | Using Children's Literature to Explore Math 3–5 |
| 12:00 p.m.–12:20 p.m. | Host | | | Steve Leinwand |
| | Topic | | | Breathing Classroom Life into the Eight NCTM Teaching Practices |
| 12:30 p.m.–12:50 p.m. | Host | Facilitators: Kim Webb & Stephanie Verner | Andrew Stadel | Christine Newell |
| | Topic | | Activity: Estimation 180 | Number Talks |
| 1:00 p.m.–1:20 p.m. | Host | | Graham Fletcher | NCTM's Classroom Resources Committee |
| | Topic | | Activity: Three-Act Math Tasks | Practicing Math Games from NCTM's Activities with Rigor and Coherence |
| 1:30 p.m.–1:50 p.m. | Host | | Stephanie Verner and Kim Webb | NCTM's Classroom Resources Committee |
| | Topic | | Activity: Notice Wonder Wall | Practicing Math Games from NCTM's Activities with Rigor and Coherence |
| 2:00 p.m.–2:20 p.m. | Host | | Regina Payne | Grace Kelemanik and Amy Lucenta |
| | Topic | | Activity: Numberless Word Problems | Instructional Routines |
| 2:30 p.m.–2:50 p.m. | Host | | Javier Garcia, Christine Roberts, Stephanie Verner, and Kim Webb | Grace Kelemanik and Amy Lucenta |
| | Topic | | Activity: Notice Wonder Wall | Instructional Routines |
| 3:00 p.m.–3:20 p.m. | Host | Facilitators: Javier Garcia & Christine Roberts | Scott Steketee | Francis (Skip) Fennell, Beth Kobett, and Jon Wray |
| | Topic | | Activity: Function Dances | Formative Assessment |
| 3:30 p.m.–3:50 p.m. | Host | | Chris Hunter and Christopher Danielson | Tim Erickson |
| | Topic | | Activity: Which One Doesn't Belong? | Modeling |
| 4:00 p.m.–4:20 p.m. | Host | | Daniel Luevanos | Linda Gojak |
| | Topic | | Activity: Clothesline Math | Beyond Drill and Practice |
| 4:30 p.m.–4:50 p.m. | Host | | Malke Rosenfeld | Tinashe Blanchet |
| | Topic | | Activity: Math in Your Feet | Using Technology in the Math Classroom |

NETWORKING LOUNGE SCHEDULE

| Friday, 4/7 | Saturday, 4/8 |
|---|---|
| Sadie Estrella | David Wees |
| Counting Circles | Practicing Instructional Routines |
| Annie Fetter | David Wees |
| Twitter 101 | Practicing Instructional Routines |
| Elham Kazemi | NCTM's Classroom Resources Committee |
| Intentional Talk | Practicing Math Games from NCTM's Activities with Rigor and Coherence |
| Richard Sgroi and Rob Gerver | NCTM's Classroom Resources Committee |
| Financial Algebra: Problem Solving through Problem Posing | Practicing Math Games from NCTM's Activities with Rigor and Coherence |
| Fern Tribbey | Emmanuel Schanzer |
| NCTM's Mathematics Education Trust Provides Grants and Scholarships | Bootstrap |
| Annie Fetter | Emmanuel Schanzer |
| Twitter Chats 101 | Bootstrap |
| Annie Fetter | |
| Twitter Chats 101 | |
| Kevin Dykema | |
| Specials of the Day: Increasing Dialogue in the Math Classroom | |
| Kevin Dykema | |
| Specials of the Day: Increasing Dialogue in the Math Classroom | |
| Suzanne Alejandre | |
| Ask the NCTM Community #askT2T | |
| Christopher Danielson | |
| Which One Doesn't Belong? | |
| Malke Rosenfeld | |
| Math in Your Feet™ | |
| David Wees | |
| Practicing Formative Assessment Strategies | |
| David Wees | |
| Practicing Formative Assessment Strategies | |
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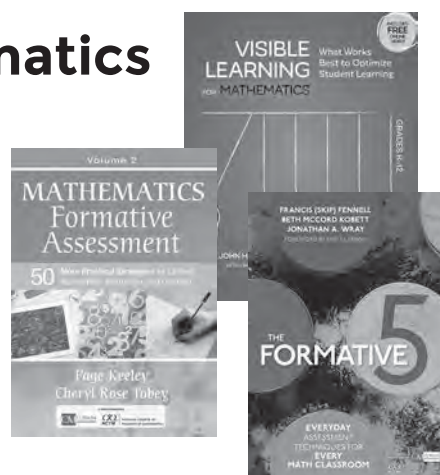
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Win Prizes—Visit All the NCTM Affiliate Booths

Learn about your Affiliates and have each one check off their name on the reverse of this card after your visit. Bring your completed card to NCTM Member Services, in NCTM Central, and enter the daily drawing. You do not need to be present to win.

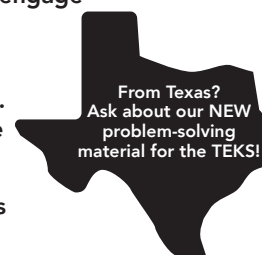
- **Drawing 1: Prize package** filled with goodies from our organizations
- **Drawing 2: A \$200 NCTM gift certificate**
- **Drawing 3: Registration** to an NCTM Interactive Institute (Baltimore, July 17-19 or July 20-22), one of the 2017 NCTM Regional Conferences (Orlando, Oct. 18-20 or Chicago, Nov. 29-Dec. 1), the 2017 Innov8 Conference (Las Vegas, Nov. 15-17), or the 2018 Annual Meeting (Washington, DC, April 25-28)



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Have each NCTM organization visited check here.

- ☐ Benjamin Banneker Associates, booth #650
- ☐ National Council of Supervisors of Mathematics, booth #645
- ☐ North American Study Group on Ethnomathematics, booth #647
- ☐ TODOS: Mathematics for ALL, booth #648
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- ☐ NCTM Member Services in NCTM Central

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Booth #537

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Attend our sessions!

Henry B. Gonzalez Convention Center

Thursday 4/6

8:00 - 9:15 AM

ROOM 224

Early Beginnings: Creating Mathematical Thinkers

Jessica Bobo

12:30 - 1:00 PM

ROOM 004

Fraction (or Fractured?) Understanding

Debi DePaul

Friday 4/7

8:00 - 9:15 AM

ROOM 224

Just Give Me the Facts—But with Understanding
Rather than Gimmicks!

James Burnett

Saturday 4/8

9:45 - 11:00 AM

ROOM 302AB

“What Makes You Say That?” Questioning That Promotes Thinking

Rob Nickerson

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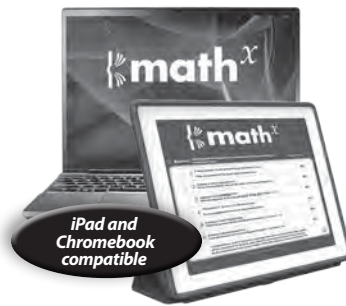
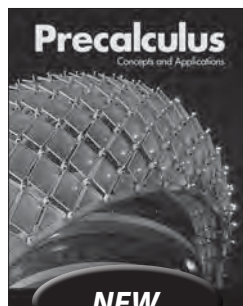
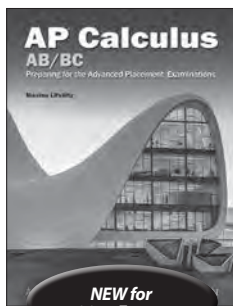
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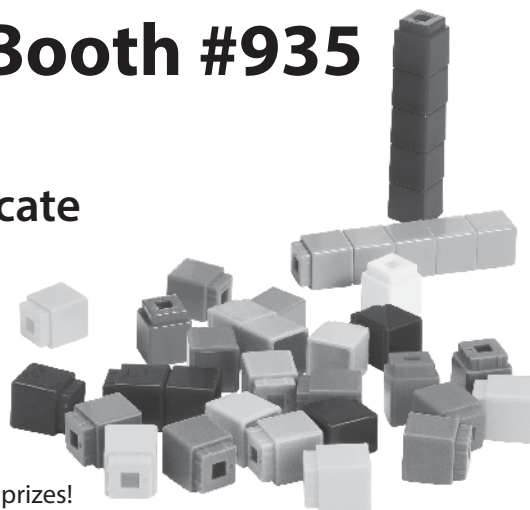


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THURSDAY, APR. 6, 2-3 P.M.

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